

ARGUMENT IN CHIEF

Prepared for: NEB Reconsideration Hearing Trans Mountain
Pipeline Expansion Project (TMX)

Hearing Order MH-052-2018 Board File OF-Fac-Oil-T260-2013-03 59

Prepared by: The Board
of Friends of Ecological
Reserves



January - 2019

Front Cover Images from Top Left:

Bulk carrier passing by Race Rocks Ecological Reserve.

High emulsification of dilbit increases volume by 50%. This increase creates effective oil waste management difficulties as shown with this temporary onshore storage

Image of Dilbit tanker and escort tug passing Oak Bay Island Ecological Reserve

High winds speeds on the west prevent spill response actions 40% of the year.

You can fool all the people some of the time and some of the people all the time, but you cannot fool all the people all the time.
– Attributed to Abraham Lincoln

Fool me once, shame on you, fool me twice shame on me – Proverb

Correct citation

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EXECUTIVE SUMMARY

The National Energy Board (NEB) placed no new permit conditions on the Trans Mountain Expansion Project (TMX) and proposed downgrading of the existing permit condition 131 to a recommendation (a non binding discretionary activity). NEB proposed that TMX permit condition 133 be strengthened with a new obligation on TMX to provide escort tugs to accompany Aframax tankers as far as Juliet Buoy at the western entrance the Strait of Juan De Fuca instead of the tug escort ending at Race Rocks as is the current practice. The Friends of Ecological Reserves (FER) supports adding tug escort to J-Buoy and understands this means these will need to be larger sea going tugs deployed. This is a significant improvement which will help mitigate the risk of tanker groundings and a dilbit spill in the rough waters of the western entrance of the Strait of Juan De Fuca. The Board of FER suggests additional permit conditions are warranted and outline these below.

We recommend to the NEB that Permit condition 131, which is a public outreach program focused on marine safety and tankers, be amended to become a public outreach program extending information on what the public should do and know in the event of a dilbit spill as dilbit is a toxic substance and a hazard to human health. By the NEB's definition "*The purpose of conditions is to mitigate potential risks and effects associated with a project so that the project can be designed, constructed, operated, and abandoned in a safe manner that protects the public and the environment*".

A public pre-spill outreach program is a modest recommendation in our view, and a necessary condition that NEB needs to include in the TMX permit conditions as there are no such conditions now. The need for the re-emphasis of condition 131 is grounded in the principle that risk bringers (TMX) have an obligation to help manage the risks they bring and that TMX can treat this as a cost of doing business.

FER recommends that NEB refocus permit condition 131 to be retained and that an extension continue this year and all subsequent years that the project is shipping, with wording such as;

"at least 3 months prior to commencing operations,

A summary of Trans Mountain's consultation with Health Canada regarding a public outreach program on what to do in the event of a dilbit spill, and

Undertake a public outreach program to mitigate risk to public health, including:

- i) the resources and information that Trans Mountain will provide or will present annually at public awareness forums, to clarify what to do and what not to do when there is a spill of toxic substance such as dilbit;***
- ii) the schedules of activities or presentations/workshops with fishing industry organizations, commercial and recreational vessel operators, marinas, Aboriginal groups, Municipal councils and first responders forums, schools and universities affected by a dilbit spill.***
- iii) any issues or concerns raised by Health Canada, Worksafe BC, Municipalities and how Trans Mountain has or will address these."***

The Board of FER seeks through these hearings, an end result that shifts shipping lanes away from the Victoria waterfront to better mitigate risk to human health and mitigate tanker spill risks to

EXECUTIVE SUMMARY

Race Rocks, Trial Island and Oak Bay Islands Ecological Reserves. A more offshore shipping lane increases the time available to assist floundering tankers and prevent a grounding and increases the time available to deploy for an open ocean spill. Groundings are more likely to occur with the current nearshore tanker route to Brotchie Ledge pilot drop off area, near Ogden Point Coast Guard pilot boat anchorage. Three course changes are now needed for all shipping and this may increase the risk of collisions over more direct shipping lanes south of Constance Bank but still within Canadian waters. The NEB is aware of this important mitigation option available to Transport Canada (TC), but NEB mentions only lateral shifts in current shipping lanes within the context of a noise mitigation strategy in the Strait of Juan De Fuca and Haro Straits for Southern Resident Killer Whales. We recommend NEB add to their recommendation 7 to Governor in Council (GIC), the following wording: **“movement of shipping lanes further offshore along the Victoria water front to south of Constance Bank”**.

This request fits with the Ocean Protection Plan (OPP) with goals stated as *“an initiative to prevent incidents and accidents, while enabling rapid science-based response actions in the event of a spill”* TC has indicated a willingness to look at this but has not made a commitment on timelines hence the request to NEB to make GIC aware of this mitigation option to reduce spill risk and improve human health.

We seek from the NEB, inclusion of TMX permit condition(s) that establish a financial obligation for TMX. A TMX permit condition to support long-term research and monitoring to improve marine research and baseline environmental monitoring over the life of the TMX project. We reason that such a long-term commitment is necessary to understand how to manage dilbit risk and ecosystem restoration prior to a dilbit spill. TMX and the oil exporters who use the pipeline, bring risk over the life of their project, so it is reasonable that the oil exporting industry remains involved with research to understand how to improve mitigation of their product. A long-term obligation to fund environmental research, improvements in spill modelling, toxicity, monitoring and recovery/restoration options is a legitimate business expense and this must be a new permit condition.

We seek from the NEB, a TMX permit condition that establishes a formal and multi-stakeholder collaboration forum for long-term research and monitoring of marine ecosystems linked to dilbit and spill recovery along the lines of the Habitat Conservation Fund Foundation (HCTF).⁴ A Marine Conservation Trust Foundation (MCTF) should be included for the duration of the TMX project as a permit condition managed by a multi-stakeholder oversight board with representation from Federal, Provincial, State Agencies, First Nation governments, TMX and the ENGO community. The forum would have no single agency controlling the research and monitoring agenda, with no discretion to withhold or vet findings. This forum would encompass research priorities that are mutually agreed on between stakeholders, and where marine projects are proposal-driven, evaluated and awarded against known strategic research and monitoring priorities. The scope of such a program would be scaled similarly to HCTF with a \$10 million/year budget. This is the same size as the Exxon Valdez Oil Spill Trust Council and their annual \$10 million/year US budget which is still monitoring and restoring Prince William Sound 30 years after the oil spill. We provide a possible governance structure diagram.

⁴ <https://hctf.ca/> Funded by a surcharge on hunting and fishing licenses. Allocates funding to fish and wildlife project province wide. HCTF manages \$10 million/year program.

These reconsideration hearings have re-enforced the need for such long-term research and monitoring and an environmental forum with a reasonable degree of independence from government and industry. This proposed forum is also consistent with three of the 4 pillars cited by the Federal Agencies in the Oceans Protection Plan (OPP) namely; Pillar 2: Preservation and Restoration of Marine Ecosystems-Habitats, Pillar 3: Strengthening partnerships and launching co-management practices with Indigenous communities, and Pillar 4: Investing in oil spill research and spill response methods. The formal standing multi-stakeholder forum that FER seeks would be complementary to and not in competition with the Federal Agencies projects, and focused on dilbit recovery in the marine environment. It does place a burden on TMX which is legitimate, as the risk bringers need to contribute to research on understanding how to manage the risk they bring. Research and monitoring should not be entirely born by the Federal Agencies and Canadians on behalf of TMX which will be the case if the NEB does not transfer any obligation to TMX.

The permit could read as follows: **“TMX will, 3 months prior to commencement of shipping, provide, in trust, an amount of \$10,000,000 renewed annually over the life of the project to support a marine research and monitoring program to address dilbit risk, environmental toxicity and ecosystem baselines and recovery. This program will be administered through the establishment of a Marine Conservation Trust Foundation steered by representatives from Federal, Provincial, State Agencies, First Nation governments, TMX and the Environmental Non Government Organizations (ENGO) community to ensure completion of a strategic plan, annual reports, awarding contracts for research and monitoring and timely disclosure of research and monitoring information.”**

These hearings have clarified the inadequacy of the current arrangements for responding to a dilbit spill. We support the NEB recommendation to the Governor in Council (GIC) that a review of the 1995 Response Organization (RO) standards be undertaken by Transport Canada. We recommend that such a review be more strongly worded by the NEB. For example, that new RO standards be in place before the Western Canada Marine Response Organization (WCMRC) permit renewal occurs in 2019 and that new RO standards be in effect before increased TMX shipping begins when the pipeline is operational.

The current standards set the capacity for WCMRC capability to 20% of an Aframax tanker. We note also an absence of any reference by the NEB in their recommendation to GIC of the zoning locations along the tanker route, which dictate acceptable RO-timing windows which drive RO-equipment requirements for the RO. We also note that Transport Canada may not change zoning, even if there are new RO standards. There is, through zoning, a 6-hour response window for Vancouver designated by TC which means that the RO must have a greater capability in Vancouver compared to the zoning for the Gulf Islands and waters along the Saanich Peninsula which specifies a 32-hour response window. Not only do Southern Resident Killer Whales (SRKW) spend more time in the areas with longer response times, but there are many high value habitats such as Ecological Reserves, as well as 400,000 people in the longer response window area. It is unclear that new TC standards would change current zoning and achieve parity between Vancouver and the Vancouver Island portions of the dilbit shipping route. We advocate for a 6-hour response window and sufficient RO capability to deploy in this time for the Vancouver Island portions of the shipping route. We also advocate for the RO capability be set to deal with an **entire** cargo of an Aframax tanker. This would bring TC standards and zoning into equivalency with the RO standards in the State of Washington.

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The NEB has another option besides the current one, which is to recommend to GIC that a review of TC RO standards be carried out. The NEB can provide a new permit condition that would bring the RO capacity for TMX to parity with the State of Washington standards. The NEB does not need British Columbians to wait for the Federal Agencies to go through a process and timeframe managed by TC.

We recommend that NEB place a permit condition for TMX to contract US-based ROs, which will achieve parity in response and capability with Washington State. The infrastructure currently exists in Washington State-based ROs to deal with the volume of an entire Dilbit tanker spilled within a 6-hour time period for the Washington State waters of the Strait of Juan De Fuca and on the stateside waters of the Salish Sea and Gulf Islands. An NEB condition requiring TMX to contract Washington State-based ROs would remove the uncertainty over TC's ability to achieve higher standards in a timely manner before WCMRC certificate is renewed. This would also create parity in response time and capability between Vancouver Island and Vancouver. This would be a significant mitigation strategy and is immediately available to the NEB. It would show that the NEB more than understands the concerns of British Columbians who fear the risks they are being made to accept. The NEB would show leadership by including a meaningful condition that reduces the spill risks by 500% or more and does so in a timely manner.

The Permit condition would read something like: **“TMX will have in place a contract with Marine Spill Response Corporation (MSRC) and Clean Sound Cooperative Inc.⁵ to provide their response capability in Canadian waters when needed, in order to deploy a response to a TMX tanker experiencing a dilbit spill incident in the same response time and with capability equivalent to that provided for tankers in State of Washington waters.”**

Evidence provided by TMX on wind speeds strongly contrasts with wind speed data supplied by consultants on contract to other intervenors. Since the wind speed data determines whether there can be an RO deployment, TMX consultants cited wind speed data on estimates at Neah Bay that would enable deployment, 80% of the time in winter. However, apparently using the same raw data, other consultants estimated only a 22% winter deployment opportunity.

The summer deployment opportunity also differs with 98.5% of the time a deployment could occur (estimated by TMX consultants) but only a 50% deployment opportunity estimated by other consultants. We believe TMX, who work closely with WCMRC, are overstating their ability. What is truly troubling is that WCMRC is using wind speed data also to inform spill modelling and spread of oil on water. This highly different result supports the need for the arms-length research forum to drill through such different and conflicting results.

We conclude that the NEB does not yet have it quite right and there is a need to add the permit conditions recommended by the Board of FER. The resistance to this project by those opposed to taking the risk, will continue to be justified in our view because the mitigation provisions at the end of these reconsiderations remain inadequate to deal with the significant and long term risks the approval of this project brings. We have, in good faith, participated in the hearings and provided constructive measures for mitigation which we think the NEB should have no qualms adopting our recommendations as their own.

⁵ <https://www.msrc.org/> MSRC is the largest, dedicated oil spill and emergency response organization in the United States.

We have included a summary of the wording changes we recommend for existing Permit conditions and also our suggestions to strengthen the NEB recommendations to the GIC.

The Board of Friends of Ecological Reserves is disappointed and surprised that only a single substantive permit condition has been proposed by the NEB as a result of the reconsideration hearings. We have provided additional practical measures and permit conditions that the NEB can place on TMX that afford greater protection for Canada's marine ecosystems along the tanker route. The NEB has, in our opinion, not performed adequately in light of its mandate because it has shifted mitigation measures and decisions the NEB can and should make, back to the Federal Agencies and away from TMX where it more properly belongs. We do not think that, if tested again, the NEB has met the expectations to fully address marine transport risks from the TMX project that the Federal Court of Appeal sought.

We have provided what we believe are constructive measures that the NEB can make that would prove the NEB sought a more balanced outcome between TMX and the public interest. Meeting the public interest when approving a major project, by any reasonable measure, does not include making the public responsible for the costs and impacts by using their own funds as the NEB has done. We look to the final NEB report so we can understand if the Reconsideration Hearing achieved a more equitable balance for Canadians. We sincerely hope the NEB does some serious rebalancing in favour of Canadians.

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SECTION 1. INTRODUCTION

This Board of Friends of Ecological Reserves (FER) Argument in Chief report is the final opportunity to clarify evidence and conclusions we have arrived at during the Reconsideration Hearings. This report has six sections and two appendices.

The Board of FER submitted our opening statement and direct evidence report in December 2018. Our Direct evidence report includes an opening statement and we embedded our Information Requests (IRs) within the context of the evidence report ([A96487-2 Direct Evidence Report- Friends of Ecological Reserves Final-Dec-5-2018 - A6L7T6](#)). Under direction from the NEB, we separated the IRs from their context, filed the IRs separately to the parties as requested, and selected the Federal Agencies we thought most suited to respond. The complete list of IR filings and responses provided by the Board of Friends of Ecological Reserves and links to the NEB website for these filings and responses is included in Appendix 1 of this report.

Appendix 2 of this report is a table of all FER's 163 IRs and the responses. We did not file motions to compel adequate responses though many warranted such a challenge. We did not file motions to compel more complete responses, based on our past experience in the previous hearings where our motions for improved responses did not garner a better response for most IRs. In retrospect, this was a reasonable decision, as many other intervenors who did file motions for complete and adequate information, found the second response no more responsive to their original questions than the first response. The lack of motions from FER to compel better response to IRs does not signal all responses were full and adequate. We do provide comments in Appendix 2 for the record, on our thoughts on the adequacy of the response comments.

The second section of the report restates the need for a TMX permit condition to support research in dilbit and environmental baseline monitoring to begin to answer the many questions on how to manage dilbit once in marine waters, that will continue over the life of the TMX project. We recommend to the NEB that a TMX permit condition to support long-term monitoring of environmental factors and to contribute to building an environmental marine baseline necessary for restoration of dilbit-damaged ecosystems be added. The need for this TMX permit condition was outlined by the Board of FER in our Opening Statement and the rationale provided is discussed in our Direct Evidence Report.

The Board of FER seeks from the NEB, inclusion of a TMX permit condition for research and monitoring and a formal forum for collaboration between governments, including First Nations, State, Provincial, Federal Agencies, industry and Non-Government Organizations as a superior approach to the status quo where the oil industry or Government Agencies solely choose the research and monitoring priorities and whether or not to disclose the findings. A formal forum funded by a TMX permit enabling First Nations, industry, agency, and non-government organizations collaboration will complement, not replace the many research and monitoring promises made by the Federal Agencies in the Oceans Protection Plan (OPP) and is a common sense and practical approach for the TMX project to mitigate risks in the long term.

We have, to some extent in the time available, studied the evidence shared by other intervenors, and used their evidence to propose to the NEB improvements available to them to better mitigate environmental and human health risks. We believe that the NEB received high value, good quality evidence and advice from intervenors who did not have a vested financial interest in the outcome.

INTRODUCTION

FER includes ourselves as having provided high quality information and providing constructive advice on practical mitigation measures. It is not clear that the NEB has been influenced to any great degree by intervenors nor have they been infused with any sense of urgency for change. We do not feel that the NEB sees an urgency for transparency and cooperation as called for from intervenors. The Federal Agencies appear content with the status quo as is TMX and WCMRC and they appear to be in favour of business as usual while continuing to add some additional study of environmental impacts.

In the third section we review the-draft permit conditions and recommend changes. We provide evidence on human health risk as much as it was possible to get this information from these hearings as well as from the former NEB hearings. We recommend keeping permit condition 131 and re-directing the marine outreach program to become a public outreach program on what people should do and what the public should know when there is a dilbit spill, in order to protect their health and how to safely participate in clean up if they wish. We maintain that a pre-spill outreach program is the only practical approach to protect public health and create an aware public. Such a program is currently lacking.

We also review the single new draft condition included as part of 133 and provide our support for additional sea going escort tugs. Based on new evidence from the State of Washington intervenors, we recommend additional measures for TMX to improve response times to reach equivalency with the RO standards in the State of Washington. This would change the current 32-hour response to a 6-hour response time and be on parity with TC requirements for Vancouver Fraser Port Authority. It would also achieve equivalency in RO times for the 400,000 people living on southern Vancouver Island who should not be treated as less deserving of a response than those living in the near shore areas of the lower mainland.

The Response Organizations (ROs) in Washington State are held to a much higher standard than that set by TC, which means that they have capability and response capacity to respond to a spill of the entire contents of an Aframax tanker whereas condition 133 sets an upper limit of capability at 20% of an Aframax tanker. We thank intervenors from State of Washington for this practical mitigation strategy that suggests that TMX would need to have a contract with ROs in Washington State (Marine Spill Response Corporation) and that the NEB can make this a TMX permit. The condition would simply state that three months prior to increased shipping, TMX must have a contract with a Washington State RO to come to the assistance of WCMRC, which is under resourced.

This recommended permit condition of contracting a Washington State-based RO, mitigates against devastating environmental impacts and brings the higher State of Washington standards and their 6-hour response time and greater capacity to the TMX project in a meaningful and expedited way. This is a simple and practical solution. It is practical because a dilbit spill has a high probability of entering American waters too and their equipment and infrastructure are already in place and in close proximity, so they should be involved in a spill initiating in Canadian water. Such a condition would remove uncertainty regarding TC's pace and willingness to update the 1995 standards to achieve parity with the ROs in the State of Washington before the renewal date of WCMRC permit, which occurs in 2019. It would-provide a 500% improvement in mitigating responses to the oiled water area and would definitely reduce the length of oiled shoreline more than the current inadequate arrangements would between TC and WCMRC. Parity with State of Washington is not an unreasonable expectation and is within immediate reach for the NEB through the TMX permit condition that we recommend NEB adopt.

We highlight the discrepancy in evidence provided by WCMRC with regard to wind speed, with our own wind speed data which was new information that we provided. TMX seems to ignore this new information because they claim that this issue has been dealt with using data from the wrong geographic area. This is relevant as WCMRC, we believe, is using their incorrect data to overstate their response windows. The evidence from WCMRC, to our mind, does not bear up, and casts doubt on many of their other claims. But it is impossible to penetrate WCMRC and test their claims, as they can and do withhold data as proprietary. We noted earlier that WCMRC is a junior partner to TMX and has a vested interest in overstating its capability, which we conclude it has. We have greater confidence in the 2016 Response and Gap Analysis provided by an independent consultant contracted by other intervenors and clarify why.

In the fourth section we provide comments and suggestions as invited by the NEB, on their draft recommendations to the GIC on what the Government of Canada and the Federal Agencies can do and that are beyond the NEB's mandate. We lend our support and provide cautions on all the Federal Agency promises of action and temper these with some examples of Federal Agencies past performance. We also bring to the attention of the NEB and Federal Agencies that lateral movement of shipping lanes is a practical mitigation strategy for human health and has application for other high value sensitive ecosystems such as Ecological Reserves, and add wording to the NEB recommendations for its inclusion. We note the NEB did have some interest in this, and the Pilots Association is not clinging to the near shore pilot drop off point at Brotchie Ledge, but are willing to have a more offshore drop off and have confirmed that safety takes precedence over their own convenience.

In section 5, we discuss the NEB process and the role of the Federal Agencies in light of the Federal Government's announcement that the pipeline will be built before this reconsideration hearing began. This puts the NEB in a difficult position and we have concerns with the impartiality of Federal Agencies too. We also raised concerns on the lack of new evidence from TMX and reliance on their older evidence. TMX's logic in response to many IRs, is that they relied on their earlier evidence and frequently in response to IRs, stated that this issue has been "*previously adjudicated*", failing to acknowledge that the Federal Court of Appeal has insufficient confidence in some of this earlier evidence and the conclusions drawn. It is because of this earlier evidence, this reconsideration hearing was required.

In section 6 we summarize our findings and point towards what we see as the best approach to managing risks and continue to explore additional mitigation strategies over the life of the project.

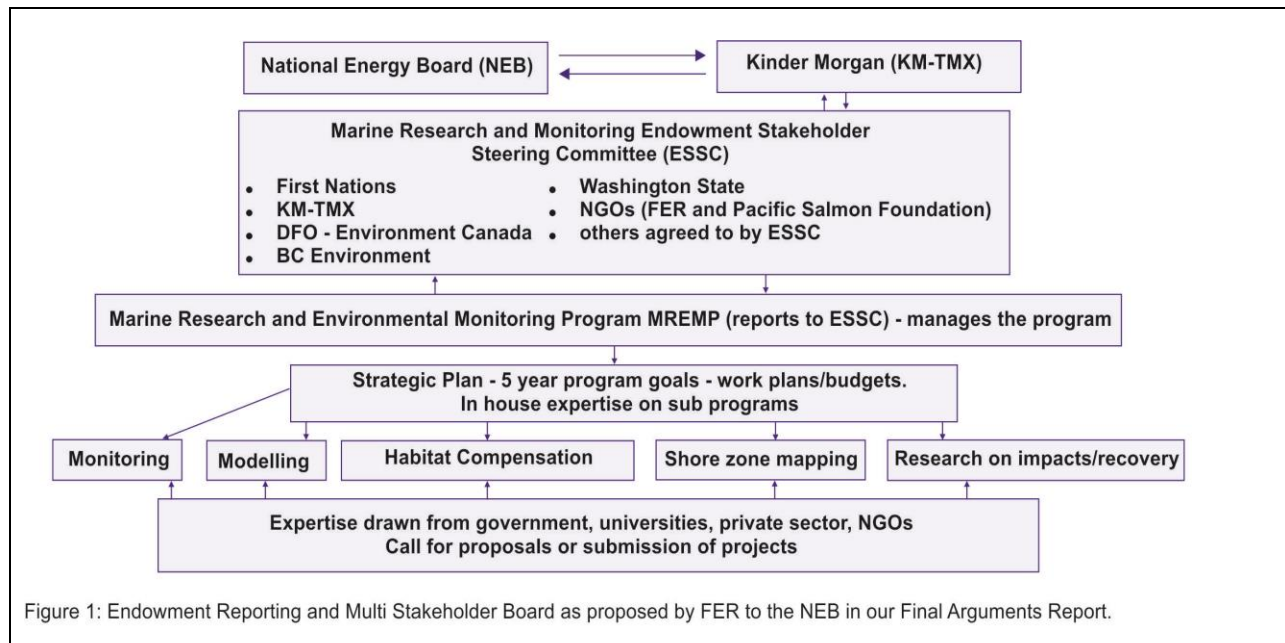
SECTION 2. RESEARCH AND MONITORING PERMIT CONDITIONS

We seek again, as we did in the earlier hearings from NEB, a TMX permit condition that establishes a formal and multi-stakeholder collaboration for long-term research and monitoring of marine ecosystems along the lines of the BC Government enabled Habitat Conservation Fund Foundation (HCTF).⁶ Such a permit condition will improve long-term collaboration on marine research and monitoring information on how to continue to mitigate dilbit spill risks and clarify recovery options.

The Board of Friends of Ecological Reserves seeks from the NEB, a permit condition to establish a Marine Conservation Trust Foundation (MCTF) for the duration of the TMX project. Such a foundation with a multi-stakeholder oversight board with representation from Federal, Provincial, State Agencies, First Nation governments, TMX, and the ENGO communities is shown in Figure 1. The Board of FER filed this organization chart for such a research and monitoring forum in our original Evidence Report May 28, 2015 page 90 ([C33-06 - Board for Friends of Ecological Reserves final evidence reports KM-TMX \(A70395\)](#)). This chart is provided to better clarify the concept. We understand that we did not need to refile our earlier evidence and that TMX has relied extensively on their reports from the earlier hearings.

This forum would have no single agency control over the research and monitoring agenda and there would be no discretion about whether there should or should not be disclosure or vetting of findings. We need a future where research priorities are mutually agreed on between stakeholders and participation in marine projects are proposal driven and awarded against known strategic research and monitoring priorities.

Figure 1. Organizational structure for collaboration Marine Research and Baseline Monitoring related to mitigated risks from dilbit and defining ecosystem recovery end points.



⁶ <https://hctf.ca/> Funded by a surcharge on hunting and fishing licenses. Allocates funding to fish and wildlife project province wide. HCTF manages of 10 million/year program.

We seek from the NEB, the inclusion of TMX permit condition(s) that establish a financial obligation on TMX. Permit conditions are needed to support long-term research and monitoring to improve marine research and monitoring so that there is a means by which the public, First Nations, Federal Agencies, TMX and ENGOs can, over the life of the project, understand how to continue to incrementally improve measures to mitigate dilbit spills in the marine environment. TMX and the oil exporters who use the pipeline, bring risk over the life of their project. A long-term obligation to fund environmental research, make improvements in spill modelling, toxicity, monitoring and recovery/restoration options is a legitimate business expense and we believe this must be a new permit condition.

We do not support the current model for marine research on the effects of dilbit, as it has largely placed a financial burden on the Federal Agencies/Universities and the Canadian public. With changes in governments and budgeting cycles, it is, over the long term, a somewhat unpredictable long-term funding model for the multi-decade project. TMX does support research now, but it is discretionary as TMX selects the topic, scope of the research, budget amount and the duration, then vets the findings, decides whether the findings are proprietary and whether or not they will be disclosed. Industry-led environmental research can more easily be used for public relations.

This proposed permit condition is not a new device for NEB, as a research condition was placed on Northern Enbridge but then that project was dropped. The point is, proponent funding for research is not precedent-setting for the NEB. We propose that a Marine research and environmental monitoring program be scaled to a size similar to that set up by the BC Government Habitat Conservation Trust Foundation (HCTF) which manages a \$10 million/year program. This permit condition will produce a program with a similar budget and scope to HCTF and similar in size to what Alaskans spent post-spill annually, 30 years after the Exxon Valdez oil spill. (March 24, 1989).⁷ Such a collaborative approach would be closer to a world-class system espoused as being a goal of the Oceans Protection Plan and meet the objectives of Pillars 2 (Restoration of Ecosystems), Pillar 3 (Strengthening Partnerships) and Pillar 4 (Investing in Oil Spill Research [Dilbit]).

We recommend that the most secure means to ensure long-term research funds is through the establishment of a Marine Conservation Trust Foundation with a one-time \$500 million Endowment. This would be a small insurance policy for research and monitoring, taken out on behalf of the public, especially for those in BC who are being made to take the risk. A \$500-million Endowment is 6/100th of 1% of the netbacks that the Western Oil Producers identified they stand to gain over the first 20 years of the TMX project.

The alternative is to more completely place the burden of research on Federal Agencies and entirely on the Canadian taxpayer and the uncertainty for research funding over multiple Federal budgeting cycles. We also believe that involvement of FN and traditional knowledge in a forum with Federal Agencies, industry and ENGOs is a superior approach to mitigating dilbit risks and conservation and restoration options, and more transparent than either Federal or Industry-led research initiatives and one-off partnerships.

⁷ <http://www.evostc.state.ak.us/> Exxon Valdez Oil Spill Trust Council.

The research and monitoring would be complementary to some of the initiatives mentioned in the Ocean Protection Plan, especially initiatives planned under Pillar 2, 3 and 4.

Pillar 1: A World-Leading Marine Safety System that Protects Canada's Coasts

Pillar 2: Preservation and Restoration of Marine Ecosystems and Habitats

Pillar 3: Strengthening partnerships and launching co-management practices with Indigenous communities

Pillar 4: Investing in oil spill research and spill response methods

SECTION 3. REVIEW OF DRAFT PERMIT CONDITIONS

All intervenors were invited to provide comments to the NEB. The Board of FER's aim, by providing review comments, is to convince the NEB to make improvements to these permit conditions so that when finalized, they will better safeguard the public and the environment. The NEB states that, "The purpose of conditions is to mitigate potential risks and effects associated with a project so that the project can be designed, constructed, operated and abandoned in a safe manner that protects the public and the environment". ([A97236-1](#) NEB PD No. 4 - All Parties – Trans Mountain Expansion – Reconsideration – Affidavits and written argument-in-chief, including comments on draft conditions and recommendations - A6Q9I3) . We are consistent with that direction, both in our review and our earlier recommendations for inclusion of additional permit conditions.

Condition 131 is repeated here and was taken from 2016 report, Appendix 2 page 484 **Condition 131-Marine Outreach Program.**

Proposed change from a condition to a recommendation.

Marine Public Outreach Program – Trans Mountain must file with the NEB, at least 3 months prior to commencing operations, a report describing completed activities and observed outcomes of Trans Mountain's Marine Public Outreach Program, and any further planned activities for this program. The report must also include:

- a) a summary of Trans Mountain's consultation with the Pacific Pilotage Authority regarding the scope of work and activities to be undertaken through the program, including:
 - i) the resources and information that Trans Mountain has provided or will provide to the Pacific Pilotage Authority to addresses the impacts of increased Project-related tanker traffic in the Salish Sea;
 - ii) the activities or actions that Trans Mountain will undertake to communicate applicable information on Project-related vessel timing and scheduling to fishing industry organizations, commercial and recreational vessel operators, Aboriginal groups, and others affected, in conjunction with the Pacific Pilotage Authority's activities; and
 - iii) any issues or concerns raised by the Pacific Pilotage Authority and how Trans Mountain has or will address them;
- b) a description of the actions or activities that Trans Mountain has or will undertake to incorporate into its own public engagement efforts the activities of the Pacific Pilotage Authority and Transport Canada regarding enhanced safe boating practice education for small vessel operators;
- c) a plan and schedule for all ongoing and future activities and actions under the program, including anticipated completion dates; and
- d) a summary of its consultations with Transport Canada, the Canadian Coast Guard, the Chamber of Shipping for British Columbia, commercial and tourism associations and potentially affected Aboriginal groups.

Discussion of Permit Condition 131. Voluntary or Mandatory Public Outreach

The Board of FER was critical of this condition in our Direct Evidence Report ([A96487-1](#) Direct Evidence Report-Friends of Ecological Reserves Final-Dec-5-2018 - A6L7T6) where we stated on page 114;

"TMX submitted a 26-page draft report as part of the public outreach program. This report has a focus on safety [A95280-attachment 9.2.2](#). In this summary report we could not find any mention made of what the public should know in the event of a dilbit spill. We understand that dilbit and diluents used to make it viscous are toxic substances. We are concerned that critical public health information has been withheld."

and on page 115 we concluded (emphasis added);

The outreach program focuses on increased boating accident risk, but the real public concern, we believe is the risk to public health which has not been addressed. It must be clear to the public what the health risks are and what the best thing the public can do in the event of a dilbit spill. There needs to be a new permit condition that is explicit about TMX's obligation on the outreach needed for a public exposed to toxic substances. AND What the public needs to know with regard to a dilbit spill, needs to be either included in a revisited permit condition or in a new permit condition. The real outreach is also needed for first responders who put their lives and health on the line. That is not mentioned in the outreach program.

We have been critical of permit condition 131 because there was so much overlap with other marine safety outreach programs that much of it appeared redundant. Cancelling the safe boating aspects of this permit seems reasonable, however the broader issue of public safety and providing information to the public so they are aware of health risks before a dilbit spill, remains an omission and we suggest to the NEB that this is unacceptable for the public to lack understanding of what to do and what not to do when a dilbit spill occurs.

We noted in our direct evidence report on pages 116-118 and quoted from a report by Health Canada, (<http://www.nccceh.ca/documents/guide/guidance-environmental-public-health-managementcrude-oil-incidents>) a portion of which is restated here to strengthen the case for retaining and refocusing condition 131.

A risk of a crude oil explosion and fire is also present as a consequence of the volatiles in air which may result in the presence of an enriched atmospheric air and volatile hydrocarbon mix resulting in an environment with a potential hydrocarbon explosive limit. In a fire scenario, inhalation exposure may include hydrocarbons as well as combustion byproducts. Inhalation exposure by responders is a concern.

Please re-read health concerns expressed on pages 116-118 from other health experts that strengthen the rationale for disclosing to the public what to do in the event of a dilbit spill. ([A96487-1](#) Direct Evidence Report-Friends of Ecological Reserves Final-Dec-5-2018 - A6L7T6).

We would also be concerned if, once again WCMRC and TMX are left to develop the outreach program, as both would have the ability to solely shape and vet any public outreach materials to de-emphasize risk and consequences because both companies have a vested interest in downplaying/concealing the public health risks. Oversight and approval of any TMX outreach program under condition 131 would need to be developed by experts outside of TMX and WCMRC

and approved by Health Canada and reviewed by others such as, for example, Worksafe BC. The Board of FER sought more information on health risks from dilbit and believed there would be worksheets available as a requirement for worker safety through the Workplace Hazardous Material Information System (WHIMS). We sought this in IR # 148 repeated here for the ease of the reader.

IR 148 to TMX and WCMRC. *To TMX and WCMRC. We request that TMX and WCMRC supply the information sheets required by WorkSafe BC and clarify why human health and oil spills are not included in their Marine Public Outreach Program? We note that this program has only recently been issued for External Review. Who are the external reviewers?*

Response: *There is no Work Safe BC requirement for “data safety sheets for those who work in and around Dilbit.” During a response, it is standard operating procedure for the safety officer, or their designate, to conduct an initial site characterization, during which time product specific Safety Data Sheets (SDS) or Material Safety Data Sheets (MSDS) would be consulted. For identified ship-source oil spills, the SDS would typically be provided by the polluter. The SDS would be appended to the Site-Specific Safety Plan.*

This response should be of concern to the NEB who have a responsibility to mitigate risk from this project including the risk to public health from exposure to dilbit and distillates. The nature of this toxic substance is very tightly controlled and this secretive approach is endorsed by TC, WCMRC, TMX and apparently also endorsed by Health Canada. We believe that NEB needs a permit condition that mandates a public outreach program on what to do in the event of a dilbit spill otherwise it can be concluded that the NEB will knowingly putting the public at an undisclosed health risk. The NEB has the authority to mitigate for health risk to the public. We urge the NEB members to use the NEB authority to establish an outreach condition. We look to the NEB for leadership here in protecting public safety as a higher priority than corporate interests, which are entrenched in the current system which continues to support industry-wide standard operating procedures of non-disclosure.

We provide another example of what we consider to be unacceptable performance by HC. FER IR # 153 to Health Canada, requested information to understand human health risks and precautions of exposure to dilbit. **FER Information Request # 153:** *IR What are the health risks of dilbit?*

Response from HC: (See full response in Appendix 2 of this report)

*“**Health Canada** has not completed a human health risk assessment under CEPA of bitumen or diluted bitumen. However, the department and Environment and Climate Change Canada have published an assessment of Natural Gas Condensates (NGCs), often used as a diluent in diluted bitumen at a concentration of up to 50%, under CEPA within the context of the Government of Canada’s Chemical Management Plan. The assessment report was published on Dec. 31, 2016. The assessment concluded that inhalation of NGC evaporative emissions in the vicinity of NGC storage tanks, as well as certain rail and truck NGC loading and unloading facilities may be harmful to human health as defined under CEPA.”*

The Board of FER also sought information on public health from TC and sought information on Dilbit and human risks through disclosure that may be available from TC in the Environmental Assistance Response Plan (EARP). The Board of FER thought that perhaps Transport Canada would be in a position to address dilbit and human health risk. **In IR # 156, the Board of FER** questioned...

Will Transport Canada provide the ERAP for the existing transport of Dilbit on the BC Coast and indicate what modifications to that ERAP are planned for the increased transport of Dilbit from the TMX project?

Response from TC: *The Transportation of Dangerous Goods Act and its regulations (including ERAP requirements) do not apply to commodities transported by pipeline governed by the National Energy Board Act. In the case of the TMX project, an ERAP would be required for flammable liquids (such as Dilbit) if the mode of transport is by rail in a tank car exceeding 10 000L. Transport Canada does not disclose the contents of an ERAP as it contains third-party information.*

TC has handed the responsibility to the NEB. We, however, see the responses by HC and TC which appear to us as a collection of excuses with no good reason to withhold from the public information affecting the public's knowledge of their health risks related to dilbit.

Recommendation for Permit Condition 131

We seek from the NEB maintenance of Condition 131, but with significant amendment towards outreach of information on human health and information extension on what to do in the event of a dilbit spill. We seek in a condition for outreach, answers to questions such as;

- What does the public need to know in the event of a dilbit spill?
- Should they help struggling seabirds or oiled mammals?
- Do they need to wear respirators?
- Should municipalities have evacuation plans for areas where shores are oiled?
- Where are the places of safe human and livestock refuge if there is a need to evacuate in the event of a dilbit spill?
- What should boaters do, provide assistance or vacate the area?

These types questions appear to us to a reasonable expectation from this project and a needed mitigation measure and meets the NEB test for a permit condition "*The purpose of conditions is to mitigate potential risks and effects associated with a project so that the project can be designed, constructed, operated, and abandoned in a safe manner that protects the public and the environment*".

The public outreach could be achieved if there was a liaison and training position included in permit condition 131. Such a person could help inform first responders as well as the public and that would appear to be a good re-focus of permit condition 131.

We believe it is a duty of the NEB to ensure that the project be made responsible for identifying exactly what the public and near shore land owners need to know BEFORE a spill. Downgrading this permit condition from 'obligation' to a 'recommendation' was not what the Board of FER anticipated the NEB would do. We saw strengthening of permit condition 131 as an opportunity to fill a giant gap in outreach and provide a condition to make TMX take responsibility on how to mitigate risks to human and mammal health risks that this project brings to BC waters. We did not

anticipate a removal of public outreach and downgrading to 'nice to do, but not needed' category. Please re-instate and strengthen this permit condition.

FER recommends that NEB re-focus permit condition 131 to be retained and continue a public health outreach program this year and for all years that the project is shipping with wording such as;

“at least 3 months prior to commencing operations, a summary of Trans Mountain’s consultation with the Health Canada regarding a public outreach program on what to do in the event of a dilbit spill and undertake a public outreach program, which would include:

- i) the resources and information that Trans Mountain will provide or will present at annually at public awareness forums, to clarify what to do and what not to do when there is a spill of toxic substance to mitigate risk to public health;***
- ii) the schedules of activities or presentation/workshops with fishing industry organizations, commercial and recreational vessel operators, marinas, Aboriginal groups, Municipal councils and first responders forums, schools and universities affected by a dilbit spill.***
- iii) any issues or concerns raised by the Health Canada, Worksafe BC, Municipalities and how Trans Mountain has or will address these;”***

Discussion of Condition 133. Vessel Acceptance Standards and Oil Spill Response Capability

This permit condition is repeated here for the convenience of the reader and the changes proposed by the NEB shown in bold. The underlining was provided to draw attention to concern with section b) of this permit condition.

Condition 133 - Marine shipping-related commitments

Trans Mountain must file with the NEB, at least 3 months prior to loading the first tanker at the Westridge Marine Terminal with oil transported by the Project, confirmation, signed by an officer of the company, that it has implemented or caused to be implemented the following commitments related to oil tanker traffic and enhanced oil spill response:

- a) Trans Mountain has included in its Vessel Acceptance Standard and Westridge Marine Terminal Regulations and Operations Guide a requirement for tankers nominated to load at the Westridge Marine Terminal to have a suitable arrangement for the proposed enhanced tug escort between the Westridge Marine Terminal and Buoy J prior to departure. The tug escort should be suitable for foreseeable meteorological and ocean conditions and be based on tanker and cargo size.***
- b) An enhanced marine oil spill response regime capable of delivering 20,000 tonnes of capacity within 36 hours of notification, with dedicated resources staged within the study area, as described in Volume 8A of Trans Mountain’s application and Trans Mountain’s response to NEB Information Request No. 1.64 (Filing A3W9H8).***

Trans Mountain must also include and report on the above-noted marine shipping related commitments in its commitments tracking table (required by Condition 6)

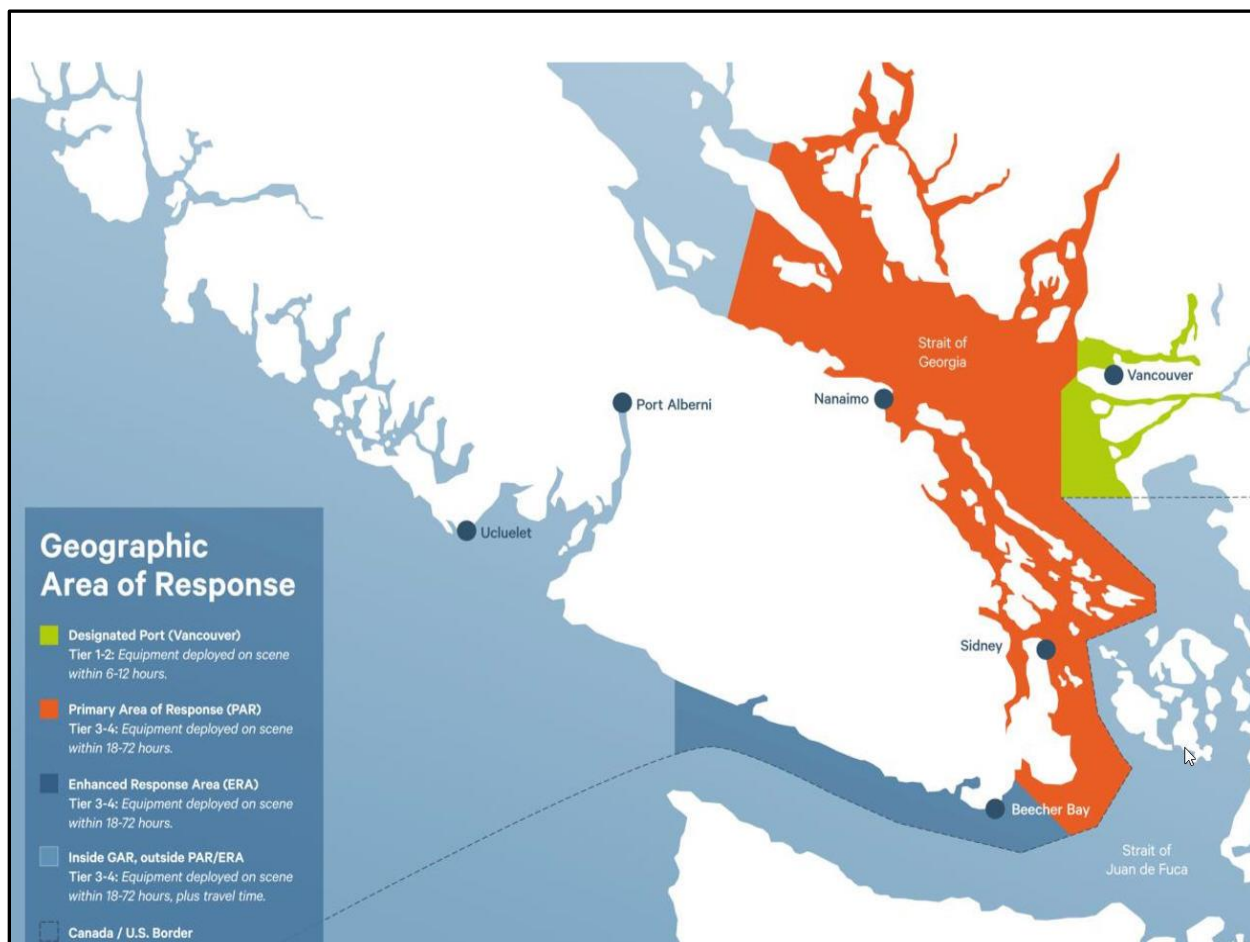
We support the NEB permit condition for extension of the escort tug distance to J-Buoy and know that these waters to the western entrance of the Strait of Juan de Fuca require tugs better able to meet open ocean conditions. We know this is a long-term added cost to dilbit transport but the trade off is a reduction of risks of groundings in this portion of the tanker route. We hope that the condition survives to become a permanent obligation over the next 30+ years.

We remain concerned however, with the 36-hour response time and the marine oil spill response regime capable of delivering a response of 20,000 tonnes which is 20% of a loaded Aframax tanker. Looking back at the earlier evidence on oil spill modelling, we unsuccessfully challenged the Credible Worst Case Scenario modelled in earlier hearings which was defined as 20% of a Dilbit carrying Aframax tanker and we now think the modelling input may have been linked to the RO standards of TC and not to the need to know where the oil may travel in a spill of a larger magnitude. Just as the TC standards are dictating the RO capacity, the TC standards also influenced the upper limit of spill modelling. Friends of the Earth, suggested in their Evidence Report, that TMX contract with RO organizations in Washington State that have adequate response capability and shorter response windows of 6-hours rather than the TC 36-hours standard response time. By following Friends of the Earth's suggestion, it is entirely possible for TMX to improve mitigation from a Dilbit spill.

In our direct evidence report, we noted the large differences between RO response windows between Metro Vancouver Fraser Port Authority area (6 hours) and the Saanich Peninsula marine areas (36 hours). The population of the Saanich Peninsula is 400,000 and should NOT be treated differently with regard to RO response time and the requisite complement of equipment needed for a shorter response time. Those living on southern Vancouver Island are being discriminated against by TC and the RO standards and the zoning that dictates these times.

For the convenience of the NEB, we show the differences in RO times along the dilbit tanker route for Vancouver and the Gulf Islands and Saanich Peninsula on southern Vancouver Island. Designated Port of Vancouver is to have an RO response time of 6 to 12 hours. Larger spills are classified as Tier 3 and 4. The Gulf Islands and Saanich Peninsula are Primary Response areas and WCMRC, CCG, will have "*equipment on scene within 18 to 72 hours*". Strait of Juan De Fuca is an Enhanced Response Area. It has exactly the same criteria "*equipment on scene within 18 to 72 hours*".

Figure 2. Map from the WCMRC Spill Response Plan – Times and Differences between Vancouver and Saanich Peninsula



We noted the differences in wind speed between evidence provided by TMX consultant Tetra Tech Canada 2018 and Tsleil-Waututh Nation, City of Vancouver and Tsawout First Nation consultant Nuka Research and Planning Group in their 2016 response and capability gap analysis. Table 1 below shows there are significant differences.

Table 1. A comparison of wind speeds and RO dilbit spill recovery windows of opportunity and significant differences

Consultant	Winter	Spring	Summer	Fall
Tetra Tech Canada Inc for Neah Bay	80%	94%	98.5%	80%
Nuka for reach closes to Neah Bay	22%	not shown Figure 3	50%	not shown Figure 3

Tetra Tech Canada Inc was retained by TMX.

Nuka report⁸ was by Prepared for Tsleil-Waututh Nation, City of Vancouver and Tsawout First Nation. [A96437-8 Appendix F to Stafford Reid Report, Nov 2018 - A6L5Z8.](#)

WCMRC does not have suitable equipment to deploy at wind speeds above Beaufort Scale 4 which is 16 knots or greater than 30 km/hour. TC RO standards also do not require WCMRC to have such equipment and the TC and WCMRC plan is to not respond when sea conditions are above wind speeds of 30/km. The Tetra data for Neah Bay (Table 2) implies that WCMRC can deploy as winds are less than 30 km/hour 80% of the time in winter, in spring 94% of the time, in summer 98.5% of the time and in fall, 80% of the time. The Nuka Research and Planning Group (Figure ZZ) estimate much lower winter deployment windows 22% of the time and summer opportunity 50%. See Figure 3 for the rest of the gap assessment estimates along the entire tanker route.

We provide this to show extreme differences in Response Opportunity and that TMX overstates the weather conditions. We bring this to the attention of these hearings as both estimates cannot be correct when apparently using the same raw wind speed data. What is truly troubling is that WCMRC is also using wind speed data to inform spill modelling and spread of oil on water. We know however, the modelling done by WCMRC is proprietary so it is not possible to access and test its veracity in an independent forum. We find the Gap Analysis of the Nuka Group more compelling and repeat their Key findings.

Key Findings from Response Gap Analysis

1. *There is no location along the Trans Mountain tanker route where on-water oil spill response will always be possible.*
2. *There may be times when on-water vessel operations are possible but poor visibility – including darkness – precludes aerial reconnaissance, making it very difficult to track and target oil for recovery.*
3. *During the winter, response is not possible between 56% and 78% of the time at sites along the Trans Mountain tanker route.*
4. *If a spill occurs during a time when response gap conditions exist, the unmitigated oil slick will remain in the environment until conditions improve. If the response gap conditions extend for several days, there may not be any opportunity for on-water recovery.*

⁸ Nuka Research and Planning Group LLC May 2015 Report. Technical Analysis of Oil Spill Response Capabilities and Limitations for Trans Mountain Expansion Project. Prepared for Tsleil-Waututh Nation, City of Vancouver and Tsawout First Nation. www.nukaresearch.com.

5. *Lack of a response gap does not ensure that a response will occur, nor does it guarantee that the response will be effective.*

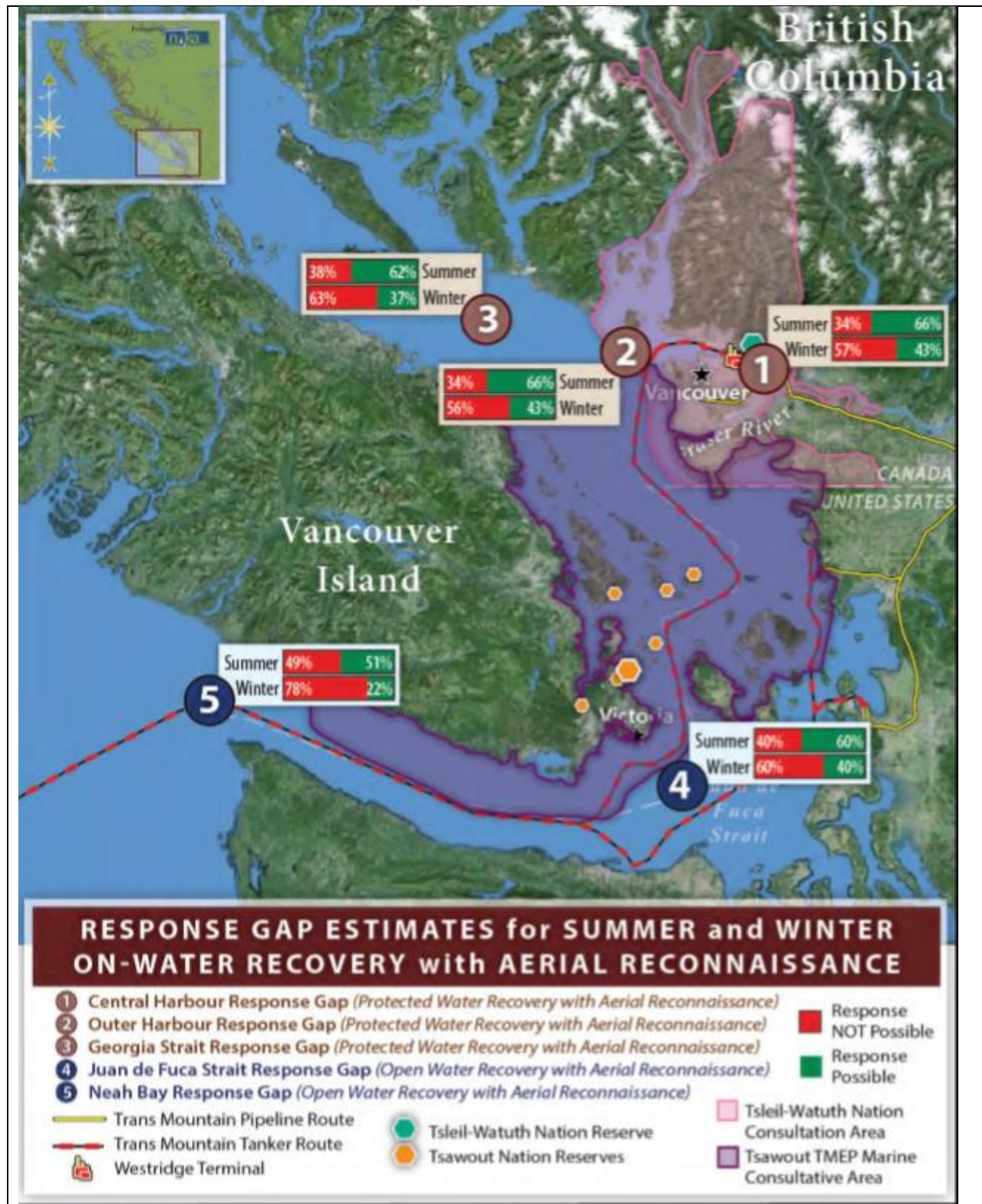
Nuka Research Question: *What is the capacity for available mechanical oil spill recovery systems to contain and recover on-water oil spills in the study area and how is it increased or decreased by certain factors?*

We include this research question as that is the type of research that FER advocates that the TMX must fund through the Marine Conservation Trust Foundation, as well as oil spill modelling.

Table 2. Tetra Tech Canada Inc. wind speed data Neah Bay and implied RO opportunity

Table 1: Wind Conditions per Season at Neah Bay (2004-2013) 				
Season	Wind Conditions			
	< 16 knots (29.6 km/h)	16 – 21 Knots (29.6-38.9 km/h)	21 – 27 Knots (38.8- 50 m/h)	> 27 knots (50 km/h)
Winter	70.07%	19.11%	8.85%	1.97%
Spring	92.79%	5.74%	1.38%	0.09%
Summer	98.50%	1.27%	0.19%	0.04%
Fall	72.42%	18.50%	7.26%	1.83%

Figure 3. Nuka Research and planning group Response Gap Estimates for entire tanker route



SECTION 4. REVIEW AND COMMENT ON THE NEB RECOMMENDATIONS TO GIC

We appreciate that the 12 additional recommendations that the NEB intends to make to GIC were provided to intervenors. We believe these are absolutely necessary to deal with the cumulative impacts and risk to the environment from marine transportation of dilbit. We recommend that some of these be strengthened and we have added suggested wording.

Comments on Recommendation 1. Cumulative effects and baseline monitoring

This recommendation is repeated here for the convenience of the reader.

Recommendation 1: *The Governor in Council should develop and implement a regional cumulative effects management plan that assesses the overall environmental state of, and cumulative effects on, the Salish Sea, and use that better understanding to help inform a long-term approach to managing those cumulative effects, as well as informing the consideration of future proposed projects. This plan should include, but not be limited to:*

- a) *consideration of the many impacts on the Salish Sea, including contamination from point and diffuse land-based sources, the multiple impacts on salmon and other fish stocks, and the impacts from all vessel traffic;*
- b) *incorporation of the work the federal authorities are already planning in the area, such as under the **Coastal Environmental Baseline Program**⁹ and the Cumulative Effects of Marine Shipping initiative (including its regional cumulative effects assessment);*
- c) *development of short-, medium-, and long-term targets for addressing cumulative effects, including consideration of the feasibility of reducing total underwater noise, strike/collision risk of vessels with marine species, and key contaminant levels over time; and*
- d) *any monitoring necessary to help determine the extent of cumulative effects, the success of measures to manage those effects, and progress towards meeting targets.*

The Board of FER is very supportive of baseline research. We have pointed out in our 2016 reports and again in our Directive Evidence Report [A96349-2](#) that the Alaskans so regretted they had no baseline monitoring and therefore had no way to assess recovery after the Exxon Valdez oil spill that occurred March 24, 1989; 30 years ago. Therefore, it remains unclear today whether some of the species in Prince William Sound such as herring have recovered as the oil is still in the shore zone gravels and is still toxic.

FER did seek to increase understanding of Federal Agency baseline information. **FER IR #115 – To ECCC:** *Please indicate whether there have been any equivalent studies done for baseline research for the shores of the Salish Sea and the Strait of Juan de Fuca. Please provide the results of this study.*

⁹ It is noted that this program was initiated in 2016 and no results are available for these hearing <http://dfo-mpo.gc.ca/science/environmental-environnement/cebp-pdecr/index-eng.html>. The Board of FER notes that Ecological Reserves are Protected Areas set aside as research benchmarks and candidates for baseline monitoring.

ECCC Response. *Please refer to ECCC response to NEB IR 1.42 ([A96556-4 Part 3](#) - IR 1.26 to 1.56-5 Annex 5.1.1 - A6L8X5) and Friends of Ecological Reserves IR 32, 33, 34, 35 and 37).*

The links lead to reports on ship design so we do not know what baseline studies exist on the west coast along the tanker route.

FER Suggested Improvements to Recommendation 1

The underlined wording is consistent with the Permit condition FER seeks from NEB to have an TMX-funded Marine Conservation Trust Foundation doing baseline work and this is very much a partnerships approach. FER is supporting TMX-funded partnerships while the NEB is supporting Federal government partnerships. FER thinks there is a need for both not just Federally-funded partnerships.

b) incorporation of the work the federal authorities are already planning in the area, such as under the Coastal Environmental Baseline Program and support baseline monitoring through partnerships with FNs, NGOs and industry funded projects that provide additional environmental base line monitoring to those underway by Federal authorities to support the Cumulative Effects of Marine Shipping initiative (including its regional cumulative effects assessment);

Comments on Recommendation 2. Annual reporting on planned cumulative effects studies

This recommendation is welcome as it addresses cumulative effects and requests annual reporting on measures *on the oversight, progress, and status of initiatives and measures to address cumulative effects.* The Board of FER is encouraged that the NEB has explicitly sought from the Agencies a greater obligation to disclose their activities and an obligation to report on progress.

Based on the BC government experience after 20 years of working on cumulative effects, there was a framework but the Office of the Auditor General concluded there was inadequate direction from government on how to use the results. Awareness of cumulative effects is appreciated and the SRKW are at risk because of cumulative effects. Once their real environmental thresholds have been crossed there is no return. These reconsideration hearings have enabled greater disclosure on some of the Federal Agencies initiatives that otherwise would not have been disclosed.

Comments on Recommendation 3. Industry-government marine bird monitoring program

We strongly support this recommendation to implement, with support from industry, a marine bird monitoring program to better understand impacts of all vessel use within the Salish Sea on marine bird species, including species at risk. This is the first direct monitoring obligation that acknowledges that the shipping industry does have an obligation to provide baseline data on species they are placing at risk. Given this willingness to recommend to GIC a cost sharing arrangement for long-term baseline data, the Board of FER is at a loss as to why the NEB did not support a similar proposal by FER outlined in our Opening Statement and Direct Evidence reports and again outlined in Section 2 of this report where we seek a permit condition on TMX to fund monitoring and research related to dilbit research and baseline monitoring.

Comments on Recommendation 4. Establishing a Southern Strait of Georgia National Marine Conservation Area

This recommendation states “*The Governor in Council should expedite the work in completing the feasibility study for establishing a Southern Strait of Georgia National Marine Conservation Area, publicly report on the outcomes of that study, and (if considered feasible) proceed to establish it.*”

We strongly support this recommendation as globally there is strong evidence that marine conservation areas work to improve productivity in the greater marine ecosystems. We are encouraged that the NEB recognizes the need for an annual reporting on progress towards the 10% stated Marine Protected Areas Goal.¹⁰

The Friends of Ecological Reserves and the Eco-reserves wardens have been involved with a Federal Protected areas process for enhancing protection for the Race Rocks Ecological Reserve. Thirty years have lapsed and two advisor committees formed and disbanded and there has been no additional marine protected area added by the Federal Government for Race Rocks Ecological Reserves. This example is meant to put in context many of the promises made under the Oceans Protection Plan and the 4 Pillars put forward in the Direct Evidence report by the Federal Agencies which is filled with promises of future improvements, We remain aware that there is a long record of promises and good intentions followed by decades of inaction.

We are however, pleased that the Scott Islands Marine National Wildlife Area¹¹ was established and extends protection to a significant sized area of marine waters for the many sea birds that use Triangle Island ER,¹² however UBC Institute of Oceans have since pointed out that the protection measures are weak.¹³ We hope the establishment of a *Southern Strait of Georgia National Marine Conservation Area* does not have the same inherent flaws identified by marine scientists who identified that the regulations for the Scott Islands failed to restrict or regulate damaging activities like bottom trawling, long-line and gill-net fisheries. Thus such as designation becomes a public relations exercise posing as a conservation without real conservation improvement.

Comments on Recommendation 5. Underwater noise and whale strike mitigation

This recommendation states:

“Implement a suite of measures to offset both the increased underwater noise and the increased strike risk posed to Species at Risk Act-listed marine mammal and fish species (including Southern resident killer whale) due to Project-related marine shipping, at each relevant section of the marine shipping route (i.e., Strait of Georgia, Boundary Pass, Haro Strait, Juan de Fuca Strait, and out to the 12-nautical-mile territorial sea limit), and at the relevant times of year. Each offset measure should apply

¹⁰ <http://www.dfo-mpo.gc.ca/oceans/publications/advisorypanel-comiteconseil/2018/finalreport-rapportfinal/page03-eng.html>.

¹¹ <https://www.canada.ca/en/environment-climate-change/news/2018/09/establishing-the-scott-islands-marine-national-wildlife-area.html>

¹² Triangle Island ER. http://ecoreserves.bc.ca/portfolio_item/013-anne-vallee-triangle-island/

¹³ <http://oceans.ubc.ca/2017/01/30/better-protection-needed-for-scott-islands-marine-national-wildlife-area-scientists-urge/>. Better protection needed for Scott Islands marine National Wildlife Area, scientists urge.

to all appropriate vessels for that measure (i.e., not limited to Project-related vessels). There should be periodic reporting that includes measured or estimated underwater noise and strike risk due to Project-related marine shipping, and the extent over time to which that additional noise and strike risk has been offset by measures that apply to all appropriate vessels.

We think the NEB is too narrow in the focus on reducing ship speed and noise for listed species only. All fish use acoustic clues for predator avoidance and foraging. There are already Rock Fish Conservation areas along the shipping route. Slower speeds reduce mammal strikes. We noted that there is a different approach on the east coast which controls ship speed through regulations and enforcement. The Argument in Chief put forward by the Federal Agencies [A97421-2](#) Federal Authorities Argument in Chief - A6R2C7 on page 3 states;

“Improve responsible shipping and protect Canada’s waters, including measures to prevent incidents and accidents, while enabling rapid response actions in the event of a spill”;

We interpret *Improve responsible shipping* places the onus on voluntary measures on ship owners and operators and away from the agencies and is a continuation of this soft approach the Federal Agencies have taken on the west coast for voluntary approach to ship speed and voluntary compliance for lateral displacement to mitigate impacts of ship noise on endangered species. **We do not support voluntary discretionary measures by the shipping industry as an effective approach to protection of endangered species.** We hope the NEB would endorse this and call for something more effective, as we believe that is more consistent with the FCA intention for listed species.

FER Suggested Improvements to Recommendation 5

*The Governor in Council should implement a suite of measures (**including regulations and enforcement measures**) to offset both the increased underwater noise and the increased strike risk posed to Species at Risk Act-listed marine mammal and fish species (including Southern resident killer whales) due to Project-related marine shipping, at each relevant section of the marine shipping route (i.e., Strait of Georgia, Boundary Pass, Haro Strait, Juan de Fuca Strait, and out to the 12-nautical-mile territorial sea limit).*

Comments on Recommendation 6. Underwater noise and whale strike mitigation

Below is the current wording of this recommendation:

“Implement a suite of measures including options to offset both the increased underwater noise and the increased strike risk posed to Species at Risk Act-listed marine mammal and fish species (including Southern resident killer whale) due to Project-related marine shipping at each relevant section of the marine shipping route (i.e., Strait of Georgia, Boundary Pass, Haro Strait, Juan de Fuca Strait, and out to the 12-nautical-mile territorial sea limit and at the relevant times of year.

To paraphrase this recommendation, it aims to reduce under-water noise and reduce mammal strike risk for all vessels, limit whale watching boats, reduce ferry noise by setting targets, identify whale congregation areas and contemplate changes in ship routing and speed reduction zones for whales. These recommendations are welcomed. We are concerned whether there is any urgency to change the status quo from the Federal Agencies. We note that from the time SRKW were first listed

in 2002 and again confirmed in 2008, it took another decade to finalize a recovery and begin implementation. There are suddenly funds for more study of SRKW but still no commitment to change shipping practices beyond voluntary discretionary measures favoured by DFO and TC for lateral displacement and slowing ship speeds based on seasonal whale presence.

There have been lateral displacement trials carried out for SRKWs by TC and we seek to increase the distance between ships and shore; a lateral displacement of all shipping to an alignment that more closely parallels the demarcation line of the Canada-US border. An alignment further from Brotchie Ledge pilot drop off area, Point F in Figure 4, would allow more time to muster an oil spill response than the current location does. This mitigation strategy would mean that in future, all shipping, including the dilbit tankers, would pass further off shore and more mid-channel which also mitigates GHG emissions for the communities of Victoria, Oak Bay, Esquimalt, Colwood and Metchosin and we believe, would reduce the probability of oiling these community shorelines.

Shipping further off shore provides a shorter route for all ships but a longer commute for the pilots than the current shipping lanes. However, the three course corrections would be reduced to two as there would be no need to make the correction to reach the current Brotchie Ledge pilot drop off point. The ships would transit further south of the ERs, further off shore by Discovery Island and go directly to Point G. The lateral displacement of the current shipping lane would need to go south of the anchoring area of Constance Bank.

Figure 4. Lateral displacement of Current Shipping Lanes near Southern Vancouver Island Communities



FER suggested improvements to Recommendation 6

The underlined wording will, to our mind, improve this recommendation to GIC:

Underwater noise and whale strike mitigation identification of specific whale congregation and migration areas (including for resident killer, humpback, grey, and fin whales, as well as basking shark) and consideration of specific routing and speed restrictions along the entire length of the shipping lanes from Turn Point to known SRKW areas west of Sooke until in those areas are identified.

Comments on Recommendation 7. Marine oil spill response

This recommendation is repeated here for the convenience of the reader;

The Governor in Council should review and update federal marine shipping oil spill response requirements. This review should include consideration of the following:

- *updating response organization standards;*
- *response planning methodologies;*
- *public reporting by response organizations (RO) to promote transparency of information;*
- *inclusion of Indigenous peoples and local communities in response planning; and*
- *a requirement for additional response resources on all ocean-going vessels.*

FER suggested improvements to Recommendation 7

FER recommends NEB add lateral movement of shipping to this list with additional wording:

- **movement of shipping lanes further off shore along the Victoria water front to south of Constance Bank so there are less extreme course changes**

There has been and will continue to be resistance to shipping of dilbit simply because the Transport Canada RO standards have not been updated since published in August 1995 and are seriously inadequate given the TMX dilbit shipping risk. This is a very good and important recommendation and we fully support the NEB in putting it forward. The independent reviews of recent BC oil spills associated with the Marathassa and Nathan E Stewards incidents and the recommendations point to the need to improve response planning. We strongly endorse the support by the NEB for transparency of information by the ROs. See comments on permit condition 131 on human safety and a secrecy about dilbit spill and human health. Also there are significant differences in something as fundamental as wind speeds and RO ability to respond. WCMRC is fundamentally a booster for the oil industry and has not, in our opinion, provided basic data and assumptions with regard to conditions under which it can and will respond.

Members of FER have been involved with RO and local community information sessions aimed to improve response planning and identifying environmentally sensitive areas. The occasion when local community members from Metchosin shared their knowledge of sensitive ecological areas on the south coast of Vancouver Island with WCMRC, was in no way reflected in the RO spill plans as pointed out in our Direct Evidence Report.

We are pleased to see Recommendations 8, 9, 10, 11, 12 and 13 and have no further comment.

SECTION 5. OBSERVATIONS OF THE RECONSIDERATION PROCESS AND CONTEXT

Canadians now own the TMX project. The Federal Government prior to the FCA decision for the reconsideration hearings was committed to completion of the project. This meant that the Federal Agencies had to become Dilbit export boosters during this process. The Board of FER did attend Ocean Protection Plan input sessions and the Agencies, in our estimation, are over-confident in the rhetoric to the public and this over-confidence also is carried to the briefing of elected representatives such a Minister McKenna. For the record, we repeat some of the higher level guidance from Minister McKenna which is certainly informed by senior Federal Agency staff. The whole letter is contained in Appendix 1 of our Direct Evidence Report. Here are the opening statements. Emphasis added.

Dear Minister Heyman:

I am writing to follow up on the meeting the Prime Minister held with British Columbia Premier John Horgan and Alberta Premier Rachel Notley in Ottawa on April 15, 2018 to discuss the twinning of the Trans Mountain Expansion (TMX) project.

The Government of Canada has a strong regime in place to protect the environment in land and marine areas under its jurisdiction, and is committed to continuous improvement in this respect. We are dedicated to ensuring that Canada's resources are developed in a way that is informed by rigorous science and evidence, aligns to Canada's climate change plan, protects Canada's rich natural environment, including our Oceans, respects the rights of Indigenous Peoples, and supports our economy. Our priority remains to effectively advance both Canada's economic progress and our environmental responsibilities.

In this context, I wanted to underscore our government's commitment to seeing the TMX project go ahead, as this vital infrastructure is in Canada's national interest, and to outline why our government has confidence this project can proceed in a manner that is safe, environmentally responsible, and can be built and operated to the highest standards. I also outline measures we have taken, and propose potential areas for future collaboration, to ensure concerns about the project and the protection of B.C.'s coast are addressed in a comprehensive and meaningful way.

We question where the notion that Canada has a strong oil spill response regime in place when compared to the much, much stronger regime found in US waters. The Canadian performance standards are between 20 to 25% lower than our US counterparts in terms of time to get to a spill and capability to recover oil on water. It is indeed hard to interpret that Canada has a strong regime.

Government ownership and the question of Federal Agencies being sufficiently independent or whether in a conflict of interest to speak against the adequacy of the status quo, is a serious matter. All of the new initiatives of the Ocean Protection Plan still amount to many future promises. We also note the track record of agencies i.e. DFO and 16-year lapse from the listing of SRKW before arriving at a finalized recovery plan from which to finally begin to implement some recovery actions. Arguably the government's long period of inaction has contributed to the crisis for the SKRW. Could declining fish stocks have been dealt with earlier? Could more conservative approaches to manage acoustic noise and improved SKRW forage success have been implemented earlier? Obviously we will never know but there should be some accountability, a rationale

provided for what lead to a 16-year delay and why there were no changes made at DFO so that species at risk brinksmanship would decrease.

We concluded through the IR process, that TMX, Western Canada Marine Response Corporation (WCMRC), Transport Canada (TC) and Health Canada (HC) all support non-disclosure of the contents of diluted Bitumen (dilbit) and its toxicity and that there is a lack of public information disclosure on what do when a dilbit spill occurs and how to protect public health from this toxic substance. We understand the less-than-arms-length relationship between TMX and WCMRC (Kinder Morgan is the majority share holder in TMX and owns more than 50% of WCMRC) so both are oil export boosters. They are more focused on profit than on human health risks of dilbit and consider its makeup to be proprietary.

What we don't understand is why this lack of disclosure of the components of dilbit is supported by Transport Canada as well as Health Canada who referred our health information requests to TMX for response. We sincerely hope that the National Energy Board will support public health information disclosure of this toxic substance and add a permit condition for TMX to provide full disclosure of the dangers of a dilbit spill. Furthermore, the permit condition would also include the creation of public information outreach sessions to those citizens along the tanker route, before a dilbit spill occurs.

SECTION 6. SUMMARY AND HOPES FOR A BETTER FUTURE

The reconsideration process and the current outcome

The Board of Friends of Ecological Reserves (FER) supports the single new condition for enhanced tug escort to the western portion of the tanker route as far as Juliet Buoy and the 12 mile limit that the NEB places on TMX under Permit condition 133. We hope it remains and becomes permanent.

The Board of Friends of Ecological Reserves however, is disappointed and surprised that only a single substantive permit condition has been proposed by the NEB as result of the reconsideration hearings. We know there are additional practical measures that the NEB can place on TMX that afford greater protection for Canada's marine ecosystems along the tanker route. The NEB has in our opinion, not performed adequately in light of its mandate because it has shifted mitigation measures and decisions the NEB can and should make, back to the Federal Agencies. We do not think that, if tested again, the NEB has met the expectations to fully address marine transport risks from the TMX project that the Federal Court of Appeal sought.

To that end, the Board of FER provides the NEB with additional permit conditions that are within NEB's authority to place on the TMX project at this time based on the FCA rulings that mandated these reconsideration hearings for the marine waters along the tanker route.

FER has identified some additional gaps and opportunities that need to be addressed through additional TMX permit conditions. FER cannot support the downgrading to 'discretionary' status of the current permit condition 131 which addressed marine outreach. We recommend it be retained and refocused to become a public health awareness outreach program and address what to do and what the public should know prior to a dilbit spill. We have recommended a permit condition to achieve this. We are fairly certain that the risks of a spill are not nil. There will be 57,600 tanker and tug transits along the tanker route in the next 30 years once NEB recommends this project and conditions are approved. The safeguards in place are inadequate for the marine portion of this project.

Another gap in the TMX permit conditions is the NEB absence of a permit for TMX to support and participate in marine research and monitoring over the life the project related to improving understanding and future mitigation opportunities when a dilbit spill occurs. FER recommends a Marine Conservation Foundation administer a research and monitoring program on behalf of multi-stakeholders who will provide oversight and set direction for an annual \$10 million TMX-funded program. This would be complementary to research and monitoring initiatives mentioned by the Federal Agencies in the OPP. It would take some of the burden off the Federal Agencies who would still have oversight input to such a program. That TMX provides funding to manage risk of dilbit, a toxic substance, is considered a reasonable condition and consistent with the principle that the risk bringer has responsibility to assist in the understanding of how to manage the risk they are bringing. British Columbians and Canadian should not have to pay for such research and monitoring. We provide wording to this effect in Table 3.

The enormous disparity between US and Canadian RO standards means that currently some of the Federal Agency claims of world class response is not grounded in fact. We fully support the NEB recommended review by TC of the 25-year-old RO standards set in regulation. We do not think these standards will be expedited and regulations changed in time to affect WCMRC permit renewal

and we remain unclear that revised TC RO standards would achieve parity with US standards. Therefore, we recommend that NEB place a permit condition now on the TMX project in the form of a contract obligation between TMX and US-based ROs in the State of Washington who do have the capacity to respond in 6 hours to an entire Dilbit Tanker spill. The WCMRC has capacity to respond in 32 hours to 20% of an Aframax tankers capacity. This is an immediately available mitigation strategy to boost capacity for responses not available by continued reliance on less resourced and slower to respond Canadian RO standards. Such a contract would also provide the Gulf Islands and Saanich Peninsula with the same 6-hour response time as Vancouver now enjoys. We could find no rationale why TC chooses to place RO Tiered zones that create higher risk for people and ecosystems on Vancouver Island and higher risks for the endanger SRKW.

A further mitigation strategy to reduce risk of shore zone oiling from a dilbit spill in waters off the Saanich Peninsula, is to move (laterally shift south) the current shipping lanes further offshore. The NEB in recommendations to GIC has only addressed lateral displacement of shipping lanes as a mitigation strategy for SRKW and in areas of known concentration such as Haro and Juan De Fuca Straits to mitigate acoustic noise, whereas lateral displacement works well for protection of Ecological Reserves and human health risk along the Victoria waterfront too. The logic supporting a lateral transfer of all shipping further offshore is that it affords more time for RO or rescue tugs to deploy in comparison to the current near shore shipping lanes. We provide wording to this effect in Table 4.

We were disappointed in many of the responses to information requests (IRs) and the reliance TMX placed on earlier evidence. Information Requests on data and insights into assumptions sought by intervenors, were poorly or not answered because the earlier NEB process had already *“adjudicated that information”*. The responses provided this time around consisted of a bunch of links to earlier evidence or in some cases, the responses effectively said, you figure it out by reading these and you may come to the same conclusion. In that light, all IRs which promised there was an answer at the end of link, did not address IR. The links are to support the evidence discussed not purport to be the answer to the request.

Our understanding of the intent of the FCA ruling, was that these reconsideration hearings were to revisit and test the strength of the earlier evidence and improve understanding with newer evidence. There was also very little new evidence coming from TMX. New evidence provided by FER was never acknowledged or incorporated by the proponent. This disregard is perhaps understandable as the new owner of the TMX (the Federal Government and all Canadians) knew in advance, that no matter the evidence, the project would proceed. TMX had only run the clock down, offering as little new information and effort as possible as the decision had already been made. We experienced exhaustion in efforts to obtain better information and insights while the clock ran down. TMX offered minimal new information and made few new commitments.

Table 3. Recommended changes to existing permit conditions and two additional permit conditions

<p>A recommendation to the NEB to keep and refocus permit condition 131:</p> <p>Permit Condition 131. <i>“at least 3 months prior to commencing operations, a summary of Trans Mountain’s consultation with the Health Canada regarding the public extension on what to do in the event of a dilbit spill undertake a public extension the program, including:</i></p> <ul style="list-style-type: none"><i>i) the resources and information that Trans Mountain will provide or will present at annually at public awareness forums, to clarify what to do and what not to do when there is a spill of toxic substance to mitigate risk to public health;</i><i>ii) the schedules of activities or presentation/workshops with fishing industry organizations, commercial and recreational vessel operators, marinas, Aboriginal groups, Municipal councils and first responders forums, schools and universities affected by a dilbit spill.</i><i>iii) any issues or concerns raised by the Health Canada, Worksafe BC, Municipalities and how Trans Mountain has or will address these;”</i>
<p>A recommendation to the NEB for inclusion of a permit condition for marine research and baseline monitoring and restoration.</p> <p>TMX will 3 months prior to commencement of shipping provide in trust an amount of \$10,000,000 renewed annually over the life of the project to support a marine research and monitoring program to address dilbit risk, environmental toxicity and ecosystem baselines and recovery. This program will administered through establishment of a Marine Conservation Trust Foundation steered by representatives from Federal, Provincial, State Agencies, First Nation governments, TMX, and the ENGO community to ensure completion of a strategic plan, annual reports and timely disclosure of research and monitoring information.</p>
<p>A recommended to NEB to strengthen Permit Condition 133 Spill Response.</p> <p>“TMX will have in place 3 months prior increased shipping contracts with the US based Marine Spill Response Corporation (MSRC) and Clean Sound Cooperative Inc¹⁴. so that these RO will be on contract to respond in Canadian waters to laden TMX tankers with the same response times and response capacity provided for tankers in State of Washington waters.”</p>

¹⁴ <https://www.msrg.org/> MSRC is the largest, dedicated oil spill and emergency response organization in the United States.

Table 4. Summary of FER recommendations for NEB on changes to NEB direction to GIC

<p>Suggested changes to NEB Recommendation 1 to GIC regarding baseline monitoring</p> <p><i>b) incorporation of the work the federal authorities are already planning in the area, such as under the Coastal Environmental Baseline Program and support baseline monitoring through partnerships with FNs, NGOs and industry funded projects that provide additional environmental base line monitoring to those underway by Federal authorities to support the Cumulative Effects of Marine Shipping initiative (including its regional cumulative effects assessment);</i></p>
<p>Suggested changes to NEB Recommendation 5 to GIC regarding Underwater noise and whale strike mitigation</p> <p><i>“Implement a suite of measures including regulation and enforcement options to offset both the increased underwater noise and the increased strike risk posed to Species at Risk Act-listed marine mammal and fish species (including Southern resident killer whale) due to Project-related marine shipping and non project related shipping, at each relevant section of the marine shipping route (i.e., Strait of Georgia, Boundary Pass, Haro Strait, Juan de Fuca Strait, and out to the 12-nautical-mile territorial sea limit) and at the relevant times of year.</i></p>
<p>Suggested changes to NEB Recommendation 6 to GIC regarding Underwater noise and whale strike mitigation</p> <p><i>identification of specific whale congregation and migration areas (including for resident killer, humpback, grey, and fin whales, as well as basking shark) and consideration of specific routing and speed restrictions along the entire length of the shipping lanes from Turn Point to known SRKW areas west of Sooke until in those areas are identified ; and</i></p>
<p>Suggested changes to NEB Recommendation 7 to GIC regarding Marine Oil Spill Response</p> <ul style="list-style-type: none"> • moving shipping lanes further off shore along the Victoria water front to south of Constance Bank

The future for British Columbians who will bear the most risk from this project as our contribution to the National interest, will be much improved when the NEB strengthens the safeguards and includes the three permit conditions that the Friends of Ecological Reserves has recommended.

FER has offered constructive mitigation measures to help the NEB meet its mandate. We know that collaboration (bridge building between stakeholders with a common purpose) is superior to adversarial confrontation between stakeholders (spear chucking by those with opposing views). This spear chucking or status quo has, to some extent, characterized many exchanges during the reconsideration hearings. The collaboration that FER seeks NEB support for is also espoused by the Federal Agencies and the Oceans Protection Plan and the 4 pillars which emphasize building partnership for future research on dilbit and restoration and recovery of adversely effected environments. Collaboration is a more a constructive approach to an uncertain future and there is a great deal of uncertainty attached to the TMX project despite the confidence and reassurances provided by the permit conditions placed on the project by the earlier NEB hearings.

The NEB would show wisdom if it were to support collaboration on research and monitoring because the energy, knowledge, passion and fear of losing what is now enjoyed from the marine environment, will be brought to the table by First Nations and the Environmental Non-government Organizations. Such an inclusion into broader collaboration will provide a more durable long-term solution, build more lasting relationships than currently enjoyed by big government and big industry controlled partnerships.

A hopeful and better future is one where the Response Organizations on both sides of the BC-Washington Border are on contract to TMX and respond to dilbit spills in an urgent and immediate timeframe and with sufficient capacity to deal with a spill of the entire volume of dilbit carried by an Aframax tanker when there is an open ocean dilbit spill or dilbit spill from a tanker grounding. A hopeful future is one where, because of enhanced RO efforts enabled by the NEB, there are no Southern Resident Killer Whale deaths and the viability of the population is not diminished in the event of a dilbit spill.

A hopeful and better future includes a system of newly protected Marine Protected Areas sufficiently well linked and with regulations and enforcement of no-take provisions so these truly are protected areas which will act as refuges for species which would be reflected in improved productivity of the Salish Sea for the benefit of all.

A hopeful and better future includes changes within the next 12 years (2030) so that mitigation measures in countries importing dilbit from Canada are sufficiently advanced in managing GHG emissions resulting in no new increase in global carbon from Canadian dilbit consumption and the Intergovernmental Panel on Climate Change (IPCC)¹⁵ threshold and tipping point of no return is not exceeded.

A hopeful and better future includes research and monitoring funded by TMX and the oil exporters and an end to public subsidies for dilbit research and monitoring to learn how to mitigate risks on behalf of big oil companies. The end to fossil fuel industry subsidies will, in a hopeful future, allow Canadian development of non-carbon based industries and provide Canada a position of problem solver greater rather than that of a problem bringer in the bigger global stage.

A better and more hopeful future can be created once the NEB achieves a better balance between the needs of Canadians and desires of the oil industry.

A better and more hopeful future would include a scenario such as that imaged below and shared with Federal Agencies, TMX and other intervenors to better visualize a positive change that differs only slightly from the status quo. We include this scenario because we do not think the NEB has grasped what a better, more hopeful and constructive world would be like and one the NEB can create beginning in 2019.

¹⁵ <https://www.ipcc.ch/sr15/chapter/summary-for-policy-makers/> Special Report: Global Warming of 1.5. Summary for Policy Makers.

The year 2025 and a possible glimpse into the better future for Canadians and the Oil Exporters

It is the annual meeting of the Advisory Board of the Marine Conservation Trust Foundation established in 2019 through a NEB permit condition and which began functioning in the year 2021. It is the 4th Annual Board meeting where representatives from TMX, together with representatives from First Nations, the Province of BC, and the State of Washington and Environmental Non Government representatives come together for the annual review of the state of knowledge of dilbit and its recovery in marine ecosystems and chart a way forward for the coming year. The staff of the Marine Conservation Trust Foundation have distributed briefing materials and prepared a review of the projects managed by Marine Conservation Trust Foundation (MCTF) and provided a review of the progress towards goals of the strategic plan. There are updates on projects under way; possible alternate approaches to mitigate the environmental risks and better understanding of the toxicity of dilbit. There is a review of the MCTF-funded projects for the annual \$10 million dollar budget. There is also a review of the call for proposals and approximate budgets available for those submitting proposals. Then there are briefings from the representative from DFO and Environment Canada on the progress made by government scientists under the initiatives being implemented under the OPP. There are updates on species at risk and which species have been listed, and which have been de-listed, probable causes and information gaps. The oversight board learns from insights of the First Nations and what their band members have observed being on the water, harvesting along the marine shores and changes experienced since the last meeting and possible trends. There is then a discussion on direction in the strategic plan and whether there is a need to shift focus in the coming year. MCTF staff make recommendations and provide their rationale for ranking of new projects received through a call for proposals. Members are briefed from the representatives from Washington State on advancements made in dilbit recovery and marine ecosystem restoration and their baseline studies in the USA. Everyone looks forward to this formal forum and the release of the annual report and the audit of finances and the posting of accomplishments and data. We hope that the NEB too would embrace such a future. We hope that the NEB will enable such a future.

APPENDIX 1. A LISTING OF ALL FER FILINGS AND RESPONSES TO INFORMATION REQUESTS (IRS)

Table 5. Filings and responses from and to Friends of Ecological Reserves during the NEB Trans Mountain Reconsideration Hearings

Date Filed	Filing Name and Link
Oct 3-2018	A94486-1 Friends of Ecological Reserves Oct 3-18 submission-Final - A6I2H1
Oct 10-2018	A94736-1 CEEA intent on project scope - A6I6E5
Nov 6-2108	A95502-1 FER letter of support Squamish FN - A6K0S8
Dec 3 -2018	A96349-1 Cover letter Friends of Ecological Reserves Opening statement Dec 3-18 - A6L3Y8
Dec 3-2018	A96349-2 OPENING STATEMENT Friends of ER-DEC 3 - A6L3Y9
Dec 5-2018	A96487-1 FINAL EVIDENCE REPORT Friends of ER-DEC 5 – A6L7T6
Dec 12-2018	A96633-1 Cover letter NEB separate-FER IR filings - A6Q0C8
Dec 12-2018	A96633-2 IR to Transport Canada from Friends of Ecological Reserves - A6Q0C9.pdf
Dec 12-2018	A96633-3 IR to Canadian Association Petroleum Producers from Friends of Ecological Reserves - A6Q0D0.pdf
Dec 12-2018	A96633-4 IR to Vancouver Fraser Port Authority from Friends of Ecological Reserves - A6Q0D1.pdf
Dec 12-2018	A96633-5 IR to Western Canada Marine Response Corporation from Friends of Ecological Reserves - A6Q0D2.pdf
Dec 12-2018	A96633-6 IR to Trans Mountain-Friends of Ecological Reserves - A6Q0D3.pdf
Dec 12-2018	A96633-7 IR to Parks Canada from Friends of Ecological Reserves - A6Q0D4.pdf
Dec 12-2018	A96633-8 IRs to Pacific Pilots -Canadian Pilots Associations from Friends of Ecological Reserves - A6Q0D5.pdf
Dec 12-2018	A96633-10 IR to Environment Canada-Friends of Ecological Reserves - A6Q0D7.pdf
Dec 12-2018	A96633-11 IRs to Department of Fisheries Oceans from Friends of Ecological Reserves - A6Q0D8.pdf
Dec 12-2018	A96633-12 IRs to Canadian Coast Guard from Friends of Ecological Reserves - A6Q0D9.pdf
Dec 12-2018	A96633-13 IR to the National Energy Board-Friends of Ecological Reserves - A6Q0E0.pdf
Dec 28-2108	A96633-14 IRs to Canadian Wildlife Service from Friends of Ecological Reserves - A6Q0E1.pdf
Dec 17-2018	A96735-1 Cover letter IR -TMX-Windspeed - 2016 IRs - A6Q1V0 (1).pdf
	A96735-2 TMX IR Windspeed -2016 IRs FER - A6Q1V1 (1).pdf

**APPENDIX 1. LISTING OF ALL FER FILINGS TO
RESPONSES FOR INFORMATION REQUESTS**

**Friends of Ecological Reserves
Argument in Chief**

Date Filed	Filing Name and Link
Dec 20-2018	A96882-1 Motion to compel CAPP to respond IR-FER Dec 20-18 - A6Q4E2 (1).pdf
Dec-23-2018	A96949-1 Response to CAPP refusal to FER-IRs DEC 23-18 - A6Q4V3 (1).pdf
Dec-28 2018	A96978-1 Response- Information Requests - Dec 2018 - Canadian Marine Pilots Association - A6Q5H5
Dec 31-2018	A97008-14 Trans mountain Response to FER IR A6Q5Z9
Dec 31-2018	A97008-15 FER IR No-046 attachment-A6Q6A0
Dec 31-2018	A97009-7 TM Response to FER IR to HC and ECCC – A6Q6E0
Dec 31-2018	A97009-6 TM Response to FER IR to DFO and TC A6Q6G9
Dec 31-2018	A97014-5 WCMRC Response to FER IR A96633-5 A6Q6G0
Dec 31-2018	A97002-3 Response to Information Request from Friends of Ecological Reserves - A6Q5W9
Jan 4- 2019	A97061-1 NEB Ruling No. 25 - FER - Trans Mountain Expansion - Reconsideration - Notice of Motion directed at CAPP - A6Q7A9

APPENDIX 2. SUMMARY OF IRs BY FER AND SUMMARY OF RESPONSES AND COMMENTS ON ADEQUACY

Information Requests (IRs) from FER to Trans mountain (TMX) Western Canada Marine Response Corporation (WCMRC), Canadian Association of Petroleum Producers (CAPP), Marine Pilots Association, Federal Agencies: Transport Canada (TC), Department of Fisheries and Oceans (DFO), Parks Canada (PC), Health Canada (HC), Environment Climate Change Canada (ECCC), Canadian Wildlife Service (CWS) and the Canadian Coast Guard (CCG)

Information Requests	Responses	Comment
<p>1. 2.1.2.1 IR #1 – to TC and ECCC We request similar information from TC and ECCC as we did from TMX that they: Provide an outline of the tanker acceptance process, and the criteria used by Federal Agencies to accept an Aframax tanker. We presume the TC process for screening ships unable to meet GHG emissions standards apply to bulk carriers and container ships too.</p>	<p>TC- The tanker acceptance standard typically refers to an industry led initiative, and TC is unable to comment on this. TC however administers several regulatory requirements applicable to tankers. For example, for tankers that call on Canadian ports, Canada has adopted the International Maritime Organization’s International Convention for the Prevention of Pollution from Ships (MARPOL) Annex 1, which provides the requirements for the phase-out of single hulled tankers on international voyages in waters under Canadian jurisdiction. The phasing out of single-hulled tankers began in 2003, with the final phase-out occurring in 2015. Greenhouse gas emissions standards apply to bulk carriers and container ships. Vessel emissions are a part of the standard Port State (international) and Flag State (domestic) inspection processes.</p>	<p>Was hoping for insights on compliance and Federal role. Just restated what we knew – that there are international standards</p>
<p>2. 2.1.2.2 IR #2 – to TC How does TC determine whether an Aframax tanker’s GHG emissions are in compliance with the Sulphur in Diesel Regulations? https://laws-lois.justice.gc.ca/eng/regulations/SOR-2002254/index.html ?</p>	<p>TC- The Sulphur in Diesel Fuel Regulations do not have any requirements related to GHG emissions.</p>	<p>Escaped a need to answer. Question should have stuck with sulphur emissions.</p>
<p>3. 2.1.2.3 IR #3 – to Federal Agencies Have the Federal Agencies denied tanker entry to Canadian waters based on GHG emission concerns? How often?</p>	<p>TC- To date, Canada has not denied a tanker entry into Canadian waters based on GHG emission concerns.</p>	<p>Remain unsure if there is no enforcement or no standard against which to enforce.</p>

Information Requests	Responses	Comment
<p>4. 3.7.1.1 IR #4 – To TC and WCMRC Since the posted maps on the WCMRC do not have plans to protect any environmentally identified critical habitat, we seek from TC and WCMRC their criteria and the priority in the strategies of protecting coastal features. It appears clear from these maps on the WCMRC website this RO is not aligned with the stated goals of the federal agencies. If WCMRC is the sole agency responsible for clean up, our ecological values are definitely in jeopardy.</p>	<p>WCMRC- Developing GRS (Geographic Response Strategy?) for each section of the coast is a multi-step process. Not every linear kilometer of the coast is amenable to GRS development and nor is it necessary. GRS are site-specific and supplementary strategies within overall implementation of WCMRC’s Oil Spill Response Plan. The process is outlined below:</p> <ul style="list-style-type: none"> • The process starts by first selecting a particular portion of the coast. • Coastal sensitivities, such as seal haul outs and eelgrass beds, are identified from existing data sets, including the B.C. Coastal Resource Information Management System (CRIMS). The data, which includes biological, cultural and socio-economic data for that section of coastline, is mapped in WCMRC’s Coastal Mapping Tool, which produces a GRS sensitivity model. This model initially identifies those locations on the shoreline that could be suitable for GRS development. • The model results are then taken to community, First Nations and government for review and their input. At this point in time, additional sites, not identified by the model, may be added. • Then to verify data quality, a registered biologist reviews the data against representative sample conditions in the field, • GRS’s are then developed using WCMRCs automated GRS development tool in the Coastal Mapping Tool. • WCMRC operations staff continue to ground truth, train and test the GRS for feasibility taking into account different/changing weather conditions, currents, depths, shoreline type, width, length of identified boom and line. The GRS is updated if required. • Each year WCMRC responders are tasked with evaluating a series of identified GRS and with the task of identifying additional sites. <p>TC-Transport Canada certifies response organizations, including the WCMRC, as outlined on PDF pages 31 to 33 of Annex 05.E.01 of the Opening Statement and Written Evidence of Federal Government Intervenors (NEB Document A95292-23, exhibit A6J6SO). The Response Organizations and Oil Handling Facilities Regulations under the Canada Shipping Act, 2001 stipulate that a response organization’s response plan shall include, among other information, a description of the measures that the response organization will take, in response to an oil spill, <u>to protect and treat areas of environmental sensitivities within the affected operating environment</u>. Please also refer to WCMRC’s response to this information request for information on their spill response planning.</p>	<p>No Environmentally sensitive areas were identified by WCMRC. Just talk about it not on plan.</p> <p>TC thinks WCMRC is identifying environmentally sensitive areas.</p> <p>Third party audit needed? More oversight by TC needed?</p> <p>WCMRC wording does not match performance as shown in the FER Direct Evidence report.</p>
<p>5. 3.7.1.2 IR #5 – To TC and ECCC Since much of the work on marine migratory birds in British Columbia has been focused on activities on the north and central coasts, what evidence do we have of marine bird environmental sensitivities data being collected in marine waters of southern BC, including but not</p>	<p>Transport Canada: The subject matter of this information request falls outside of Transport Canada’s mandate. The subject matter of this IR falls within the mandate of Environment and Climate Change Canada, which will respond to this information request on behalf of the Federal Authority intervenors.</p> <p>Environment and Climate Change Canada: Environment and Climate Change Canada and other organizations administer a variety of monitoring and research programs related to marine bird sensitivities in the south coast region. Monitoring activities have included nearshore and pelagic vessel-based surveys, aerial surveys for large congregations of marine birds, and long-term shore-based surveys. Below is non-exhaustive list of recent and ongoing</p>	<p>There appears to be an absence of downloadable data for the BC coast in comparison to data available, Alaska, Russia and Japan.</p> <p>Is ECCC really supplying this information to the Global Portal?</p>

Information Requests	Responses	Comment
<p>limited to the Salish Sea?</p>	<p>monitoring and research programs relevant to marine bird sensitivities. Programs led by the Environment and Climate Change Canada Current monitoring activities focus on tracking populations (e.g., generating population estimates, identifying bird use of important habitats or generating population trend estimates for migratory bird species and some SARA-listed Migratory Birds). In the past, ECCC was also engaged in migratory bird inventory work and the results of past regional migratory bird inventories are available in ECCC technical reports. The following is a list of ongoing ECCC monitoring activities or programs in the South Coast region:</p> <ul style="list-style-type: none"> ● Pelagic Marine Bird Monitoring Program (1996–present): Trained observers (staff or contractors) are placed on ‘ships-of-opportunity’ traversing the pelagic waters of the Canadian Pacific Exclusive Economic Zone, and collect pelagic bird data according to an established protocol. This program generates density and occurrence data for SARA-listed species including pinkfooted shearwater, short-tailed albatross, and black-footed albatross, as well as other marine bird species. All data are entered into the ‘Pacific Seabird Database’. http://axiom.seabirds.net/maps/js/seabirds.php?app=north_pacific#z=2&ll=45.30234,-161.65039 ● Estuary and nearshore surveys: Estuary and nearshore surveys of waterbirds and waterfowl have been conducted from the ground and from the air (float plane) in portions of the south coast to capture mid-winter and early spring (January to March) distribution and abundance of waterfowl and waterbirds. ● Shorebird Migration Surveys: <ul style="list-style-type: none"> ○ Roberts Bank Shorebird Counts—conducted during northward migration (focal species: Western Sandpiper and Dunlin) ○ Sidney Island Shorebird Counts—conducted during southern migration (focal species: Western Sandpiper and Least Sandpiper) ● Long-term, species-specific monitoring of marine bird populations: <ul style="list-style-type: none"> ○ Harlequin duck count surveys between White Rock and Crescent Beach (1994–present) ○ Wrangel Island Snow Geese surveys on the Fraser River Delta (1987– present) and Skagit River Delta (1992-present). These surveys have been done in collaboration with Washington State since 2017. ○ Black brant spring migration counts at Parksville-Qualicum Beach (1989–present). In addition to counts, abdominal profiles have been assessed as an indicator of body condition since 1999. ● Long-term monitoring of contaminants in eggs of Pacific seabirds <ul style="list-style-type: none"> ○ Eggs of three colonial seabird species (Leach’s storm petrel, doublecrested cormorant, rhinoceros auklet) are collected from coastal colonies (including within the Strait of Georgia for cormorants), every four years for analysis of legacy persistent organic pollutants, flame retardants, perfluorinated compounds and mercury (1985–present). ○ Eggs of glaucous-winged gulls are collected annually at two islands in the Strait of Georgia as part of the Chemicals Management Plan Monitoring and Surveillance Program. Eggs are analyzed for emerging and priority compounds (2008–present). ○ Egg contaminants data from the Chemicals Management Plan Monitoring and Surveillance Program is in the process 	<p>In our evidence, we provided several updated graphs of marine birds from recent references which have been completely ignored. We did this to add to larger data bases in theory managed by the Federal Agencies. Appears the Federal Agencies may be overstating what they are doing.</p>

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	<p>of being posted on EC’s Open Data Portal.</p> <p>As a component of the World Class Tanker Safety System initiative (Phase 2 – focusing on the Salish Sea and waters off western Vancouver Island), ECCC collected the following marine bird sensitivities data:</p> <ul style="list-style-type: none"> ● Tagging studies (2013-2016) tracked marine bird movement patterns across time and space. Birds were tagged on the water or at important breeding colonies. These studies were designed to link baseline marine survey data with potential impacts of an oil spill event, and targeted focal marine bird species. Fine-scale satellite telemetry data were collected using GPS or platform transmitting tags (PTT) for Barrow’s goldeneye, harlequin duck, and rhinoceros auklet. Broader-scale migratory movement data were collected using Geolocator tags for Cassin’s auklet, fork-tailed storm petrel, and rhinoceros auklet. These datasets are being converted to kernel densities for use in oil spill planning. ● Seasonal changes in the at sea distribution and abundance of marine birds near shipping lanes around southern Vancouver Island (2015-present). Monthly marine bird vessel-based surveys covering the nearshore region between Sydney and Victoria ● Marine bird distribution and abundance in relation to herring spawning activity in the Salish Sea (Feb–April, 2015–2016). Weekly ground-based point counts for marine birds at 24 locations on Vancouver Island between Nanaimo and Campbell River. ● Sea duck density and demography in the Strait of Georgia. (2003, 2004, partial 2014, 2015). Purpose was to determine spatial, temporal, and density related variability in age and sex ratios for five sea duck species, as well as proportion adult males in populations of 11 species wintering in the Strait of Georgia. ● Distribution and abundance of birds found in conjunction with Spring fisheries events (ongoing). Aerial surveys of seabirds in estuary, shoreline, and offshore habitats extending as far south as Saanich Inlet. <p>Data from the World Class Tanker Safety System is processed and stored in a number of ways:</p> <ul style="list-style-type: none"> ● Satellite telemetry data from PTT tags are regularly uploaded to Movebank, a free, online database of animal tracking data https://www.movebank.org ● Other tagging data (i.e. data from retrieved geolocator and GPS data-loggers) are currently being collected, processed, and integrated into spatial modelling products. <p>It is useful to note that work initiated through the World Class Tanker Safety System is being continued through the Oceans Protection Plan (OPP). The following plans for the coming year are of particular relevance:</p> <ul style="list-style-type: none"> ● At-Sea-Surveys are currently planned for 2019, with the aims of collecting baseline data to inform emergency response and building on long-term distribution, abundance and habitat use information. These surveys will include >1200 km of transects and >50 days of observer effort, covering both nearshore and pelagic habitat throughout the west coast of Vancouver Island and the Salish Sea. The program will coordinate with ongoing ships-of-opportunity surveys, as well as systematic surveys in the Salish Sea. The program also provides support for future surveys by the Tsleil-Waututh Nation in Burrard Inlet. ● Occurrence data or other products generated by marine bird monitoring activities funded under OPP will be stored 	

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	<p>either in existing databases or in new databases, archived by the principle investigators.</p> <p>The Oceans Protection Plan provides funding for research into impacts of diluted oils sands bitumen on marine birds: An assessment of potential impacts of dilute oil sands bitumen (dilbit) on marine birds (2016-2020). ECCC Science and Technology, in collaboration with Simon Fraser University, University of Manitoba, and McGill University are developing tools for assessing the chronic toxicological impact of petrogenic hydrocarbons on birds. This project includes the following components: 1. Basic toxicity of dilbit will be assessed through laboratory studies, an adult oral dosing study of a model species, zebra finch and an embryo exposure study of a field model species, double crested cormorant. A variety of basic toxicological and physiological responses will be measured along with specific behavioural endpoints in zebra finch. 2. Field assessments will be used to determine baseline contaminant levels. ECCC is collecting and incubating eggs of sentinel species (e.g., rhinoceros auklets and double-crested cormorants) to provide tissues for application of new molecular tools, primarily PCR gene arrays, as part of the suite of assessment endpoints in both laboratory and field monitoring studies. Baseline exposure to PAHs at bird colony study sites are being determined by collection and measurement of mussels (using Mussel Watch protocol) and of main prey fish species.</p> <p>As part of our commitment to open data and open government, ECCC is continually working towards putting our data on the Canada Open Data Portal following quality assurance and preparation. ECCC also supports the following programs, coordinated and implemented by Birds Studies Canada and Pacific Wildlife Foundation:</p> <ul style="list-style-type: none"> ● British Columbia Coastal Waterbird Survey (1999–present) ○ This survey is a citizen-science initiative wherein volunteers conduct monthly bird counts throughout BC’s coastal shorelines, with best coverage near human population centres. The survey is coordinated by Bird Studies Canada, and funded through multi-year Grants and Contributions from the Canadian Wildlife Service, Environment Canada. ○ ECCC-CWS has used this data, along with BC Physical Shore-Zone Mapping System data to predict the abundance and distribution of waterbirds along the south coast of BC. ● British Columbia Beached Birds Survey, (1986–1997, 2002–present) ○ This survey collects “baseline information on the causes and rates of seabird mortality. This program relies on volunteers who conduct monthly beach walks, looking for seabird carcasses that have washed up onshore.” ● Mapping marine birds in the Salish Sea (2008-2017). <ul style="list-style-type: none"> ○ Marine bird experts associated with Pacific Wildlife Foundation have conducted vessel-based surveys of marine bird distribution and abundance in the Southern Gulf Islands, Burrard Inlet and Indian Arm, and Fraser River Estuary. Transects in each region were surveyed monthly for 1–1.5 years. The data are presented in the following reports: <ul style="list-style-type: none"> ○ Butler, R.W., R. MacVicar, A. R. Couturier, S. Richmond, and H. A. Middleton. 2018. Status and Distribution of Marine Birds and Mammals in the Fraser River Estuary, British Columbia. Pacific WildLife Foundation and Bird Studies Canada. Unpublished Report. Port Moody, BC and Port Rowan, Ontario. ○ Butler, R.W., A. Couturier and E. Dickson. 2015. Status and distribution of marine birds and mammals in Burrard Inlet 	

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	<p>and Indian Arm, 2011-13. Pacific WildLife Foundation & Bird Studies Canada report.</p> <p>o Davidson, P, et al. 2010. Status and Distribution of Marine Birds and Mammals in the Southern Gulf Islands, British Columbia. Bird Studies Canada and Pacific WildLife Foundation Report to Parks Canada.</p>	
<p>6. 3.7.1.3 IR #6 –To TC, WCMRC, DFO, CWS and ECCC</p> <p>Since Parry Bay on the coastline of Metchosin has a beach with a high incidence of spawning habitat for pacific sand lance and a high incidence of winter habitat for feeding by grebes , loons, buffleheads and mergansers, what effort has been made to include this area as a sensitive area and what efforts have been made to plan for protection in the case of a spill of dilbit from TMX authorized tankers?</p>	<p>WCMRC-Locations of existing GRS can be found at the website, http://coastalresponse.ca/coastalmapping/ ; more are added once these have been operationalized</p> <p>Fisheries and Oceans Canada: Fisheries and Ocean Canada's (DFO's) assessment of the Trans Mountain Expansion Project including potential Project's effects on marine fish and fish habitat is provided in its written evidence submission (section 5.2.1 in NEB Document No. A4L7D4 for Hearing OH-001-2014). Parry Bay is part of the proposed Juan de Fuca Strait Ecologically and Biologically Significant Area (EBSA) identified by DFO. For more information, please see Jamieson and Levesque (2014) (DFO-Annex 5, PDF Page 83).</p> <p>Transport Canada: Transport Canada certifies response organizations, including the WCMRC, as outlined in Annex 05.E.1 of the Opening Statement and Written Evidence of Federal Government Intervenors (NEB Document A95292-23), on PDF pages 31 to 33. The Response Organizations and Oil Handling Facilities Regulations under the Canada Shipping Act, 2001 stipulate that a response organization's response plan shall include, among other information, a description of the measures that the response organization will take, in response to an oil spill, to protect and treat areas of environmental sensitivities within the affected operating environment. Please refer to WCMRC and CCG's responses to this information request for information on their spill response planning. Canadian Coast Guard: During an environmental response, the Canadian Coast Guard uses the Incident Command System (ICS). The flexibility and adaptability of the ICS allows for the activation of relevant personnel and resources to deal with all elements of the response. This could include an Environmental Unit that is responsible for, amongst other things, the identification of the natural resources at risk, and scientific support from other government departments to provide advice on the dynamics of the spilled product. The Environmental Unit supports the development of incident-specific tactics and strategies taking into account product type, incident location and presence of wildlife, and provides advice on how to best manage those populations within the area of response. To minimize impacts on wildlife, booming and skimmers may be used to contain and recover the spilled product, and noise barriers or hazing techniques may be used to deter wildlife from the area.</p>	<p>Again a disconnect between areas of known high environmental value (Parry Bay) and what is identified by WCMRC.</p>

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<p>7. 3.7.1.4 IR #7 – To CWS and ECCC What bird colony monitoring programs have been done in the Ecological Reserves on southern Vancouver island adjacent to the shipping lanes , where double crested cormorants, pigeon guillemots, glaucous winged gills and black oystercatchers have well established nesting colonies. Please also indicate the source of any collected data.</p>	<p>Colony surveys have been conducted in eight ecological reserves in BC’s south coast region by ECCC, CWS, Parks Canada Agency, BC Ministry of Environment (BC MOE), and the Royal BC Provincial Museum (see Table 1 for details). This data is stored in the Seabird Colony Database on ECCC servers, and we work towards uploading to the Canada Open Data Portal following quality assurance and preparation. Summary of seabird colony surveys on ecological reserves on BC’s south coast, including first and last year surveyed, species detected, and the organization that conducted the survey.</p> <p>Reserve name First year Last year Species Lead organization</p> <p>Cleland Island 1970 2012 black oystercatcher, Cassin's auklet, common murre, fork-tailed storm petrel, glaucous-winged gull, Leach's storm petrel, pigeon guillemot, rhinoceros auklet, tufted puffin ECCC-CWS 1970-1989; Parks Canada-Pacific Rim National Park Reserve 2004-2005, 2012</p> <p>Canoe Islets 1986 2014 glaucous-winged gull, black oystercatcher, doublecrested cormorant ECCC-CWS 1986-1987; BC Ministry of Environment 2000, 2014; Parks Canada - Gulf Islands National Park 2005</p> <p>Rose Islets 1987 2014 glaucous-winged gull, black oystercatcher, doublecrested cormorant, pelagic cormorant, pigeon guillemot ECCC-CWS 1987; BC MOE 1999-2000, 2014; Parks Canada - Gulf Islands National Park 2005</p> <p>Baeria Rocks 1988 2005 glaucous-winged gull, black oystercatcher, pelagic cormorant Parks Canada - Pacific Rim National Park Reserve 1988, 2001, 2005; ECCCCWS 1989</p> <p>Ten Mile Point 1960 1960 glaucous-winged gull Royal BC Provincial Museum</p> <p>Race Rocks 1981 2014 glaucous-winged gull, black oystercatcher, pelagic cormorant, pigeon guillemot, Brandt's cormorant ECCC-CWS 1981-1989; BC MOE 2000, 2014</p> <p>Trial Island 1978 2014 glaucous-winged gull, black oystercatcher, pelagic cormorant Royal BC Provincial Museum 1978; ECCCCWS 1987; Parks Canada - Gulf Islands National Park 2005; BC MOE 2014</p> <p>Hudson Rocks 1986 2014 glaucous-winged gull, black oystercatcher, pelagic cormorant, pigeon guillemot, double-crested cormorant ECCC-CWS 1986, 1987, 1999; BC MOE 1991-1995, 2000, 2014</p> <p>Ballingall Islets 1986 2014 glaucous-winged gull, black oystercatcher, pelagic cormorant, pigeon guillemot, double-crested cormorant ECCC-CWS 1986-1987; BC MOE 2000, 2014; Parks Canada Gulf Islands National Park 2005</p>	<p>FER will request ECCC to release the monitoring data they have on ERs to FERs so that it can be added to the ER-specific knowledge maintained on the FER webpage http://ecoreserves.bc.ca/.</p>

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<p>8. 3.7.1.5 IR.#8 – To TC, WCMRC, CWS and ECCC Since the posted maps on the WCMRC website do not protect any environmentally identified critical habitat, we seek from TC and WCMRC their criteria and the priority in the strategies of protecting coastal features. It appears clear from these maps on the WCMRC website this RO is not aligned with the stated goals of the federal agencies. If WCMRC is the sole agency responsible for clean up, our ecological values are definitely in jeopardy.</p>	<p>Please see responses WCMRC Response to FER IR 3.7.1.1 IR #4. Each of the locations were evaluated by a team of experts for their suitability for GRS development. WCMRC is the industry funded marine oil spill response organization and <u>not the “sole agency” for clean up of oil spills</u>. During a response, WCMRC provides first response and then works within the overall ICS spill response under direction of Unified Command (UC), which includes the CCG. Transport Canada: See response to IR #4 Environment and Climate Change Canada: ECCC plays a supporting role to WCMRC in response planning. ECCC would provide additional information regarding marine critical habitat for those species that are under our jurisdiction/responsibility as it is developed and becomes publicly available. <u>Terrestrial and aquatic critical habitat is not necessarily relevant to the GRS as an operational approach, but would be identified in the Environmental Unit if response activities have the potential to impact critical habitat and/or areas occupied by species at risk.</u> Please note that ECCC has and will continue to work towards making public critical habitat spatial information that is developed for ECCC led recovery documents (including marine critical habitat spatial information) through the Canada Open Data portal as it becomes available.</p>	<p>Contradiction between responses where apparently WCMRC says it is aware of environmental values and it influences the RO spill planning and this statement from ECCC that only species at risk habitats may influence a spill response. Based on what has been provided by WCMRC in terms of known environmental values and their response planning, environmental values are given mention but the plans reviewed to data do not reflect known values.</p>
<p>9. 3.7.1.6 IR #9 – To ECCC Given the importance of our coastal areas for both marine and terrestrial species would the ECCC and CWS provide an estimate of the economic value of the potential impact of a dilbit spill on marine and terrestrial birds along the proposed route of TMX dilbit carrying tankers.</p>	<p>ECCC has not conducted an estimate of the economic value of the potential impact of a dilbit spill on marine and terrestrial birds along the proposed route of TMX dilbit carrying tankers.</p>	<p>A pre-spill estimate of economic costs appears prudent. Establishing such values post spill will be more problematic and costly as it will be involve lawyers.</p>
<p>10. 3.7.1.7 IR #10 – To CWS and ECCC Since much of the work on marine Migratory Birds in British Columbia funded under various initiatives and to date has been focused on activities on the north and central coasts , what evidence do we have of marine bird environmental sensitivities data being collected in marine waters of southern BC, including but not limited to the Salish Sea.</p>	<p>Please see ECCC response to Friends of Ecological Reserves IR 5</p>	<p>See comments and concerns on 5.</p>

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<p>11. 3.7.1.8 IR.#11 – To TC and WCMRC Since the posted maps on the WCMRC website do not protect any environmentally identified critical habitat, we seek from TC and WCMRC their criteria and the priority in the strategies of protecting coastal features. It appears clear from these maps on the WCMRC website this RO is not aligned with the stated goals of the federal agencies. If WCMRC is the sole agency responsible for clean up, our ecological values are definitely in jeopardy.</p>	<p>Please see responses WCMRC Response to FER IR 3.7.1.5 IR. # 8. TC-See response to IR #4.</p>	<p>See comments and concerns on 4.</p>
<p>12. 3.7.1.9 IR #12 – To CWS and ECCC Given the importance of our coastal areas for both marine and terrestrial species would the ECCC and CWS provide an estimate of the economic value of the potential impact of a dilbit spill on marine and terrestrial birds along the proposed route of TMX dilbit carrying tankers? Because there is lack of confidence in TC communicating priorities to WCMRC and since TC holds the responsibility for renewal of WCMRC which we understand will be done in early 2019. We seek support from the NEB that they recommend to Cabinet that consistent with legislation that the Minister appoints an independent advisor for a review of WCMRC</p>	<p>ECCC has not conducted an estimate of the economic value of the potential impact of a dilbit spill on marine and terrestrial birds along the proposed route of TMX dilbit carrying tankers.</p>	<p>A pre-spill estimate of economic costs appears prudent. Establishing such values post spill will be more problematic and costly as it will involve lawyers.</p>
<p>13. 3.8.1.1 IR #13 – To TMX and Other Federal Agencies Would TMX and other Federal Agencies indicate whether they consider there is any priority in protecting sensitive ecological areas with many of the SARA-protected species in the southern Vancouver Island region?</p>	<p>TMX-Trans Mountain believes that, in the event of a marine oil spill, protection of sensitive ecological areas that support SARA-listed species should be a priority. This includes areas in the southern Vancouver Island region. Fisheries and Oceans Canada: Fisheries and Oceans Canada (DFO) has identified proposed Ecologically and Biologically Significant Areas (EBSA) along the the West Coast of Vancouver Island (WCVI) and the Strait of Georgia (SoG). For more information, please see Jamieson and Levesque 2014. DFO is undertaking the Coastal Environmental Baseline Program (see NEB Document No. A95292-2, Section 2.C.2, PDF Pages 50-51). As part of this program (currently in a pilot phase), <u>DFO is working with Indigenous partners, coastal communities and local stakeholders to determine key concerns and help collect coastal environmental baseline information.</u> Among other things, <u>this information can be used to identify and inform sensitive coastal areas that would be prioritized for protection in the event of a spill.</u></p>	<p>While this is a good intention on the part of TMX ,why do the WCMRC on line maps not reflect known high value habitats such as ERs?. ECCC will engage only if critical habitat of SARA-listed species are involved. FER to DFO. FER is a local stakeholder but we have not heard from DFO. We know that the BC government designed ERs because they are local known sensitive areas. FER would</p>

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	<p>In the event of spill that may potentially affect the areas described in this request, DFO would be part of the unified Incident Command System (ICS), if established, and work as part of the ICS to ensure sensitive aquatic areas are protected. The specific circumstances of the spill (e.g, volume, composition, proximity to sensitive areas, sea conditions, etc.) would dictate the recommendations and response measures DFO provides to support on-scene responders to ensure protection of sensitive aquatic habitats.</p> <p>Parks Canada: Parks Canada and the Province of British Columbia are currently examining the feasibility of establishing a national marine conservation area reserve in the Southern Strait of Georgia and active consultations are underway. Detailed updates on the current status of the proposed Southern Strait of Georgia National Marine Conservation Area Reserve were provided in National Energy Board Information Request 1.55 and are available at https://www.pc.gc.ca/en/amnc-nmca/cnamnc-cnmca/dgs-sgg . Parks Canada is not currently exploring the feasibility of any additional protected areas in the southern Vancouver Island region. Environment and Climate Change Canada: The protection and recovery of species at risk is a priority for the Government of Canada. ECCC, DFO and PCA have key responsibilities under the Species at Risk Act (SARA), and work with other Federal organizations, the Provinces and Territories, Indigenous governments and organizations, non-government organizations, academic institutions, experts, landowners and other partners in the implementation of SARA. The conservation and protection of Canada’s biological diversity is of importance to the Government of Canada throughout Canada, including sensitive ecological areas, and particularly where the conservation of those areas is important for species at risk survival and recovery. Under the recently approved Pan-Canadian Approach to Species at Risk ECCC and the Province of British Columbia have recently endorsed two priority places in British Columbia – the Dry Interior and South Western BC (which includes a large portion of southern Vancouver Island). Both areas have been selected as priorities because they contain large concentrations of species at risk, many of which can best be addressed by multi-species approaches.</p>	<p>like to work with DFO on increased and long term monitoring of all marine related ERs.</p> <p>FER to PC. The BC government transferred management of the Brackman ER to Gulf Island National Park.</p> <p>This 5 ha island and the 25 ha seabed former ER established should again be used as a long term monitoring site. See background on this former ER. Baseline inventory of the seabed help establish pre-spill and recovery knowledge.</p> <p>http://ecoreserves.bc.ca/portfolio_item/121-brackman-island-now-ginpr/</p>
<p>14. 3.9.1.1 IR #14 – To WCMRC and TC Can the WCMRC provide maps of where sea grass beds are located throughout the area of potential impacts from oil spills?</p>	<p>WCMRC does not develop its own maps for coastal sensitivities, including sea grass beds. Sensitivities are identified through existing data sets, including the provincial Coastal Resource Information Management System.</p> <p>TC-Please refer to WCMRC’s response to this information request.</p>	<p>Perhaps the question was poorly worded. We seek information that WCMRC knows where the eel grass beds are AND that they acknowledge these in the Geographic Response Strategy (GRS).</p>
<p>15. 3.9.1.2 IR #15 – to WCMRC and TC Would the WCMRC indicate what strategies they are planning to protect these valuable habitats</p>	<p>WCMRC assumes the Intervenor is enquiring about protection strategies for eelgrass beds. Eelgrass beds occur at many locations in the IRA. Depending on the location and environmental conditions there, the GRS protection strategies to protect eelgrass beds <u>could include deflection or exclusion booming.</u></p> <p>TC- Please refer to WCMRC’s response to this information request for information on their strategies relating to sensitive ecosystems.</p>	<p>We could not find any examples of GRS for high value sensitive ecosystems. Seems there are no GRS for eel grass beds.</p>

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<p>16. 3.10.1.1 IR #16 – To TC and WCMRC Based on windspeeds and the consequent wave heights, can TC and WCMRC provide insight on conditions WCMRC will not attempt open ocean recovery? We understand that WCMRC has some containment booms that can be deployed for containment up to windspeeds of 28 km/hour, but these booms are ineffective and cannot be deployed above winds of 28 km/hour.</p>	<p>WCMRC notes that this issue has been adjudicated in prior hearings. Please refer to the response to NEB IR 1.65 (c) (a) (Filing ID A3W9H8). Additionally, Transport Canada Standards that regulate WCMRC stipulate that the RO must be able to respond in the unsheltered operating environment up to a maximum of Beaufort Scale 4, which compares appropriately with ASTM standards adopted and referenced by industry.</p> <p>Operating environments are defined as follows in the Canada Shipping Act and RO Standards:</p> <ul style="list-style-type: none"> • Unsheltered waters are waters where on-water oil recovery operations are normally affected by environmental conditions. <u>Larger vessels or ships are normally needed to operate safely in these waters.</u> • Sheltered waters are waters where on-water oil recovery operations can be carried out effectively with minimal disruption from environmental conditions. As an example, this environment is one in which small barges (18m - 30m) and small boats (6m–12m) can operate safe • Shoreline is the intertidal zone between the maximum low tide and maximum high tide, including the back shore area affected by storm conditions. (Note: Includes some onwater oil recovery capability for near shore treatment operations, due to the rise and fall of the tide and the resultant immersion of the intertidal zone). <p>WCMRC has a variety of boom and those shall be deployed as applicable to the response requirements and prevailing conditions.</p> <p>TC-Please refer to TC’s previous response to the City of Vancouver’s Information Request on pdf page 91 of NEB Document C249-13-4 – 3, exhibit A4R3Z6, which provides information on conditions under which Transport Canada would not expect oil spill response to occur</p>	<p>It is likely that Race Rocks ER needs larger vessels in the even of an oil spill.</p>
<p>17. 3.10.1.2 IR #17 – To TC, DFO, ECC and WCMRC Can the booms that WCMRC has for higher wind speeds encircle a leaking or burning Aframax tanker? Where are these booms located?</p>	<p>WCMRC-Each oil spill is unique, and response must be adapted to the circumstances and conditions of the spill, including any physical or environmental concerns, including first responder safety. With regard to base and equipment placement, please refer to WCMRC Reply Evidence in Hearing Order: MH-052-2018, “An Update on the Status of the TMEP Enhanced Response Regime” Pages (16/20) (Filing ID A6L5G5).</p> <p>Transport Canada: The subject matter of this information request falls outside of Transport Canada’s mandate. As the subject matter of this IR falls within the mandate of the WCMRC, please refer to the WCMRC’s response to this information request.</p> <p>Fisheries and Oceans Canada: As the subject matter of this information request (IR) falls within the mandate of the Western Canada Marine Response Corporation (WCMRC), this IR has been redirected to them.</p> <p>Environment and Climate Change Canada: While ECCC has broad knowledge of WCRMC capacities and capabilities, <u>the department does not have detailed information on the specific location of various types of equipment, nor on the specific capabilities of WCMRC equipment.</u></p>	<p>It is unclear why the location and capability of WCMRC information is not public knowledge.</p>
<p>18. 3.10.1.3 IR #18 – To TC, DFO, , ECCC and WCMRC Provide reasons why the environmentally sensitive Ecological Reserves of the Southern</p>	<p>WCMRC- Please see responses WCMRC Response to FER IR 3.7.1.5 IR. #8. During a spill response WCMRC provides first response and then works within the overall ICS spill response under direction of Unified Command (UC), which includes the CCG. WCMRC has a Wildlife Management Plan and a Marine Mammal Oil Spill Response Protocol that provides guidance in dealing with wildlife of various species and habitat.</p>	<p>The fact that there are better plans and coordination on the North Coast speaks volumes about the current state of preparedness on the south coast.</p>

Information Requests	Responses	Comment
<p>Coast of Vancouver Island have not been considered for protection in the event of an oil spill? Why are no SARA species and habitats identified and no strategies posted for their protection by WCMRC in their spill response strategies?</p>	<p>Environment and Climate Change Canada: Environmental response planning in the South Coast is ongoing as part of regular federal spill response preparedness activities. The Canadian Coast Guard and partners are currently working directly with Indigenous groups, coastal communities, the <u>Province of British Columbia and other partners in the South Coast to develop Geographically Specific Response Plans for this area</u>. The planning approach and lessons learned from the Regional Response Planning pilot project in northern British Columbia will be incorporated into ongoing Coast Guard environmental response planning in southern British Columbia, including the Salish Sea, where applicable. This <u>new collaborative planning approach</u> is intended to contribute to a strengthened marine safety system through enhanced coordination and more effective response to marine pollution incidents.</p> <p>Transport Canada: Specifics on sensitive Ecological Reserves of the Southern Coast of Vancouver Island and SARA species and habitats fall outside of TC’s mandate. The subject matter of this IR falls within the mandate of ECCC and WCMRC. Please refer to ECCC and the WCMRC’s responses to this information request. Fisheries and Oceans Canada: Please refer to Environment and Climate Change Canada’s Response to this information request.</p>	<p>No time line or detail on this new collaborative approach.</p>
<p>19. 3.11.1.1 IR #19 –To TC Are the longer tanker routes for incoming and outgoing shipping (routes that more closely parallel the Victoria water front and bring all shipping closer to Trial, Oak Bay and Race Rocks Ecological Reserves) principally for the convenience of pilot drop off at Brotchie Ledge?</p>	<p>TC-The current location of pilot boarding and disembarkation was chosen principally for the <u>safety of the pilots and proximity to pilot vessel mooring locations</u>. Please refer to TC’s IR 1.1 response in Natural Resources Canada on behalf of Government of Canada Response to Board of Friends of Ecological Reserves (NEB Document A4R3Z4, PDF page 2-3)</p>	<p>It is good to hear that Brotchie Ledge Pilot drop is influenced by the proximity of the pilot vessel mooring locations.</p> <p>It is unclear how getting on and off tankers would change based on proximity to the mooring locations versus a transfer further from shore as FER is suggesting be seriously studied.</p>
<p>20. 3.11.1.2 IR #20 – To TC Will TC realign the current shipping route as a dilbit mitigation strategy?</p>	<p>TC-The routing tied to the project has been selected by Transport Canada to ensure the safest passage for all vessels, and as it is focused on prevention, it reduces the probability of groundings. <u>TC is willing to assess the rationale for and feasibility of relocating shipping lanes</u>. Any change must be justified and the alternative route must be safe. For further information on changing routing of tankers, please see Transport Canada’s responses to the National Energy Board’s Information Requests 1.31 - 1.37 on PDF pages 20 - 39, NEB document A96556-4.</p>	<p>Good there is a willingness to assess this but no timeline given. We believe TC should seek and independent consultant such as Greenwood to provide insight on shipping lane changes and make findings known publicly and within 2019.</p>
<p>21. 3.11.1.3 IR #21 – To TC Since the suggested route is further from shore, does this improve response time and reduce the probability of groundings?</p>	<p>TC-As noted in the response to the IR #20, the routing tied to the project has been selected by Transport Canada to ensure the safest passage for all vessels, and as it is focused on prevention, it <u>reduces the probability of groundings</u>. The route does not consider, as one of its criteria, any factors tied to response time.</p>	<p>The current route on third party review may not stand up to the claim that all shipping closer to shore reduces groundings over all shipping further off shore. This statement casts into doubt the impartiality of TC when it comes to changing shipping lanes which have 3 course corrections in order to be closer to Brotchie Ledge drop off area.</p>

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<p>22. 3.11.1.4 IR #22 – To TC When can the environmentally safer and further off shore and shorter tanker route be implemented?</p>	<p>TC-Developing and adopting a particular routing measure would depend on the particular hazard or environmentally sensitive area and involve consultations with the marine industry and, in some cases, an international agreement. Vessel routing measures are outlined in Annex 05.E.1 of the Opening Statement and Written Evidence of Federal Government Intervenors (NEB Document A95292-23, PDF pages 19 to 21).</p>	<p>Same comment as above</p>
<p>23. 3.11.1.5 IR #23 – To PPA and CPA Is your commute time of concern and if so how? Provide insights on how pilots would need to adapt to a transfer station closer to the international boundary than continued use of the near shore transfer point of Brotchie Ledge.</p>	<p>Response Pacific Pilots Association and Canadian Pilots Association <u>No distance is not a consideration</u></p>	<p>That is reassuring. As we understand the pilot situation, the transition to the Westridge terminal is sufficient in length that two pilots are needed as it exceeds maximum time allowed for a single pilot.</p>
<p>24. 3.11.1.6 IR #24 – To PPA and CPA. Does your Association support lower risk shipping options presented by the lateral transfer of shipping lanes to further offshore as these afford a greater response times for rescue tugs and other ships to provide assistance to ships experiencing difficulty and decreases the probability of grounding and the possibly an oil spill than do the current shipping lanes?</p>	<p>Response yes will take accept a risk assessment and <u>if there is lower risk strategy we will support lower risk options.</u> Board of FER avoided engaging in the general notion that tankers future off shore have a better chance of rescue if in trouble. Pilots are content with Botchier Ledge pick up area and note the drop off area is at Race Rocks.</p>	<p>The is also reassuring as the pilots are more keenly focused on risk reduction. TC was less committed and vague.</p>
<p>25. 3.12.1.1 IR #25 –To the Federal Agencies and WCMRC We seek from the Federal agencies and WCMRC their strategies for protection of the large marine mammal population present at the south end of Vancouver Island in the event of an oil spill from any vessel in the Strait of Juan de Fuca and more particularly with a spill of dilbit in the area.</p>	<p>WCMRC’s involvement in protecting marine mammals during oil spill response can be found WCMRC direct evidence “An Update on the Status of the TMEP Enhanced Response Regime” Pages (23/30) (Filing ID A6L5G5). During a response, WCMRC works within an ICS response under direction of the Unified Command (UC), which would include CCG. Other Federal agencies, including DFO and ECCC could be expected to participate in ICS response as well. Canadian Coast Guard: During an environmental response, the Canadian Coast Guard uses the Incident Command System. Within the Incident Command System there is an Environmental Unit which includes experts from many organizations including Fisheries and Oceans Canada, Environment and Climate Change Canada as well as local Indigenous communities. The Environmental Unit provides guidance and advice and supports the development of incident specific tactics and strategies taking into account product type, incident location and presence of marine mammal populations. If marine mammal populations are present, the Environmental Unit would provide advice on how to best manage those populations within the area of response. To minimize impacts on large marine mammal populations, booming and skimmers will be used to contain the spilled product. <u>Noise barriers or hazing techniques are also used to deter marine mammals from the area.</u> Transport Canada: Transport Canada certifies response organizations, including the WCMRC, as outlined in Annex 05.E.1 on PDF pages 31 to 33 of the Opening Statement and Written Evidence of Federal Government Intervenors (NEB Document A95292-23). The Response Organizations and Oil Handling Facilities Regulations under the Canada</p>	<p>Good to hear that in the event of spill it may be possible with noise to drive SRKS away from the spill. No mention of whether the CCG has this equipment on boats now so a just sort of could be done thought but not an actual mitigation strategy. Encouraging to hear DFO is planning a marine mammal response plan. There is lack of confidence in DFO from FER and possibly other members of the public and promised plans. SKRW were listed in 2002 and the listing confirmed again in 2008 and yet another ten years were needed to identify critical habitat and a make known the recovery plan for a SARA listed species. No</p>

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	<p>Shipping Act, 2001 stipulate that a response organization’s response plan shall include, among other information, a description of the measures that the response organization will take, in response to an oil spill, to protect and treat areas of environmental sensitivities within the affected operating environment. Please refer to WCMRC and DFO for information on strategies for the protection of large marine mammals.</p> <p>Fisheries and Oceans Canada: A Fisheries and Oceans Canada (DFO) <u>marine mammal oil spill response plan is in development</u>. It focuses on preventing exposure of marine mammals, including resident killer whales, to spills. This includes strategies for monitoring and tracking SRKW; prevention of exposure to oil spills by prioritizing cleanup and booming efforts for key areas; and prevention of exposure using acoustic deterrents to keep resident killer whales away from spill affected areas. There are a number of actions completed or underway to support the strategies described above, including: <u>a real time SRKW tracking network in SRKW critical habitat is in development to assist with locating and determining the direction of travel of SRKWs using hydrophones and cetacean sighting reporting networks</u>; spill cleanup equipment and acoustic <u>deterrence equipment has been purchased</u>; training of a DFO SRKW oil spill response team is ongoing; funding has been provided to Ocean Wise (Vancouver Aquarium) Marine Mammal Rescue Centre to increase spill response capacity; and DFO is participating in ongoing spill simulation exercises to prepare and test marine mammal response capabilities with partner organizations such as the Canadian Coast Guard and Ocean Wise (Vancouver Aquarium) Marine Mammal Rescue Centre. In the case of significant spills, DFO provides advice and input about environmental sensitivities in the spill area and the prioritization of protection measures through the Incident Command System (ICS). The ICS is a process utilized by the Canadian Coast Guard during spill response that provides coordination and collaboration with all spill response partners to ensure efficient, prioritized, and effective response measures are implemented. This is through the collaborative development of spill response objectives, strategies and the implementation tactics. The Environmental Unit under the ICS is where technical experts from all response partners combine to provide advice on environmental protection objectives and priorities, strategies and tactic implementation. <u>Species of conservation concern (e.g., Species at Risk Act-listed species) are considered an “elevated priority” when the Environmental Unit determines the protection objective and its subsequent protection strategies and tactical implementation.</u></p>	<p>date is provided on this in development plan. NEB could and should specify a end date before the increased shipping of dilbit begins.</p> <p>The decision trees shown in WCMRC spill response manual do not show any input on elevated priorities or input to WCMRC from DFO. Appears to be a disconnect between what the Federal Agencies indicate will occur during an incident and what the RO explains will occur when a spill happens with regard to species at risk and known sensitive habitats such as ERs.</p>
<p>26. 3.12.1.2 IR #26 –To the Federal Agencies and WCMRC Would the Federal Agencies and WCMRC provide their strategies for treatment of the large marine mammal population present at the south end of Vancouver Island in the event of contamination from an oil spill from any vessel in the Strait of Juan de Fuca and more particularly with a spill of dilbit in the area?</p>	<p>WCMRC-Please see responses WCMRC Response to FER IR 3.12.1.1 IR #25.</p> <p>Transport Canada: Transport Canada <u>certifies response organizations</u>, including the WCMRC, as outlined in Annex 05.E.1 of the Opening Statement and Written Evidence of Federal Government Intervenors (NEB Document A95292-23, exhibit A6J6SO), on PDF pages 31 to 33. The Response Organizations and Oil Handling Facilities Regulations under the Canada Shipping Act, 2001 stipulate that a response organization’s response plan shall include, among other information, a description of the measures that the response organization will take, in response to an oil spill, <u>to protect and treat areas of environmental sensitivities</u> within the affected operating environment. Please refer to WCMRC and DFO’s responses to this request for information on strategies for the protection of large marine mammals.</p> <p>Fisheries and Oceans Canada: Implementation of spill response strategies for treatment of marine mammal</p>	<p>It is understood the TC certifies RO and using 1995 standards to do so. These 25-year-old standards are out of date and set significantly lower performance standards than set for RO operating in Washington State as has been noted by the intervenor Friends of the Earth. They suggest that the US based RO should be available and on contract on an as needs basis for the TMX project and available to TC and DFO if</p>

Information Requests	Responses	Comment
	<p>populations will be a collaborative undertaking requiring contributions from Fisheries and Oceans Canada (DFO) and other agencies, organizations, and individuals. The status of DFO's work on these measures is described below. A DFO marine mammal oil spill response plan is in development. It focuses on preventing exposure of marine mammals to spills. However, the plan also outlines strategies for treatment of marine mammals that are exposed to spills. This includes the monitoring, capture, stabilization, and rehabilitation of the exposed marine mammals. An element of scalability is also built into the plan where surge capacity of marine mammal rehabilitation expertise from other parts of the world can be called upon on as needed basis. Some specific treatment measures will be adjusted based on spilled product (e.g., diesel vs. dilbit). Treatment strategies are supported through the purchase of additional equipment for SRKW detection (to track exposed individuals) and oiled marine mammal collection; training sessions for DFO staff and partners; increasing spill response capacity (including treatment capacity) through funding support to marine mammal rehabilitation experts at Ocean Wise (Vancouver Aquarium) Marine Mammal Rescue Centre; and participation in spill simulation exercises with partner organizations such as the Canadian Coast Guard and Ocean Wise (Vancouver Aquarium) Marine Mammal Rescue Centre.</p>	<p>overwhelmed by a major incident. The WCMRC response plan does not include measures to protect environmentally sensitive areas. FER maintains this after a review of the strategies and maps shown by WCMRC on their website. Is TC therefore not providing enforcement or auditing the WCMRC and rectifying this glaring difference between the stated objectives to protect known environmental values and an absence of strategies to do so? DFO speaks confidently on their plans but provide future promises without stated timelines.</p>
<p>27. 3.12.1.3 IR #27 – To TC We therefore request to know whether the Minister of Transport will issue an interim order to prohibit the passage of vessels in the vicinity of sensitive ecological areas until WCMRC has developed adequate strategies to ensure protection of SARA species in the ecologically sensitive areas of southern Vancouver Island</p>	<p>Transport Canada certifies response organizations, including the WCMRC, as outlined in Annex 05.E.1 on PDF pages 31 to 33 of NEB document A95292-23. The Response Organizations and Oil Handling Facilities Regulations under the Canada Shipping Act, 2001 stipulate that a response organization's response plan shall include, among other information, a description of the measures available in <u>support of the wildlife rehabilitation activities</u> of other parties. Should a situation arise unexpectedly, requiring immediate action that is not addressed by current measures, the Minister would consider whether or not an emergency interim order is required to address a risk to marine safety or the marine environment, <u>while further analysis occurs</u>. However, any such ban on foreign vessels would require prior consultation with the US in jointly managed waters, and would be subject to the right of innocent passage in territorial waters and bilateral treaty obligations allowing for free and open navigation.</p>	<p>We did not file motions to compel additional information but this response would have qualified for a motion. The request focused on prevention of a incident near a sensitive area. The response addresses a post spill event and rehabilitation of wildlife. FER seeks lateral displacement where practical, away from ERs such as Race Rocks and Trial Island ERs.</p>
<p>28. 3.13.1.1 IR #28 – To the Federal Agencies Given that DFO is responsible for marine mammals, will the federal agencies consider changing the routing of tankers in order to avoid interference with marine mammals in provincial marine protected areas as well as federal marine protected areas? 3.13.1.2</p>	<p>Transport Canada: Please refer to Section 3.B.4 of the Opening Statement and Written Evidence of Federal Government Intervenor at PDF page 78 - 80 (NEB Document A95292-2) for information on Vessel Traffic Management Measures for Underwater Noise Mitigation, as well as Transport Canada's responses in NEB IR 1.31 - 1.37 at PDF page 20 - 39 in the Cover Letter and Responses to NEB IR No. 1 to Federal Authorities (NEB Document A96556-4) for further information on changing routing of tankers. Parks Canada: As indicated in IR 1.55 to the NEB, the types of activities permitted in National Marine Conservation Areas (NMCA) vary. However NMCAs may permit marine shipping. Parks Canada and the Province of British Columbia are currently examining the <u>feasibility of establishing a national marine conservation area reserve in the southern Strait of Georgia</u> and active consultations are underway. Once a determination on feasibility is made, the necessary establishment agreements will need to be negotiated and a final</p>	<p>We sincerely hope that there is a new marine conservation area in the Strait of Georgia. The wording is very tentative with regard to the pace of establishment of such a conservation area. Based on the experience with a establishment of Marine Federal Conservation at Race Rocks – after 25 years nothing has been added to Race Rocks areas beyond the original Provincial ER designation.</p>

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	<p>boundary established. As a result of the <u>early stage in the establishment process</u>, there have not been discussions about the routing of tankers. Fisheries and Oceans Canada: Please refer to Transport Canada’s response to this information request.</p>	<p>There is evidence globally that conservation areas and closure of fishing and harvesting serves to improve productive in adjacent marine ecosystems, provided there is enforcement of closures.</p>
<p>29. 3.13.1.2 IR #29 – To the Federal Agencies Given the importance of protecting marine mammals, and the recognition that.. “As Canada’s economy grows, the risk of interactions with marine mammals will increase. If not properly managed, these interactions could also affect the country’s economy and environment, as well as Canada’s reputation in wildlife protection.” Are there special plans for protection of the marine mammal pupping and haul-out colonies which would be impacted in the event of an oil spill from TMX and other shipping disasters?</p>	<p>TC Please see WCMRC Response to FER IR 3.12.1.1 IR #25. Transport Canada: The subject matter of this information request falls outside of Transport Canada’s mandate. The subject matter of this IR falls within the mandate of DFO, which will respond to this information request on behalf of the Federal Authority intervenors. Fisheries and Oceans Canada: Potential Project effects related to potential spills or contamination in the marine environment were not included in Fisheries and Oceans Canada (DFO's) written evidence (NEB Document No. A4L7D4). <u>At this time, DFO has not developed specific plans for protection of marine mammal pupping and haul-out colonies.</u> In the event of an accident or malfunction resulting in a spill incident, the impacts on marine species and their habitats would have to be assessed based on the specific nature of the incident, which may include consideration of the magnitude and volume of the spill, the temporal and spatial extent of the spill, the composition of the spill, the time of the year, proximity to the shoreline and sensitive habitats, weather conditions, and emergency response measures implemented. In addition, biotic factors such as species present, life history stage, reproductive strategies and population connectivity of ecosystem components can all affect the magnitude, severity and duration of the impact on marine aquatic communities.</p>	<p>FER considers haul-out and pupping areas as sensitive so disappointed there are no plans by DFO for their protection. Race Rocks is both a haul out and pupping area.</p>
<p>30. 3.13.1.3 IR #30 – To the Federal Agencies. Has the increased presence of Humpback whales in the last few years provided any incentive for the federal agencies and TMX to take steps to ensure these animals are not impacted by TMX project shipping</p>	<p>Transport Canada: Fisheries and Oceans Canada monitors the status of marine mammal species, including humpback whales. Transport Canada works with Fisheries and Oceans where it is identified that <u>taking vessel traffic management measures might be needed</u> to reduce a threat to the survival and recovery of an endangered species. Fisheries and Oceans Canada: Fisheries and Oceans Canada (DFO) has reviewed potential Project effects on humpback whales and has provided its assessment in subsection 5.2.2 of its written evidence (NEB Document No. A4L7D4). DFO has also published two Science publications in relation to potential effects of acoustic disturbance and ship strikes on marine mammals (DFO 2015a: DFO-Annex 3, PDF Page 146; DFO 2015b: DFO Annex 3, PDF Page 159). Under the Oceans Protection Plan and the Whales Initiative, DFO is undertaking actions and initiatives that will help reduce impacts from marine vessels on humpback whales and other cetaceans (e.g., the Whale Collision and Avoidance Initiative, the Marine Environmental Quality Initiative, etc.). Please see Chapter 2 and Chapter 3 of the Government of Canada’s Opening Statement and Direct Evidence (MH-052-2018; Exhibit A95292-2, Chapter 3, PDF Page 69).</p>	<p>FER to TC Disappointed in the tentative acknowledgement that TC holds the keys to reducing whale strikes but favour voluntary measures and appear reluctance to implement changes in shipping to reduce whale strikes through regulation and enforcement. We note the very different approach taken on the east coast with regard to reducing whale strikes for the endangered right whales where there are speed regulations setting a 10 knot speed limit that DFO enforces.</p>

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<p>31. 3.14.1.1 IR #31 - To DFO and EC Provide the location of the ecologically sensitive areas assessed, and in particular which ecological reserves were sampled.</p>	<p>Environment and Climate Change Canada: ECCC’s shoreline studies surveyed a specific area of the coast along the transportation corridor for the purposes of collecting baseline data within specific areas. The surveys did not specifically target ecologically sensitive areas.</p> <p>Fisheries and Oceans Canada: The document referenced in the request (i.e., A95299-4 Annex 06.D.30 – Baseline Surveys of Marine Coastline in Support to Area Response Planning A6J6Y3) was authored by Environment and Climate Change Canada (ECCC). Please refer to ECCC’s response to this Information Request.</p>	<p>FER to ECCC though it may be good to get some baseline data on representative segments of shorelines it is equally important to get baseline data on ecologically sensitive areas.</p> <p>FER to DFO The Annex provided is for the East Coast. DFO needs to provide a link to the sample sites for the west coast and the data. Baseline Surveys of Marine Coastline in Support to Area Response Planning</p>
<p>32. 3.14.1.2 IR #32 – To DFO and EC Provide the location of areas used for recreational purposes that were assessed.</p>	<p>Environment and Climate Change Canada: Please refer to ECCC response to NEB IR_1.42 (A96556-4 Part 3 - IR 1.26 to 1.56-5 Annex 5.1.1 - A6L8X5) and Friends of Ecological Reserves IRs 33, 34, 35, 37 and 115).</p> <p>Fisheries and Oceans Canada: The document referenced in the request (i.e., A95299-4 Annex 06.D.30 – Baseline Surveys of Marine Coastline in Support to Area Response Planning A6J6Y3) was authored by Environment and Climate Change Canada (ECCC). Please refer to ECCC’s response to this Information Request.</p>	<p>See comment as above.</p> <p>We do not think that leading the intervenor to a bunch of links and stating the answer you seek may be at the end of the trail we set for you.</p>
<p>33. 3.14.1.3 IR #33 – To DFO and EC Indicate whether any areas considered to be of aboriginal interest were assessed, indicating a rationale for selection of these sites.</p>	<p>Environment and Climate Change Canada: Please refer to ECCC response to NEB IR 1.42 (A96556-4 Part 3 - IR 1.26 to 1.56-5 Annex 5.1.1 - A6L8X5) and Friends of Ecological Reserves IRs 32, 34, 35, 37 and 115).</p> <p>Fisheries and Oceans Canada The document referenced in the request (i.e., A95299-4 Annex 06.D.30 – Baseline Surveys of Marine Coastline in Support to Area Response Planning A6J6Y3) was authored by Environment and Climate Change Canada (ECCC). Please refer to ECCC’s response to this Information Request.</p>	<p>Same comment as above.</p>
<p>34. 3.14.1.4 IR #34 – To DFO and EC Provide a map of the location of all areas assessed.</p>	<p>Environment and Climate Change Canada: Please refer to ECCC response to NEB IR 1.42 (A96556-4 Part 3 - IR 1.26 to 1.56-5 Annex 5.1.1 - A6L8X5) and Friends of Ecological Reserves IRs 32, 34, 35, 37 and 115).</p> <p>Fisheries and Oceans Canada The document referenced in the request (i.e., A95299-4 Annex 06.D.30 – Baseline Surveys of Marine Coastline in Support to Area Response Planning A6J6Y3) was authored by Environment and Climate Change Canada (ECCC). Please refer to ECCC’s response to this Information Request.</p>	<p>FER to ECCC. This link does not lead to any map of the west coast showing sample site. Samples sites and data on the west coast have not been disclosed.</p> <p>FER to DFO The map in this Annex is for the east coast and though the methodology is explained the hearings need the sample locations and data from the West Coast</p>

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<p>35. 3.14.1.5 IR #35 – To DFO and EC Provide a list of the institutions and individuals contacted for help in identifying locations and or involved in the surveys in Southern Vancouver Island British Columbia.</p>	<p>Environment and Climate Change Canada: Please refer to ECCC response to NEB IR 1.42 (A96556-4 Part 3 - IR 1.26 to 1.56-5 Annex 5.1.1 - A6L8X5) and Friends of Ecological Reserves IRs 32, 34, 35, 37 and 115). Fisheries and Oceans Canada The document referenced in the request (i.e., A95299-4 Annex 06.D.30 – Baseline Surveys of Marine Coastline in Support to Area Response Planning A6J6Y3) was authored by Environment and Climate Change</p>	<p>These documents do not reveal the answer to the question. Federal government held baseline monitoring has not been shared with the intervenors or the NEB.</p>
<p>36. 3.14.1.6 IR #36 – To DFO and EC Provide references to any pre-existing data collected by research institutions and the public.</p>	<p>Environment and Climate Change Canada: ECCC does not have any pre-existing data collected by research institutions or the public to be able to offer in response. The south coast of B.C. is a priority research area for ECCC and others. <u>This area has an extensive shoreline data set collected</u> over many years by several agencies. At this time, ECCC utilizes shoreline data collected by the Province of British Columbia (B.C.) and shared with ECCC for spill preparedness and response related activities. Specific details on the B.C. data would be available from the Province. ECCC and others recognized this. In the past few years, several groups including the Indigenous Nations, ECCC and the Department of Fisheries and Ocean have <u>undertaken work to update the shoreline data set</u>. This included aerial overflights and ground surveys at selected location. The Burrard Inlet was one of areas recently surveyed in 2018. The Burrard Inlet shoreline data has been segmented and is currently being reviewed for quality control. Fisheries and Oceans Canada: The document referenced in the request (i.e., A95299-4 Annex 06.D.30 – Baseline Surveys of Marine Coastline in Support to Area Response Planning A6J6Y3) was authored by Environment and Climate Change Canada (ECCC). Please refer to ECCC’s response to this Information Request.</p>	<p>FER to ECCC. We are looking for data and sampling sites not vague descriptions that there is an extensive data set. What exactly and precisely is the extensive shoreline data set and where can it be accessed?</p>
<p>37. 3.14.1.7 IR #37 – To DFO and EC Identify the location of any references to the results of this study as it pertains to the the tanker route in British Columbia</p>	<p>Environment and Climate Change Canada: Please refer to ECCC response to NEB IR 1.42 (A96556-4 Part 3 - IR 1.26 to 1.56-5 Annex 5.1.1 - A6L8X5) and Friends of Ecological Reserves IRs 32, 33, 34, 35 and 115). Fisheries and Oceans Canada: The document referenced in the request (i.e., A95299-4 Annex 06.D.30 – Baseline Surveys of Marine Coastline in Support to Area Response Planning A6J6Y3) was authored by Environment and Climate Change Canada (ECCC). Please refer to ECCC’s response to this Information Request</p>	<p>Same comment as above. The links do not lead to west coast data.</p>
<p>38. 4.1.1.1 IR #38 – To NEB Please provide a clearer rationale on why the areas shown in green in Figure 4-2 (Swiftsure Bank and La Pérouse Banks) were excluded, yet dilbit tankers transit through this critical habitat and shorelines on the west coast of Vancouver Island will get oiled from a spill at sea in this area too.</p>	<p>Can’t find any response from anyone to this one</p>	<p>This will have been answered by Decision 22 which is long on process and short on common sense. Dilbit tankers traverse SKRW critical habitat which could be avoided with a permit condition. TMX has volunteered to head directly by the shortest route out of EEZ. Not enforceable but a good gesture.</p>

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<p>39. 4.2.1.1 IR #39 – To DFO When will the section on SRKW in the Proposed Recovery Strategy be finalized and not a proposed strategy? SRKW were listed as endangered in 2001.</p>	<p>Fisheries and Oceans Canada: The Final Recovery Strategy for Northern and Southern Resident Killer Whales (Orcinus orca) in Canada was posted on the Species at Risk Public Registry on December 5, 2018 (DFO 2018: DFO-Annex 3, PDF Page 189)</p>	<p>It took 16 years from being listed to getting a finalized SRKW recovery strategy. FER is of the opinion that without these Reconsideration hearings it is doubtful it would have been finalized and posted in 2018.</p>
<p>40. 4.2.1.2 IR #40 – To DFO and TC Do the agencies plan to use any of the numerous legal and operational tools at their disposal to enforce measures when implementing the Proposed Recovery Strategy for SRKW or will they rely on voluntary compliance?</p>	<p>Fisheries and Oceans Canada: Yes, <u>legal and operational tools may be used to enforce some of the measures taken to implement the Recovery Strategy.</u> Success in the <u>recovery of SRKW depends on the commitment and cooperation of different jurisdictions, Indigenous groups, stakeholders, and Canadians.</u> Implementing the measures set out in recovery documents will not be achieved by Fisheries and Oceans Canada (DFO), or any other party, alone. Among other things, Species at Risk Act (SARA) recovery documents set out the measures that provide the best chance of achieving the population and distribution objectives, including measures to address threats to the species and monitor its recovery, as well as an indication as to when these measures are to take place. Tools used to implement these measures can be regulatory or non-regulatory, or a combination of both. Enforcement under the SARA is specific to contraventions against: 1) the prohibitions as described in subsections 32(1) or (2), section 33, and subsection 36(1); 2) the destruction of critical habitat as described in section 58(1), 60(1), or 61(1); and 3) assistance and obstruction as described in sections 91 and 92. While measures identified within recovery documents are themselves not specifically enforceable under the Species at Risk Act, any activities that contravene the abovementioned sections are enforceable. As appropriate, enforcement of various activities may also be carried out via existing legislative acts and regulations such as the Fisheries Act, Marine Mammal Regulations, Oceans Act, and other acts and regulations.</p> <p>Transport Canada: Recent amendments to the Canada Shipping Act, 2001 strengthen the federal government’s authorities to put in place safeguards to better protect the marine environment from the impacts of shipping and navigation activities. These amendments to the Canada Shipping Act, 2001 were included in Bill C-86, and received Royal Assent on December 13, 2018.</p> <p>Specifically, the amendments enable: a) the Governor in Council, on the recommendation of the Minister of Transport, <u>to make regulations to protect the marine environment from the impacts of shipping and navigation activities;</u> they also enable the Minister of Transport to temporarily amend, by order, certain requirements in some of the regulations; and b) the Minister of Transport to make interim orders to address a risk to marine safety or the marine environment that requires immediate action. The government <u>continues to research, assess, trial and implement various actions to reduce the threat of underwater noise on Southern Resident killer whales.</u> Voluntary measures to date have seen significant success, with respect to participation, with the 2018 vessel slowdown in Haro Strait seeing an 88% participation rate and 90% of vessels in the Strait of Juan de Fuca lateral displacement intending to participate.</p> <p>If a regulatory approach is determined to be the most appropriate or if deemed necessary to increase compliance, any regulations would be developed consistent with the federal government’s established regulatory process, including stakeholder consultation.</p>	<p>FER to DFO. It appears that DFO will use discretionary implementation as the survival of SRKW depends on the cooperation and commitment of others and apparently less so on DFO even though DFO has on behalf of Canadians and in their legislated mandate the custodial and recovery responsibility. FER contrasts this timid approach to recovery with the more appropriate response and leadership shown by Washington State.</p> <p>FER to TC. We understand you have the legal tools but we are unsure that there is within the culture of TC any urgency to employ the tools at your disposal. There are immediate mitigation strategies available yet more study is needed before any change in the status quo.</p>

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<p>41. 4.3.1.1 IR #41 – To TC Regulation on Speed: Given the results of the 2014 study by Silber et al, how can we be assured that the voluntary reduction of speed will be an effective mitigation effort in providing for less interference in the soundscape of SRKW and in collision prevention with all cetacean species in the vessel traffic lanes of southern British Columbia? Please provide as evidence, the data that supports the statements that the high compliance rates were achieved to the voluntary slower ship speed trials</p>	<p>Transport Canada’s assessment of the efficacy of speed reductions is provided in PDF pages 82-158 of the JASCO Assessment of Vessel Noise, provided as Annex 3.F.2 of the Opening Statement and Written Evidence of Federal Government Intervenors (NEB Document A95292-7). Additional information on the efficacy of speed reductions as well as the compliance rates achieved in the 2017 voluntary slowdown are available in the Vancouver Fraser Port Authority’s Evidence Submission – Appendix 2.1 (A95296-4). The specific effects of these measures as they relate to whale health fall outside of Transport Canada’s mandate. Please refer to the response in NEB IR 1.38.g in the Cover Letter and Responses to NEB IR No. 1 to Federal Authorities at PDF page 42 (NEB Document A96556-4) for information regarding additional impact of mitigation measures to reduce underwater vessel noise in reducing ship strikes.</p>	<p>FER to TC. We fully understand the results of the voluntary slow downs. How do the Federal Agencies coordinate activities in favour of improving the chances for the endangered whales? Who are you waiting for direction from before moving to mandatory and enforced slow downs as has been done by TC on the east Coast for the Endangered Right whales?</p>
<p>42. 4.3.1.2 IR #42 – To TC and DFO Are Transport Canada and DFO considering an immediate application of a speed restriction regulations, with citations and fines if non-compliant, that applies to all vessels and which will be enforced here on the Pacific Coast in SRKW habitat?</p>	<p>Transport Canada: Transport Canada’s assessment of the subject in this information request is provided in the response to NEB IR 1.31 in the Cover Letter and Responses to NEB IR No. 1 to Federal Authorities, at PDF page 22 to 24 (NEB Document A96556-4). The referenced response describes Transport Canada’s views on voluntary and regulatory speed restrictions. Fisheries and Oceans Canada: Please refer to Transport Canada's response to this request, as Fisheries and Oceans Canada does not have any additional information to provide.</p>	<p>We understand the senior management in TC on the west coast favour discretionary protection mitigate measures. FER does not support voluntary measures for the recovery of SRKW. Voluntary measures are certain to lead to non-compliance in favour of economic expediency.</p>
<p>43. 4.3.1.3 IR #43 – To DFO and TC If failure to achieve a 100% compliance rate occurs because it may “not be safe for a vessel to comply with reduced speeds during inclement weather”, has DFO and Transport Canada considered the obvious solution which would be prohibiting vessel traffic through sensitive areas such as Haro Strait in such conditions?</p>	<p>Transport Canada: The federal government has the authority to regulate and even prohibit marine vessel traffic in internal waters of Canada to address environmental concerns associated with the marine environment subject to treaty obligations allowing free and open passage. Such authority is exercised considering many factors, including the safety of the ship and its crew. Prohibiting vessel transits during inclement weather would have the same effect as Managing Transits as outlined in Annex 3.F.4 of the Government of Canada’s evidence submission. With respect to this measure, the navigational safety risks related to vessels loitering while waiting to be able to proceed are high. Additionally, Transport Canada has not assessed the specific weather conditions which could potentially trigger such a prohibition. It should also be noted that, since shipping lanes in the area intersect the U.S./Canada border and are jointly managed by both nations, a mandatory measure prohibiting vessels from transiting at any time would not be enforceable in U.S. waters and would likely require renegotiation with the U.S. of the bilateral Coordinated Vessel Traffic Services Agreement and consensus with the U.S. that such a measure was effective and feasible. Transport Canada and the Vancouver Fraser Port Authority are coordinating efforts to encourage participation in the Haro Strait voluntary vessel slowdown. Participation rates as reported by pilots rose from 61% in 2017 to 88% in 2018. Fisheries and Oceans Canada: Please refer to Transport Canada's response to this request. Fisheries and Oceans Canada has assessed the effectiveness of various mitigation measures to reduce impacts from marine shipping on Southern Resident Killer Whales in the Direct Evidence of the Federal Government Intervenors (see MH-052-2018; Exhibit A95299-20, Annex 7.G.3, PDF Page 25).</p>	<p>The stated 88% compliance we believe is not good enough for whales. If the compliance is so high, why is TC unwilling to craft regulations that will bring the speeders into compliance? If this were a school zone and whales are the children, then the police would need to be satisfied that most motorists slow down. But ship traffic in a hurry can speed through, strike whales and increase marine noise because there are no negative consequences.</p>

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<p>44. 4.3.1.4 IR #44 – To TC and DFO Given that the SRKW habitat occurs over a large extent of the intended vessel traffic lanes, it would seem to be more effective for survival of the SRKW to require speed reduction whenever SRKW are encountered within a designated distance of the vessel.</p>	<p>Transport Canada: Measures employed when in the proximity of marine mammals require both effective whale detection technology and effective communications tools with vessels. With respect to alerting vessels to the presence of whales, under the Whales Initiative, Transport Canada has provided funding to Ocean Wise’s Whale Report Alert System as outlined in Section 3.B.9 of the Opening Statement and Written Evidence of Federal Government Intervenors at PDF page 86 - 87 (NEB Document A95292-2). The evaluation and implementation of whale detection technology falls within the mandate of Fisheries and Oceans Canada, who will respond to this request. As new whale detection technology emerges, Transport Canada may assess the feasibility of implementing a more dynamic approach to speed reductions. TC is also working with Canadian fleet owners to establish Underwater Noise Management Plans (UNMPs) as outlined in Section 3.B.3 of the Opening Statement and Written Evidence of Federal Government Intervenors at PDF page 76 - 77 (NEB Document A95292-2). UNMPs could include the development of operational measures that could be used by ship operators in the presence of whales to reduce their vessel’s impact. It should be noted that different vessel types behave differently while in transit with respect to deceleration and stopping times/distances, and some vessels are actually louder when they slowdown. Measures will likely need to be tailored to fit operational realities, and navigational safety remains a priority.</p> <p>Fisheries and Oceans Canada: Fisheries and Oceans Canada has discussed the effectiveness of whale detection (e.g., marine mammal observers and real-time notification) and vessel speed reductions in the Direct Evidence of the Federal Government Intervenors (see MH-052-2018; Exhibit A95299-20, Annex 7.G.3, PDF Page 25).</p>	<p>Given the benefits of reduced green house gas emissions and lower noise, slower ship speeds and lower whale strikes it is hard to understand why there is not an immediate reduction in ship speeds. That would be more in keeping with the Precautionary Principle in the Preamble of the <i>Oceans Act</i>. Why are the SRKW being managed at a higher risk scenario (uncontrolled ship speed) while this technology and study of whale detection remains in development. Far better for the endangered whales to slow all speed until whale detection is found to be effect which for many species seems unlikely. This appears to us to be implementing brinksmanship with endangered species.</p>
<p>45. 4.3.1.5 IR #45 – To TC and DFO Is Haro Strait being considered as the only area for speed vessel reduction? If so explain how this is going to be of much benefit to the survival of the SRKW unless other areas of vessel traffic through SRKW habitat are treated.</p>	<p>Transport Canada: Please refer to the response in NEB IR 1.31 in the Cover Letter and Responses to NEB IR No. 1 to Federal Authorities at PDF page 16 (NEB Document A96556-4) outlining Transport Canada’s exploration of the efficacy and feasibility of expanding slowdowns within SRKW critical habitat. Please refer to the response in Section 3.B.7 of the Opening Statement and Written Evidence of Federal Government Intervenors at PDF page 83 - 84 (NEB Document A95292-2) for more information on the Expanded Slowdown Zone initiative. Transport Canada’s mitigation approach is adaptive, modifying existing measures based on the best available data to ensure they remain effective. Transport Canada will continue to work with DFO to monitor noise levels and ensure mitigations are proving effective and to determine areas to target for further mitigation. Evaluating vessel speed reduction locations throughout SRKW habitat in relation to the survival of the SRKW falls outside of Transport Canada’s mandate. This subject matter falls within the mandate of Fisheries and Oceans Canada, which will respond to this information request on behalf of the Federal Authority intervenors.</p> <p>Fisheries and Oceans Canada: Please refer to Transport Canada's response to this request. If vessel speed reductions are implemented in key foraging areas within critical habitat for Southern Resident Killer Whales, these are likely to be beneficial for the species.</p>	<p>See comment above on changing the government approach and not playing brinksmanship with endangered species.</p>

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<p>46. 5.1.1.1 IR #46 – To TMX We request TMX file as evidence, the Shipboard Oil Pollution Emergency Plan (SOPEP) and the Shipboard Marine Pollution Emergency Plan (SMPEP) referred to in section 21.13 of their November 2018 updated Tanker Acceptance Standard.</p>	<p>TMX 046) For the Shipboard Oil Pollution Emergency Plan (SOPEP) please refer to Trans Mountain’s response to City of Port Moody IR No. 2 in the OH-001-2014 proceeding (Filing ID A4H8G7). A Shipboard Marine Pollution Emergency Plan (SMPEP) is not a requirement for a crude oil tanker but could be used as a substitute for a SOPEP. A copy of a sample SMPEP has been provided here as an attachment, called FER Reconsideration IR No. 046Attachment 1.</p>	<p>Thank you for the added information.</p>
<p>47. 5.1.1.2 IR #47 – To TC and DFO Has TMX ever denied a contract to an Aframax tanker or an escort tug based on a failure to meet their standards?</p>	<p>Transport Canada: The topic of Transmountain Corporation’s approval of a contract for Aframax tankers or escort tugs falls outside of TC’s mandate. Transport Canada has redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter. Fisheries and Oceans Canada: As the subject matter of this information request (IR) falls within the mandate of the Proponent, this IR has been redirected to them.</p>	<p>Response from TMX? There was not a response from TMX in the December filed Trans Mountain Response to FER Reconsideration IR document.</p>
<p>48. 5.1.1.3 IR #48 – To TMX Since TMX indicates there are plans to further evaluate, we request that TMX provide evidence to the hearings of the evaluation it has on hand on escort tugs as oil recovery assist vessels. Is the evaluation considering deployment of booms carried on the escort tugs? Would an escort tug carrying a containment boom require a differently configured escort tug with sufficient capacity to have on board a containment boom sufficient in length to encircle an Aframax tanker? How much deck space would be needed on such a vessel?</p>	<p>No further information beyond what has been stated in Direct Evidence Measure 2 can be provided at this time.</p>	<p>We are uncertain whether TMX has withheld information and files it has on this topic.</p>
<p>49. 5.1.1.4 IR #49 – To TMX What tanker sizes are being considered by TMX to increase shipping capacity over the current Aframax tankers?</p>	<p>049) None. Aframax size tankers are the largest tankers that are acceptable to the Port of Vancouver.</p>	<p>Thank you.</p>
<p>50. 5.1.1.5 IR #50 – to TMX What are the TMX plans and contracts to build loading facilities for larger tankers?</p>	<p>050) Please see Trans Mountain response to FER Reconsideration IR No. 049.</p>	<p>Thank you.</p>
<p>51. 5.2.1.1 IR #51 – To TMX Please provide the improvements in spill response time and capacity that is referred in the Facilities Application. We were unsuccessful in finding it as the link had a 404 error.</p>	<p>051) Please see Volume 8A, Section 5.5.2 (Filing ID A3S4Y6; PDF p.32-34). The enhanced oil spill response regime was also described in Trans Mountain’s direct evidence (Filing ID A6J6F4, pp 63-66) in this proceeding.</p>	

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<p>52. 5.3.1.1 IR #52 – To TMX Will TC request that the Minister appoint an independent special advisor to audit the WCMRC permit and competency as part of the renewal process for WCMRC? Please clarify the renewal process and any corrective measures TC has made while WCMRC has held the RO certificate?</p>	<p>WRONG AGENCY SHOULD HAVE BEEN TC not TMX. TMX This information request relates to issues that are outside of Trans Mountain’s direct knowledge and control. As noted in Trans Mountain’s letter dated December 19, 2018 (Filing ID A6Q3L8), Trans Mountain has directed this information request to the federal agencies for their response. Transport Canada does not currently plan to request the Minister to appoint an independent special advisor to audit the WCMRC permit and competency. Transport Canada certifies response organizations, including the WCMRC, as outlined in Annex 5.E.1 of the Opening Statement and Written Evidence of Federal Government Intervenor (NEB Document A95292-23) PDF pages 31 to 33. Please refer to IR #60 for further information regarding potential changes to RO standards. No corrective measures have been required; WCMRC has met and continues to meet the requirements for TC certification.</p>	<p>Thanks for redirecting to the correct Agency. We see that Transport Canada does have an Audit role of Practices of Safety and Security Management System¹⁶ which it appears could be applied to WCMRC. A recent such audit found that “<i>Safety and Security programs are limited in their ability to assess the achievement of their SMS/SeMS objective and expected outcomes due to weaknesses in most of the performance measurement strategies and the quality of inspection data</i>”. That conclusion may apply to WCMRC.</p>
<p>53. 5.3.1.2 IR #53 – To TC If mitigation strategy identified through science-based research are effective as some research is finding, is TC willing to relocate shipping lanes?</p>	<p>TC is willing to assess the rationale for and feasibility of relocating shipping lanes. Any change must be justified and the alternative route must be safe. For further information on changing routing of tankers, please refer to TC’s response to NEB IR 1.31 to 1.37 in the Cover Letter and Responses to NEB IR No. 1 to Federal Authorities at PDF page 20-39 (NEB Document A96556-4).</p>	<p>Thank you for the positive reply. Very encouraging. We are pressing for changes before the TMX project becomes fully functional ie within a few years.</p>
<p>54. 5.4.1.1 IR #54 – To TMX and WCMRC We understand that Work Safe BC requires data safety sheets for those who work in and around Dilbit. These data safety sheets should form part of the evidence for this reconsideration hearing we would like them filed.</p>	<p>WCMRC-There is no Work Safe BC requirement for “data safety sheets for those who work in and around Dilbit.” During a response, it is standard operating procedure for the safety officer, or their designate, to conduct an initial site characterization, during which time product specific Safety Data Sheets (SDS) or Material Safety Data Sheets (MSDS) would be consulted. For identified ship-source oil spills, the SDS would typically be provided by the polluter. The SDS would be appended to the Site-Specific Safety Plan. TMX- Safety Data Sheets were previously provided in the original hearing as attachments to Trans Mountain’s response to Province of BC IR No. 1.1.26a (A3Y2Z1) (page 79) with Attachment 1 (crude oils) (A3Y3A4) (A3Y3A5) and Attachment 2 (refined) (A3Y3A6). The content of the Safety Data Sheet (SDS) is maintained by the product producer, not Trans Mountain, and is subject to periodic updates. The SDS includes the correct technical name of the product, PIN where applicable, UN number, flashpoint, true vapour pressure and precautions of the product. SDS of certain oils are also provided publicly by some producers on www.Crudemonitor.ca. SDS of all oils carried on the pipeline are readily available to all Trans Mountain employees through a subscription service that maintains the most up to date version of the SDS. In the event of an accident/emergency, the onsite Trans Mountain Operations Technician or designated Incident Command personnel will obtain the product name and SDS from the Trans Mountain Control Centre and provide this information to attending first responders. Thereby information can be made available</p>	<p>Why are their no data safety sheets especially for the safety of those handling dilbit before there is an incident? TMX must believe an ignorant workforce is superior to an informed workforce. Odd we did not expect Worksafe BC to be so willing to take this liability and with no questions asked.</p>

¹⁶ <https://www.tc.gc.ca/eng/corporate-services/aas-audit-1437.html>

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	<p>immediately. SDS for the oils loaded to any tanker are readily accessible by Trans Mountain personnel. SDS are also provided to the vessel together with custody transfer samples. In the unlikely event of a marine oil spill, the specific SDS for the oil(s) will be provided to Western Canada Marine Response Corporation by the vessel, who is the Transport Canada-certified marine spill response organization in the case of a ship-source oil spill.</p>	
<p>55. 5.4.1.2 IR #55 – To TC Has the Federal system been amended so that it has the same capacity as that of the City of Vancouver and the Province of BC with regard to access and sharing of information? We are concerned that as the lead agencies who are the Federal Agencies will be able to handle effectively a major spill even in a coordination role. Despite all the on going projects submitted a positive initiatives and the optimism expressed by the Federal Agencies are the agencies ready for a dilbit spill in Haro Straights today?</p>	<p>Transport Canada: In the event of a potential spill in Haro Strait, a response would be undertaken in accordance with Canada’s marine preparedness and response regime. As per the polluter pay principle, the polluter is always responsible for the clean-up of an oil spill, including a potential spill in Haro Strait. If the polluter is unable, unknown or unwilling, the Canadian Coast Guard is mandated to respond.</p> <p>All project tankers are required to have an arrangement with Western Canada Marine Response Corporation (WCMRC), the Transport Canada certified response organization for the project area. WCMRC will respond to ship-source oil spills from vessels with which they have an arrangement, including spills of diluted bitumen.</p> <p>A number of enhancements to Canada’s marine safety system have been implemented under the Oceans Protection Plan. Pillar 1: A World-Leading Marine Safety System that Protects Canada’s Coasts and includes preparedness and response measures; and Pillar 4: Investing in Oil Spill Research and Spill Response Methods include several initiatives that enhance marine oil spill prevention, emergency preparedness, and response measures (see PDF page 26 of the Opening Statement and Written Evidence of Federal Government Intervenors for details (NEB Document A95292-2).</p> <p>Further, the implementation of the Incident Command System has enhanced the Coast Guard’s ability to integrate with partners and stakeholders throughout a response. In recent years, the Coast Guard, alongside its partners, has successfully applied the Incident Command System methodology to respond to many incidents.</p> <p>To support safe and environmentally responsible shipping, the Government of Canada has amended the Canada Shipping Act, 2001 (CSA 2001) and the Marine Liability Act (MLA) to enhance marine environmental protection and strengthen marine safety, as well as provide unlimited compensation for ship-source oil spills. These amendments were tabled as part of Bill C-86, Budget Implementation Act 2018, No. 2 on October 29, 2018, and received Royal Assent on December 13, 2018. More information on the amendments can be found in Section 2.B.18 of Canada’s evidence submission, PDF page 45 – 47 (A95292-2).</p> <p>Please refer to Section 6, PDF page 28- 35 of Annex 5.E.1 of the Opening Statement and Written Evidence of Federal Government Intervenors (NEB Document A9529223) for more information on Canada’s marine preparedness and response regime.</p> <p>Environment and Climate Change Canada: Response (specific to recent dilbit research only) The government of Canada has and continues to conduct research related to response to spills of diluted bitumen. Diluted bitumen exists within the broader continuum of petroleum mixtures. Like conventional oil products, it has a range of potential fates within different environmental components (i.e., surface, bottom, water column, shoreline, atmosphere, etc.).</p>	<p>“If the polluter is unable, unknown or unwilling, the Canadian Coast Guard is mandated to respond.” Hopefully their response would lead to vessel impoundment.</p>

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	<p>Existing response measures are effective on diluted bitumen, in general, to the same extent as they would be for other petroleum products of similar properties. The success of existing response measures may be enhanced through greater awareness of the fate and behavior of diluted bitumen to inform decision-making on how to best deploy countermeasures for the specific spill scenario, as well as the development of additional response tools to expand the available options. Knowledge gaps exist that relate primarily to the environmental setting (e.g., rivers, lakes, marine, estuarine, etc.) and variables within these settings (e.g., temperature, water quality parameters, wind, wave, and currents) that affect the fate and behavior of the product. Environment and Climate Change Canada has undertaken studies to advance the collective understanding of the fate and behaviour of diluted bitumen on shoreline sediments and a review of response tactics. Two references listed below are included with the Opening Statement and evidence submitted as filings A95299-15 Annex 06.D.41-A6J6Z7 and A95299-9 Annex 06.D.35-A6J6Z7</p>	
<p>56. 5.5.1.1 IR #56 – To ECCC, DFO, TC, VFPA, and PPA Provide: a) any information on research and findings since the date of the Board’s Report, related to the fate and behavior and clean-up of oil (including diluted bitumen) spilled in marine environments that would be applicable to Project-related marine shipping; and b) any information or knowledge on any enhancements to marine oil spill prevention, emergency preparedness, and response measures since the date of the Board’s Report, including any updates and information on the status of the implementation of the enhanced marine oil spill response regime, as referenced in Condition 133 set out in the Board’s Report.</p>	<p>TC WCMRC defers to other agencies to respond to part a) of this question.</p> <p>For status of the implementation of the enhanced marine oil spill response regime, as referenced in Condition 133 please refer to WCMRC’s evidence for Hearing Order: MH-0522018, “An Update on the Status of the TMEP Enhanced Response Regime” (Filing ID A6L5G5).</p> <p>A90414NEB TMX Dec 5th up-dated TMEP enhanced response regime</p> <p>Environment and Climate Change Canada: a) ECCC recently submitted all research that has been completed since the Board’s Report relevant to spill response, spill planning and new techniques and technologies for spill response as referenced in NEB request 6.C.3, and can be found at MH-0522018; A95292-2, Ch6. The full text of the referenced studies can be found in the Annex list of Chapter 6, referenced as document record A95292-2 2018-10-31. Specifically, these include:</p> <p>Annex 6.D.19 A study of the 46-year-old Arrow oil spill: Persistence of oil residues and variability in oil contamination along Chedabucto Bay, Nova Scotia, Canada</p> <p>Annex 6.D.20 Occurrence, source and ecological assessment of petroleum related hydrocarbons in intertidal marine sediments of the Bay of Fundy, New Brunswick, Canada</p> <p>Annex 6.D.21 Effect of evaporative weathering and oil-sediment interactions on the fate and behavior of diluted bitumen in marine environments Part 1 Effect of evaporative weathering and oil-sediment interaction on the fate and behavior of diluted bitumen in marine environments Part 2</p> <p>Annex 6.D.22 Rapid fingerprinting of spilled petroleum products using fluorescence spectroscopy coupled with parallel factor and</p>	<p>Interesting to note here that NRCanada states “after a spill, use of spill treatment agents such as dispersants have relatively short windows of opportunity for use.’ Whereas in another section IR #79) here CCG states that dispersants are not authorized for use.</p> <p>Since “Research continues to study oil behaviour for a wider range of conditions. References: 1) DFO. 2018. Status Report on the Knowledge of the Fate and Behaviour of Diluted Bitumen in the Aquatic Ecosystems. DFO Can. Sci. Advis. Sec. Sci. Resp. 2018/018 (Annex 7.G.3, Page 1 of 360).”</p> <p>We would like to be assured that this project does not proceed until results are in from</p>

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	<p>principal component analysis Annex 6.D.23</p> <p>Results from Effectiveness Testing of Chemical Countermeasures and Sorbent Performance on Oil Sands Products Annex 6.D.24</p> <p>Flow Behaviour of Oil: What Makes Diluted Bitumen Different Annex 6.D.25</p> <p>Assessing the Effect of Temperature on the Use of Oil Spill Treating Agents Annex 6.D.26</p> <p>Characterization of naphthenic acids in crude oils and refined petroleum products Annex 6.D.27</p> <p>Measurement of Oil in Water Using a Field Fluorometer Annex 6.D.28</p> <p>The Canadian Oil Spill Shoreline Research Program: Establishing a Baseline Dataset for the Marine Coast of Northern British Columbia Annex 6.D.29</p> <p>Meso-scale studies on the penetration and retention of diluted bitumen in different types of shorelines, Northern British Columbia, Canada Annex 6.D.30</p> <p>Baseline Surveys of Marine Coastline in Support to Area Response Planning Annex 6.D.31</p> <p>A Literature Review on Shoreline Cleanup Assessment Technique Annex 6.D.32</p> <p>Potential Health and Safety Concerns for Oil Spill Responders working in Proximity to Spills of Unconventional Crude Oil Annex 6.D.33</p> <p>Shoreline Cleanup Assessment Technique (SCAT) Manual, Third edition Annex 6.D.34</p> <p>A Review of Oil Spill Remote Sensing Annex 6.D.35</p> <p>Diluted Bitumen Sediment Interaction Experiments (Bit_EX): Diluted Bitumen Penetration and Retention on Shorelines Annex 6.D.36</p>	<p>these studies which support the possibility of complete oil recovery.</p>

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	<p>Chapter 2 - Oil Physical Properties Measurement and Correlation Annex 6.D.37 Evaluation and Validation of Submersible Fluorometer Analytical Response Using a Benchtop Fluorescence Spectrometer: What Oil Fraction is Detected in the Water Column Annex 6.D.38 Scientific Support Information and Response Guidance for Dilbit Spills Impacting Marine Shorelines Annex 6.D.39 Potential Dilbit Residence on Coarse-sediment Shorelines Annex 6.D.40 Chapter 3 - Fingerprinting Analysis and Source Differentiation of Petroleum-Contaminated Environmental Samples Annex 6.D.41 Fate of Photodegraded Diluted Bitumen in Seawater Annex 6.D.42 Occurrence, source and ecological assessment of baseline hydrocarbons in the intertidal marine sediments along the shoreline of Douglas Channel to Hecate Strait in British Columbia Natural Resources Canada: a) There is scientific consensus (Reference 1) that behaviour of all crudes including diluted bitumen will depend upon the environmental conditions of the spill. As well, there is consensus that the behaviour of diluted bitumen products falls within the range of behaviours found for petroleum crude oils and products and so current spill response technologies for recovery of both floating and sunken oils can be used. However, as diluted bitumen viscosity increases relatively quickly after a spill, use of spill treatment agents such as dispersants have relatively short windows of opportunity for use. For any specific site there will be a range of conditions over different times of the year so behaviour at that site can be variable. Research “simulations of spill conditions are closest to field spill scenarios in open tank systems. Under conditions tested to date (Reference 2), diluted bitumen oil masses tested have floated on fresh water for at least 21 days, allowing time for surface recovery. Portions of diluted bitumen have been found to submerge in fresh water after it has been exposed to salt water due to its tendency to pick up water (Reference 3) i.e. if it picks up salt water first, it will be more dense than fresh water and so submerge. This has not changed the original assessment for potential submerged or sunken oil behaviour in any particular site. Research continues to study oil behaviour for a wider range of conditions. References: 1) DFO. 2018. Status Report on the Knowledge of the Fate and Behaviour of Diluted Bitumen in the Aquatic Ecosystems. DFO Can. Sci. Advis. Sec. Sci. Resp. 2018/018 (Annex 7.G.3, Page 1 of 360). 2) Dettman, H.D., H. Farooqi, and B. Namsechi, “Test Tank Study of Diluted Bitumen and Conventional Crude Weathering in Fresh Water”, presented at the Fortieth AMOP Technical Seminar, Calgary, Alberta, October 2017. (Annex 9.C.8) 3) King, T.; Robinson, B.; Cui, F.; Boufadel, M.; Lee, K.; and Clyburne, J. 2017. An oil spill decision matrix in response to surface spills of various bitumen blends. Environmental</p>	

Information Requests	Responses	Comment
	<p>Science: Processes & Impacts, 19(1), 929-939.</p> <p>Environment and Climate Change Canada: b) ECCC is involved in several measures aimed at enhancing preparedness for, response to and recovery from a marine oil spill. In 2017 ECCC opened a satellite office in Vancouver of the National Environmental Emergency Center (NEEC) with four Environmental Emergencies Officers. ECCC has also enhanced its communications, oil spill trajectory modelling and wildlife response capacity for response to environmental emergencies. BC is also collecting baseline data, including georeferenced shoreline data and baseline data on priority bird species. ECCC is conducting ecotoxicity work on migratory bird species and collecting local and traditional knowledge in collaboration with Indigenous peoples and communities. Under the Canadian Coast Guard leadership, ECCC is supporting the development of Regional Response Plans. The planning approach and lessons learned from the Regional Response Planning pilot project in northern British Columbia will be incorporated into ongoing Coast Guard environmental response planning in southern British Columbia, including the Salish Sea, where applicable. This new collaborative planning approach is intended to contribute to a strengthened marine safety system through enhanced coordination and more effective response to marine pollution incidents.</p> <p>Transport Canada: b) The Oceans Protection Plan’s Pillar 1: A World-Leading Marine Safety System that Protects Canada’s Coasts and Pillar 4: Investing in Oil Spill Research and Spill Response Methods includes several initiatives that enhance marine oil spill prevention, emergency preparedness, and response measures. Please refer to Department of Justice Canada - Opening Statement and Written Evidence A95292-2 PDF page 26 for additional information. The status of the implementation Condition 133 set out in the Board’s Report has been redirected to the Proponent for response, as the Proponent is best placed to provide information on this subject matter. As the subject matter of this IR also falls within the mandate of WCMRC, WCMRC are responding to this information request in their IR responses.</p> <p>Fisheries and Oceans Canada: For Fisheries and Oceans Canada and the Canadian Coast Guard’s responses to (a) and (b), please see section 7.D of the Government of Canada’s Opening Statement and Direct Evidence (MH-052-2018; Exhibit A95292-2, Section 7.D, PDF Page 201).</p>	
<p>57. 5.6.1.1 IR #57 – To WCMRC and TC What companies that move oil on the BC coast do not contract with WCMRC? Logging barges with fuel trucks like the one that sank in Robson Bight Ecological Reserve?</p>	<p>WCMRC understands that the scope of this Reconsideration Hearing is limited to new or updated information relevant to the issues identified in Appendix 1 to Hearing Order MH-0522018 (Filing ID A61718). Based on this understanding, the information requested is not within the scope of this hearing. Therefore, WCMRC will not provide a response to this request.</p> <p>Transport Canada objects to this question on the basis that the requested information is not related to the issues or the FAs’ evidence.</p>	<p>We object to the response by Transport Canada and WCMRC because regulations developed for the TMX project have great relevance for other operations involving dangerous chemicals on our coastline, and we expect Transport Canada to step up and say, yes that is a concern and any regulations developed for this project will apply to the rest of the oil-transport industry. (As it is within the National Interest to do so!)</p>

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<p>58. 5.6.1.2 IR #58 – To WCMRC and TC If a company does have a contract with WCMRC, then who is responsible for clean up of an spill oil?</p>	<p>WCMRC-All Project-related marine shipping vessels have arrangements with WCMRC. TC- Under the polluter pay principle, the polluter is always responsible for the clean-up of an oil spill. If the polluter is unable, unknown or unwilling, the CCG is mandated to respond. For further information, please refer to the polluter pay principle, as outlined in the liability and compensation section Annex 05.E.1 of the Opening Statement and Written Evidence of Federal Government Intervenor (NEB Document A95292-23), PDF page 34</p>	<p>“If the polluter is unable, unknown or unwilling, the CCG is mandated to respond.” At whose expense?</p>
<p>59. 5.6.1.3 IR #59 – To WCMRC What was the percentage of fuel spilled and what was the percentage of fuel recovered during the response to Nathan E Stewart?</p>	<p>WCMRC understands that the scope of this Reconsideration Hearing is limited to new or updated information relevant to the issues identified in Appendix 1 to Hearing Order MH-0522018 (Filing ID A61718). Based on this understanding, the information requested is not within the scope of this hearing. Therefore, WCMRC will not provide a response to this request. TC- Of the reported amount of diesel fuel on the Nathan E. Stewart, 11% was pumped to its barge (the DBL 55) prior to the sinking of the Nathan E. Stewart. During subsequent salvage/diving operations another 42% was pumped off the vessel. In addition, it is estimated that 1% was recovered with sorbent recovery materials.</p>	<p>To WCMRC this question was very legitimate as it points out the inability for existing oil spill clean up methods in Canada to adequately recover oil from a spill. To TC Thank you for providing the recovery information sought.</p>
<p>60. 5.7.1.1 IR #60 – To TC When will the 1993 RO Standards be revised? What consultation process will be used and who will be consulted?</p>	<p>TC- As part of the Oceans Protection Plan, Transport Canada is reviewing the regulations and standards that govern Canada’s oil spill response organizations, including the 1995 Response Organization Standards. To support this work, a discussion paper was prepared and released in May 2018 on Transport Canada’s website. Feedback is being solicited from all interested stakeholders and Indigenous groups through written submissions, as well as during Oceans Protection Plan Dialogue Forums and other meetings. Engagement on this topic is scheduled to end in Spring 2019.</p>	
<p>61. 5.7.1.2 IR #61 – To WCMRC What as percentage of fuel was recovered during the response to Nathan E Stewart</p>	<p>Canadian Coast Guard-Please see WCMRC Response to FER 5.6.1.3 IR #59. TC- During the Nathan E. Stewart Response approximately 54% of the diesel fuel reported to be on board the vessel was recovered.</p>	
<p>62. 5.7.1.3 IR #62 – To TC Why is the response time so much longer on Vancouver Island which has the high population density south Vancouver Island and a great deal longer shoreline?</p>	<p>TC- The response time standards were established by the Governor in Council, through the Treasury Board, via the approved regulations and standards regarding response organizations and oil handling facilities, developed in consultation with industry, special interest groups and multiple government departments. Given the higher volume of activities in Vancouver it was understood that there was a greater likelihood of small discharges in areas of loading and unloading. As a result, a geographically based tier system was developed where the first two tiers (150 tonnes and 1000 tonnes) of response capability were to be deployed on scene in 6 and 18 hours within the confines of a designated port only. The 1993 Public Review Panel Report recommended that the country’s marine spill response capability be augmented to a level sufficient to be prepared to respond to an oil spill of 10,000 tonnes in each region to be delivered as fast as possible. The final result was an agreement on a Tier III level of 2500 tonnes, (Primary Area of Response- PAR) delivered to the affected operating environments within 18 hours and a 10,000 tonne capability delivered to the affected operating environment within 72 hours plus travel time if the incident occurs outside a PAR or an Enhanced Response Area (ERA). With respect the Strait of Juan De Fuca, these areas are classed as ERA due to marine traffic density and convergence of marine vessels. ERA’s were given enhanced response times (outside a PAR) in order to address the threat of potential oil spills. As a result, a planning standard of 2500 tonnes is to be delivered to the affected operating environment within 18 hours.</p>	<p>We don’t believe an 18 to72 hour response plan is good enough, and also it sets a double standard. The Public Review Panel of 1993 did not have any idea at that time, of the level of increased traffic and increased spill potential and of the toxic nature of that spill. The reply restates the Response times but not the reasons that Vancouver Island and the Gulf Islands are zoned for much slower response times</p>

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<p>63. 5.7.1.4 IR #63 – To TC Who made the decision that Vancouver must have a better response time than southern Vancouver Island? WCMRC - based on their equipment inventory? Identification of those who made this decision is required and their rationale is needed. If this rationale does not hold up, then southern Vancouver Island seeks parity with Vancouver on response times and extend the zone to an area west of Sooke and include SRKW frequent use areas.</p>	<p>Transport Canada objects to this question on the basis that the requested information is not related to the issues or the FAs' evidence.</p>	<p>We appreciate that TC does not appreciate the question on why the zoning treats the people of Vancouver Island and the Gulf Island differently. We maintain the 400,000 people outside of Vancouver deserve equal treatment with regard to RO's capability and timing. TC appears content to continue the differential response windows and capability. 400,000 people would likely disagree. TC has the authority to level the playing field between Vancouver and Victoria but apparently not the will.</p>
<p>64. 5.7.1.5 IR #64 – To WCMRC and TC How long does it take to produce a map of an incident using oil spill map?</p>	<p>An initial oil spill trajectory to support WCMRC on-water operations can be run using OILMAP software in approximately 30-45 minutes, given the availability of existing current forecasting models. Transport Canada: The production of maps of an incident is outside TC's mandate. The subject matter of this IR falls within the mandate of ECCC and WCMRC. Please see ECCC and WCMRC's responses to this IR, who have agreed to respond to this request. Environment and Climate Change Canada: The duration depends on the specific incident but typically a spill trajectory model can be produced within 1-2 hours if all of the required information is available. Compositional data relevant to spill response and planning for several diluted bitumen and related products, entitled "Physiochemical properties of petroleum products" is available on the Government of Canada Open Data portal under the Spills Technology Databases. The Government of Canada plans to add more data on oil sands products to the Open Data Portal as research is completed over the coming years.</p>	<p>We appreciate the disclosure of the modelling program being used by WCMRC.</p>
<p>65. 5.7.1.6 IR #65 – To WCMRC and TC What factors are included? Wind speed, currents and tides and nearest equipment? Please provide an example of your modelling for a spill in Haro Strait.</p>	<p>OILMAP trajectory model inputs include current direction and speed, wind direction and speed. WCMRC standard operating procedure directs that trajectory models are to be run in an unmitigated format to continually inform of the incident's potential credible worst-case. Therefore, equipment and response options are not used as inputs. Environment and Climate Change Canada: Spill modelling requires information related to the specific circumstances of the spill incident including; Spill Details (location, substance, volume, duration, depth, date and time), Environmental Conditions (temperature, salinity, time-varying gridded wind, time-varying gridded current, gridded bathymetry, ice), Oil Properties (physiochemical properties, fate and behaviour information from lab studies), Geography (basemaps, shoreline characterization), Observations (overflights, pictures, local weather). Preliminary peer-reviewed papers on the development of ECCC's COSMoS spill modelling system have been published in the Proceedings of the 39th and 40th AMOP Technical Seminars; Bourguin, P., Marcotte, G., G. Mercier, J.-P. Gauthier, P.</p>	

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	<p>Pellerin, G. Smith, K. Onu, and C.E. Brown, Canadian Oil Spill Modelling Suite: An Overview, Proceedings of the Thirty-ninth AMOP Technical Seminar, Environment and Climate Change Canada, Ottawa, ON, pp. 1026-1034, 2016.</p> <p>Marcotte, G., A. Malo, E. Legault-Ouellet, J.-P. Gauthier, and G. Mercier, A Statistical Method to Determine the Number of Lagrangian Elements for Optimal Gridded Field Representation of Random Displacement Model Outputs, Proceedings of the Fortieth AMOP Technical Seminar, Environment and Climate Change Canada, Ottawa, ON, pp. 610-628, 2017.</p> <p>Transport Canada: Oil spill modeling is outside TC’s mandate. The subject matter of this IR falls within the mandate of ECCC and WCMRC. Please see ECCC and WCMRC’s responses to this IR, who have agreed to respond to this request.</p>	
<p>66. 5.7.1.7 IR #66 – To WCMRC Where are duty officers’ located and computing centre doing the spill modelling.</p>	<p>Spill modelling is conducted by WCMRC’s Response Readiness team and can be run on laptops from wherever they are stationed.</p>	<p>We remain concerned with the data input because of the differences in wind speed provided by TMX.</p>
<p>67. 5.7.1.8 IR #67 – To WCMRC Are there duty officer’s awake and waiting in an WCMRC office 24/7? (Filing ID A3Y2G6). this is a link to</p>	<p>WCMRC notes that this issue has been adjudicated in prior hearings. Please refer to City of Vancouver Motion IR 1.10.10 (d). (Filing ID A3Y2G6). 24/7 response bases are part of the enhanced response regime. Section 10 10 d states For background information, please refer to the responses to City of Vancouver IR No. 1.10.10b and 1.10.10d states . <i>WCMRC has an internal roll call process for staff and contractors during holiday and weekends. Trans Mountain encourages the City of Vancouver to contact WCMRC directly to obtain further information on their internal callout procedures.</i></p>	
<p>68. 5.7.1.9 IR #68 – To CCG When and under what circumstances do you contact WCMRC?</p>	<p>Canadian Coast Guard. The Canadian Coast Guard maintains a close working relationship with WCMRC. When an incident occurs, the Coast Guard advises the WCMRC of the developing situation to initiate any required preparation for response. This enables the WCMRC to mobilize and deploy staff, vessels and equipment accordingly. The Coast Guard and WCMRC maintain regular communication as the incident evolves.</p>	
<p>69. 5.7.1.10 IR #69 – To CCG In the event that there is a an oil spill when does CCG learn whether the responsible party is or is not a member in good standing with WCMRC?</p>	<p>Canadian Coast Guard As a part of the early notification process, WCMRC will advise the Coast Guard if the vessel involved in an incident is a “member in good standing” or not. In situations where the vessel is not in good standing, this allows the Coast Guard to begin the process of either contracting with WCMRC (using Coast Guard Emergency Contacting authorities) or prepare and issue a Direction Order (under the authority of Part 8, section 180 of the Canada Shipping Act, 2001) to WCMRC to respond immediately.</p>	
<p>70. 5.7.1.11 IR #70 – To CCG When the responsible party is not a member of WCMRC where does the CG access equip suitable for a response?</p>	<p>Canadian Coast Guard In an incident, the Coast Guard can contract the WCMRC (using Coast Guard's emergency contracting authorities) or issue a Direction Order (under the authority of Part 8, Section 180 of the Canada Shipping Act, 2001) to WCMRC to respond immediately. The Coast Guard maintains Environmental Response Equipment Depots at four locations on the coast of B.C. (Ucluelet, Prince Rupert, Richmond and Victoria) and will be equipping a fifth, in Port Hardy, in 2019. The Coast Guard has trained personnel and specialized equipment to ensure an appropriate response to all reports of marine spills</p>	

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<p>71. 5.7.1.12 IR #71 – To WCMRC Are there duty officer’s awake and waiting in an WCMRC office 24/7?</p>	<p>Please see responses WCMRC Response to FER IR 5.7.1.8 IR #67.</p>	
<p>72. 5.7.2.1 IR #72 – To WCMRC and TC Under what circumstances and using what criteria will there be no response to an oil spill because it is not actionable?</p>	<p>Because of each oil spill’s uniqueness, WCMRC cannot offer a definitive response to the intervenor's hypothetical question.</p> <p>Transport Canada: Assessing the circumstances of an oil spill and determining the course of action for response is outside of TC’s mandate. The subject matter of this IR falls within the mandate of WCMRC and CCG, which will respond to this information request on behalf of the Federal Authority intervenors.</p> <p>Canadian Coast Guard: Given the Coast Guard’s mandate to respond to all ship-source, mystery-source, and marine pollution incidents that occur at oil-handling facilities as a result of loading and unloading, the Coast Guard Environmental Response Program assigns personnel and equipment on the basis of risk to ensure a rapid and effective response, should an incident occur. Coast Guard personnel are highly trained, have the right equipment, and develop specific and dynamic response strategies as an incident unfolds. Many factors come into play, including the specific location of the incident, weather and sea conditions, and characteristics of the spilled product. Coast Guard employs the Incident Command System (ICS) methodology, in collaboration with our response partners and Indigenous communities, to conduct an effective response. From the earliest moments in the response, Coast Guard takes all available information into account as it determines the appropriate response plan and protocols for each unique incident. The flexibility and adaptability of the ICS allows for the activation of relevant personnel and resources to deal with all elements of the response. This could include an Environmental Unit that is responsible for, amongst other things, the identification of the natural resources at risk, and scientific support from other government departments to provide advice on the dynamics of the spilled product. Under the ICS, Coast Guard works collaboratively with other response partners, including the polluter, the Response Organization (RO), Indigenous communities, and provincial, territorial, and municipal partners, and makes every effort to cascade the required resources to the incident as quickly as possible. This would be a combination of Coast Guard, RO, and contracted resources best suited for the situation at hand. Coast Guard's flexible contracting model permits the rapid deployment of other resources when and where they are needed. Coast Guard always prioritizes responder health and safety, and respects equipment limitations such as those that may occur in adverse weather conditions</p>	
<p>73. 5.7.2.2 IR #73 – To WCMRC and TC What specific sensitivities does WCMRC use to apply a level 2 response based on a spill of less than 150 tons? Since we could find no identified sensitivities such as an ER or critical habitat for SARA-listed species on the maps, we can presume that all spills under 160 tons will receive a level 1 response (the lowest level of response).</p>	<p>WCMRC-Tiered response levels are planning standards for a size of a spill not the type of response. Applicable GRSs may be deployed for any level of spill.</p> <p>Transport Canada certifies response organizations, including the WCMRC, as outlined in Annex 05.E.1 of the Opening Statement and Written Evidence of Federal Government Intervenors (NEB Document A95292-23), PDF page 331 - 33. The specificities of this IR falls within the mandate of WCMRC, which are responding to this information request in their IR responses.</p>	

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<p>74. 5.7.2.3 IR #74 – To TC Does TC periodically call this number to ensure it is working? Is it posted at any marinas?</p>	<p>This number is verified throughout the year, including during exercises. TC does not have any requirements for Response Organizations to publicly post their emergency spill numbers.</p>	
<p>75. 5.7.2.4 IR #75 – To TC Given what is known about dilbit and the need for speed if recovery to successful why is this information internal? Does TC not required disclosure of this information?</p>	<p>The regulations and standards that Response Organizations must meet to receive their certification are publicly available. TC does not require response organizations to disclose their plans to the general public. Response organizations submit a response plan to TC as part of the certification process, as outlined in Annex 05.E.1 of the Opening Statement and Written Evidence of Federal Government Intervenors (NEB Document A95292-23), PDF page 331 - 33. TC defers to WCMRC for information regarding disclosure of internal documentation, who have agreed to also respond to this information request in their IR responses.</p>	
<p>76. 5.7.2.5 IR #76 – To WCMRC and TC Were dispersants used on the recovery of oil from the Marathassa? Have you or other done field tests on dispersants such as dilbit? What were the results? How much dispersant does WCMRC have on Vancouver Island?</p>	<p>WCMRC notes that this issue has been adjudicated in prior hearings. Please refer to Squamish FN IR 1.1.8 (b)). (Filing ID A3Y3R1). Dispersants were not used during response to the Marathassa incident. WCMRC participated in the Gainford tests during which dispersant use on diluted bitumen was tested, the report is on record as part of Hearing OH-001-2014 proceeding. WCMRC does not stock dispersants.</p> <p>Transport Canada: The subject matter of this information request falls outside of Transport Canada’s mandate. The subject matter of this IR falls within the mandate of ECCC, which will respond to this information request on behalf of the Federal Authority intervenors. As the subject matter of this IR also falls within the mandate of the WCMRC, please refer to WCMRC who are also responding to this information request.</p> <p>Environment and Climate Change Canada: Environment and Climate Change Canada (ECCC) has not conducted any field tests on dispersants for use with dilbit, therefore there are no results to report. To the best of our knowledge, there have not been any dispersant field studies on dilbit either domestically or internationally. For additional information, please refer to the Canadian Coast Guard.</p> <p>Canadian Coast Guard No dispersants were deployed during the Marathassa incident. No such agents are currently authorized for use in Canada in response to ship-source oil spills.</p>	
<p>77. 5.7.2.6 IR #77 – To WCMRC and TC What dispersants and what quantities of each does WCMRC have on hand?</p>	<p>Please see responses WCMRC Response to FER IR 5.7.2.5 IR #76. TC-As the subject matter of this IR falls within the mandate of WCMRC, please refer to WCMRC’s response to this information request.</p>	
<p>78. 5.7.2.7 IR #78 – To WCMRC and TC Please supply the WHMIS information for those on hand. The Workplace Hazardous Materials Information System (WHMIS) is Canada's national hazard communication standard.</p>	<p>Please see responses WCMRC Response to FER IR 5.7.2.5 IR #76 TC- TC does not monitor the WCMRC’s WHMIS information. As the subject matter of this IR falls within the mandate of WCMRC, please refer to WCMRC’s response to this information request.</p>	

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<p>79. 5.7.2.8 IR #79 – To WCMRC and TC What dispersants are approved for use by RO and CCG in Canada and which have been used in BC?</p>	<p>WCMRC understands that the scope of this Reconsideration Hearing is limited to new or updated information relevant to the issues identified in Appendix 1 to Hearing Order MH-0522018 (Filing ID A61718). The use of dispersants for ship-source oil spill response is not approved in Canada. Please see responses WCMRC Response to FER IR 5.7.2.5 IR #76</p> <p>Transport Canada: The topic of approved dispersant use falls outside of TC’s mandate. The subject matter of this IR falls within the mandate of ECCC and CCG, which are responding to this information request on behalf of the Federal Authority intervenors. As the subject matter of this IR also falls within the mandate of WCMRC, please also refer to WCMRC’s response to this information request. Environment and Climate Change Canada: The use of alternative response measures such as spill treating agents is limited by laws prohibiting the introduction of substances into Canada’s waters that may cause harm to marine ecosystems, human health, and marine resources such as fish stocks and aquaculture. Consequently, these would not be used as a response tool under Canada’s existing Marine Oil Spill Preparedness and Response Regime. The Government of Canada under the OPP has announced it is considering legislative changes to strengthen environmental response to oil spills in water by expanding the available response options to include Alternative Response Measures which would otherwise be prohibited. Any future amendment to legislation to enable the use of Alternative Response Measures will be subject to a Net Benefit Analysis test on a case-by-case basis.</p> <p>Canadian Coast Guard: No dispersants are currently approved for use in response to ship-source oil spills in Canada. Consequently, none have been used in BC for ship-source oil spills.</p>	
<p>80. 5.7.2.9 IR #80 – To WCMRC What criteria inform the decision not to respond to an offshore oil spill? Is it all weather over Beaufort Scale 4 wind speeds? A storm warning that winds may reach Beaufort Scale 5 wind , wave height and fog or limitation of equipment at hand, or time since the spill occurred and the size of the dispersed slick?</p>	<p>WCMRC-Each oil spill is unique and response has to be adapted to the circumstances and conditions of the spill, including any physical or environmental concerns, including first responder safety. With regard to base and equipment placement, please refer to WCMRC Reply Evidence in Hearing Order: MH-052-2018, “An Update on the Status of the TMEP Enhanced Response Regime” Pages (16/20) (Filing ID A6L5G5). Please see WCMRC Response to FER IR 3.10.1.1 IR #16.</p>	
<p>81. 5.7.2.10 IR #81 – To Federal Agencies and WCMRC Under current practices do third parties get compensation for loss of livelihood caused by an oil spill and loss or decline of elements in the natural environment following a spill?</p>	<p>WCMRC - Third party compensation is not managed by WCMRC and defers to the federal agencies to respond.</p> <p>TC-Canada’s liability and compensation regime provides for compensation for loss of earnings suffered by the owners of property contaminated by oil. It also provides for compensation for pure economic loss (i.e. where loss of earnings caused by oil pollution suffered by persons whose property has not been polluted, e.g. a tourism operator.) This would include a loss of earnings both because of the oil spill itself, or because of pollution damage. In addition, section 107 of the Marine Liability Act may provide compensation for economic losses, including:</p> <ul style="list-style-type: none"> ● Individuals who derive income from fishing, from the production, breeding, holding or rearing of fish, or from the culture or harvesting of marine plants; ● The owner of a fishing vessel who derives income from the rental of fishing vessels to holders of commercial fishing 	

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	<p>licenses issued in Canada;</p> <ul style="list-style-type: none"> ● Individuals who derives income from the handling of fish on shore in Canada directly after they are landed from fishing vessels; ● Any person who rents or charters boats in Canada for sport fishing; and ● Workers in a fish plant in Canada. 	
<p>82. 5.8.1.1 IR #82 – To TC Globally is there equipment capable of dealing with oil above Beaufort 4 winds? If there is technology globally that is able to respond to an oil spill above winds speeds of 28 km/hr, does TC require the RO to have these on hand?</p>	<p>TC- Mechanical recovery equipment rated beyond Beaufort 4 for unsheltered waters response is available. However, mechanical recovery rates at the upper limits of Beaufort 4 begin to diminish rapidly (cost & safety benefit becomes a concern) and issues of responder safety take precedence. For this reason, TC requires a response organization’s plan to demonstrate that all response equipment (e.g., booms and oil recovery devices, and associated support equipment) can be deployed and operated to meet the environmental conditions that can be expected in the operating environment for which it is intended to be used, up to a maximum of Beaufort Force 4.</p> <p>As stated in other responses, response operations are not limited to deployment of equipment in Beaufort Force 4 conditions only. During a response there are opportunities that may arise where recovery rates are possible beyond Beaufort force 4 prescribed winds and conditions with existing inventories, but, safety is always the overarching priority governing response operations.</p> <p>When response organizations develop specifications for acquisition of equipment, considerations are given to equipment that is designed to meet the environmental conditions that can be expected in the operating environment for which it is intended to be used, up to a maximum of Beaufort Force 4. In respect of equipment inventories that can be operated above winds of 28 kilometers per hour, response organizations in Canada have inventories of equipment available that can be deployed to contain and recover oil in weather beyond the Beaufort 4 scale rating, above the certification rating requirements. Responding FA: Transport Canada</p>	<p>Has anyone ever thought of the idea that since cost & safety benefit becomes a concern (in winds beyond Beaufort 4) and this is very frequent , then maybe oil tankers should not be allowed to transit our coastal waters when winds are over Beaufort4 ?</p>
<p>83. 5.8.1.2 IR #83 – To TC What lengths of containment booms does TC require WCMRC to them have on hand to meet your standards?</p>	<p>TC- Certified Response Organizations are required to maintain a minimum of 15,000 metres of varying types of booms.</p>	
<p>84. 5.8.1.3 IR #84 – To TC How much of a response gap (days of the year) exists for BC’s shipping lanes for Haro, Georgia and Juan de Fuca straits and from which the WCMRC RO cannot respond but state they met the TC standards?</p>	<p>TC- WCMRC has always met the TC planning standard. WCMRC notes that this issue has been adjudicated in prior hearings. Please refer to the response to NEB IR 1.65 (c) (a) (Filing ID A6L9U8). In addition, please see Section 5.2.6 (pages 23-24) of Trans Mountains Reply Evidence (Filing ID A96612-2)</p>	

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<p>85. 5.8.1.4 IR #85 – To TMX and TC Ocean Rescue : Are there now any provisions for an investment in a purpose-built rescue tug capable of emergency towing services for a disabled oil tanker in an ocean situation and permanently stationed on the West Coast?</p>	<p>TMX 085) The escort tug accompanying loaded Trans Mountain tankers in the Strait of Juan de Fuca will provide emergency towing services should the tanker become disabled for any reason. The Canadian Coast Guard has procured two emergency rescue tugs for the West Coast; please refer to Direct Evidence of Canadian Coast Guard/Transport Canada filed with the National Energy Board, Section 2.B.17 page 23 (Filing ID A6J6L9).</p> <p>TC- Two emergency offshore towing vessels that are capable of assisting large disabled vessels are being leased by the Government of Canada for operations on the West Coast. The Government of Canada will review the operations of the two leased emergency offshore towing vessels throughout the duration of their three-year lease, including the frequency of their deployment for emergency towing operations. This information will support the development of a long-term approach to emergency towing on the West Coast.</p>	
<p>86. 5.8.1.5 IR #86 – To TMX and TC Salvage: Are there any provisions for an investment in a regionally-based salvage company and pre-positioning of salvage equipment to facilitate hull patching, cargo removal, and other specialized salvage services for a tanker experiencing structural failure from incidents like grounding?</p>	<p>TMX-Trans Mountain notes that this and other salvage related issues were addressed in the OH-001-2014 proceeding. Please see Trans Mountain’s response to Cowichan Tribes IR No. 1.13 (Filing ID A3Y2I8).</p> <p>TC- There are currently no provisions for any federal investments in salvage services or equipment. Salvage operations are the responsibility of the ship owner. Transport Canada assumes an oversight role to ensure that the ship owner is meeting their obligations and that the salvage operation takes place in a safe manner that aims to minimize any further pollution risk</p>	
<p>87. 5.8.1.6 IR #87 – To TMX and TC Places of Refuge: Is there now a regional plan or preparedness initiative regarding practical and equitable locations for refuge of a tanker needing servicing and/or to mitigate coast-wide environmental damages from a spill. Such a plan should be developed in consultation with First Nations and the Province? We note FNs are suing the Federal Government over the Nathan E Stewart damages and lack of such a plan.</p>	<p>TMX-Details on Places of Refuge can be found in the Federal Agencies’ Direct Evidence (Filing ID A95292-2, PDF pp. 35-36), including information related to Transport Canada’s planned enhancements of the Places of Refuge Contingency Plan under the Oceans Protection Plan. Trans Mountain understands that their intent is to review and amend the National and Regional contingency plans with input from key partners, stakeholders and communities, to include annexes with new details on Potential Places of Refuge and to implement a more inclusive decision-making process.</p> <p>TC- TC has had a Places of Refuge Contingency Plan in the Pacific region since 2009. The plan was substantially revised between 2015 and 2017, including compilation of detailed information for potential places of refuge in Haida Gwaii; that effort was conducted in close partnership with Council of Haida Nation, the Province, other federal departments with a role in such decisions, and industry experts such as the BC Coast Pilots. The Places of Refuge initiative under the Oceans Protection Plan will continue to improve the Contingency Plan by developing the same level of detailed information for other potential places of refuge elsewhere on the BC coast. TC will be using the same collaborative approach as used in Haida Gwaii to conduct this work.</p>	
<p>88. 5.8.1.7 IR #88 – To TMX and TC Limitations of Study Area: Has there been a conclusive assessment of risks, impacts and consequence management within Canada's 200 nautical mile Economic Exclusion Zone, beyond the 12 mile Territorial Limit. In the event of a tanker casualty and oil spill in offshore Pacific</p>	<p>TMX- 088) The Hearing Order defines Project-related marine shipping between the Westridge Marine Terminal and the 12-nautical-mile territorial sea limit as the “designated project” to be assessed under the CEAA 2012. The Board issued reasons for its decision on October 29, 2018 (Filing ID A6J4X5). Trans Mountain will not provide further information in response to this request, as it is not relevant to the issues identified in the National Energy Board’s List of Issues in Appendix 1 to Hearing Order MH-052-2018 (Filing ID A6I7I8).</p> <p>TC- Federal Authorities object on the basis that Friends of Ecological Reserves’s request seeks information on matters</p>	<p>Considered out of scope</p>

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<p>waters, will the western, northern, and central Vancouver Island coastal communities be subject to lower response standards with regard to effective ocean rescue, salvage, places of refuge, logistics, workforce, and more?</p>	<p>not related to the List of Issues in the reconsideration proceeding. The Board decided to include Project-related marine shipping between the Westridge Marine Terminal and the 12-nautical-mile territorial sea limit in the “designated project” to be assessed under the CEAA 2012. We understand that information related to assessments beyond the 12-nautical-mile limit are outside the scope of this review.</p>	
<p>89. 5.8.1.8 IR #89 – To TMX and TC Fate and Behaviour of Diluted Bitumens: Since the extrapolation of artificial laboratory based studies for bitumen diluted with condensate (dilbits) were based on the following factors in the 2013 KM/TMX application: small (meso-level); short-term (10-day); mild wave conditions (wavelets) and warm water (15oC and since these conditions do not match Salish Sea environments, can you now ascertain full rates and extents of oil weathering (e.g., evaporation, emulsification), and associated operational challenges (e.g., on-water oil recovery, shoreline treatments, oily waste transfer, etc.)?</p>	<p>TMX- 089) The new information that has become available since the OH-001-2014 proceeding related to the fate and behaviour of diluted bitumen does not change the conclusions of Trans Mountain’s assessment in the original hearing. Please see Section 8.0 of Trans Mountain’s direct evidence (Filing ID A6J6F4, PDF p. 58) and Section 5.4 of Trans Mountain’s reply evidence (Filing ID A6L9U8, PDF p. 25) in this proceeding.</p> <p>Natural Resources Canada- With the accumulated knowledge from previous spill events of petroleum products from diesel to conventional crudes to diluted bitumen to bunker fuels into water environments, supplemented with lab- and tank-scale testing under specific conditions, there is sufficient knowledge to understand the range of behaviours that diluted bitumen may have if spilled in the Salish Sea. There is scientific consensus (Reference 1) that behaviour of all crudes including diluted bitumen will depend upon the environmental conditions of the spill. As well, there is consensus that the behaviour of diluted bitumen products falls within the range of behaviours found for petroleum crude oils and products and so current spill response technologies for recovery of both floating and sunken oils can be used. However, as diluted bitumen viscosity increases relatively quickly after a spill, use of spill treatment agents such as dispersants have relatively short windows of opportunity for use. For any specific site there will be a range of conditions over different times of the year so behaviour at that site can be variable. Research simulations of spill conditions are closest to field spill scenarios in open tank systems. Under conditions tested to date (Reference 2), diluted bitumen oil masses tested have floated on fresh water for at least 21 days, allowing time for surface recovery. Portions of diluted bitumen have been found to submerge in fresh water after it has been exposed to salt water due to its tendency to pick up water (Reference 3) i.e. if it picks up salt water first, it will be more dense than fresh water and so submerge. This has not changed the original assessment for potential submerged or sunken oil behaviour in any particular site. Research continues to study oil behaviour for a wider range of conditions. References 1) DFO. 2018. Status Report on the Knowledge of the Fate and Behaviour of Diluted Bitumen in the Aquatic Ecosystems. DFO Can. Sci. Advis. Sec. Sci. Resp. 2018/018 (Annex 7.G.3, Page 1 of 360). 2) Dettman, H.D., H. Farooqi, and B. Namsechi, “Test Tank Study of Diluted Bitumen and Conventional Crude Weathering in Fresh Water”, presented at the Fortieth AMOP Technical Seminar, Calgary, Alberta, October 2017. (Annex 9.C.8)</p> <p>3) King, T.; Robinson, B.; Cui, F.; Boufadel, M.; Lee, K.; and Clyburne, J. 2017. An oil spill decision matrix in response to surface spills of various bitumen blends. Environmental Science: Processes & Impacts, 19(1), 929-939.</p> <p>Transport Canada: The topic of fate and behaviour of diluted bitumen falls outside of TC’s mandate. The subject matter of this IR falls within the mandate of ECCC, DFO and NRCan, which will respond to this information request on behalf of the Federal Authority intervenors.</p> <p>Fisheries and Oceans Canada: Case studies have shown that each spill incident is a unique blend of many factors:</p>	

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	<p>including the type of oil, the mechanism of release, the volume of the spill, weather/hydrology conditions at the time of the spill and the effectiveness of applicable spill response options (Lee et al., 2015: PDF Page 1 of 489 of A96404-4). While not specific to the Salish Sea, the papers referenced below provide data on the weathering of various petroleum hydrocarbon products and treatment options under different temperature conditions in marine environments. These data and other available reference material within application on the fate and behaviour of diluted bitumen spills may be used to inform predictions of the impact of a spill and the effectiveness of remedial operations.</p> <p>King, T.; Robinson, B.; Boufadel, M.; and K. Lee. 2014. Flume tank studies to elucidate the fate and behavior of diluted bitumen spilled at sea. <i>Marine Pollution Bulletin</i>, 83, 32-37. DFO-Annex 5, PDF Page 169</p> <p>King, T.; Robinson, B.; McIntyre, C.; Toole, P.; Ryan, S.; Saleh, F.; Boufadel, M.C.; and Lee, K. 2015a. Fate of surface spills of Cold Lake blend diluted bitumen treated with dispersant and mineral fines in a wave tank. <i>Environmental Engineering Science</i>, 32(3), 250-261. DFO-Annex 5, PDF Page 176</p> <p>King, T.; Robinson, B.; Ryan, S.; Lee, K.; Boufadel, M.; and Clyburne, J. 2018. Estimating the usefulness of chemical dispersant to treat surface spills of oil sands products. <i>Journal of Marine Science and Engineering</i>, 6(4), 128; https://doi.org/10.3390/jmse6040128. DFO-Annex 5, PDF Page 203</p> <p>King, T.; Robinson, B.; Ryan, S.; Lu, Y.; Zhou, Q.; Ju, L.; Sun, P.; and Lee, K. 2015b. Fate of Chinese and Canadian oils treated with dispersants in a wave tank. <i>Proceeding of the 38th Arctic and Marine Oil Spill Program</i> (pp. 798-781). Vancouver, British Columbia, Canada: Environment and Climate Change DFO-Annex 5, PDF Page 189</p> <p>King, T.; Mason, J.; Thamer, P.; Wohlgeschaffen, G.; Lee, K.; and Clyburne, J. 2017b. Composition of bitumen blends relevant to ecological impacts and spill response. <i>Proceedings of the 40th AMOP Technical Seminar</i> (pp. 463475). Alberta, Canada: Environment and Climate Change Canada. A95299-20</p> <p>King, T.L., Robinson, B., Cui, F., Boufadel, M., Lee, K., Clyburne, J.A.C. 2017a. An oil spill decision matrix in response to surface spills of various bitumen blends. A95299-20</p> <p>Lee, K.; Boufadel, M.; Chen, B.; Foght, J.; Hodson, P.; Swanson, S.; and Venosa, A. 2015. <i>Expert Panel Report on the Behaviour and Environmental Impacts of Crude Oil Released into Aqueous Environments</i>. Royal Society of Canada, Ottawa, ON. 488pp. ISBN: 978-1-928140-02-3 A96404-4</p> <p>O’Laughlin, C., Law, B., Zions, V., King, T., Robinson, B., and Wu, Y. 2016. The dynamics of diluted bitumen derived oil-mineral aggregates, Part I. <i>Can. Tech. Rep. Fish. Aquat. Sci.</i> 3157: viii + 44p. A95299-21</p> <p>Zhao, L.; Torlapati, J.; King, T.; Robinson, B.; Boufadel, M.; and Lee, K. 2014. A numerical model to simulate the droplet formation process resulting from the release of diluted bitumen products in marine environment. <i>International Oil Spill Conference Proceedings: May 2014, Vol. 2014, 1:449-462</i>. DFO-Annex 10, PDF Page 168</p>	

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<p>90. 5.8.1.9 IR #90 – To TMX and TC Other Bitumen-based Crude Oil Products: Since there was a technical focus on dilbits (bitumen diluted with a natural gas condensate) with little or no technical analysis of other types of bitumen-based crude oils from Alberta that can be exported by oil tanker such as: up-graded bitumen (syncrude); bitumen diluted with syncrude (synbit); bitumen with syncrude and condensate (dilsynbit); as well as the variations within them, and these pose varied ecological impacts and operational challenges. Have you reconsidered plans on those factors?</p>	<p>TMX 090) Trans Mountain disagrees with the premise of this question. This issue was addressed in the OH-001-2014 proceeding, and Trans Mountain discussed new information that has become available since the OH-001-2014 proceeding in Section 8.1.1 of its Direct Evidence (Filing ID A6J6F4, PDF p. 58) and Section 5.4 of its reply evidence (Filing ID A6L9U8, PDF p. 25).</p> <p>The Federal Authorities have redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter.</p>	
<p>91. 5.8.1.10 IR #91 – To TMX and TC Social Dialogue: Since there was an absence of a social dialogue including pictures, images, examples and comparisons that the public and First Nations can readily understand in order to determine risks, potential impacts and consequence management of a large bitumen-based crude oil spill, and since instead, there was a focus on scientific discourse using facts, figures, charts and terms that do not lend themselves to a layperson's understanding of impacts and consequences of a major tanker casualty and spill of bitumen and other crude oil products, do you believe you have rectified this situation with the current application?</p>	<p>Transport Canada has redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter</p> <p>TMX- 091) Trans Mountain disagrees with FER’s statement that there was an absence of social dialogue as referenced in the preamble to this request. Trans Mountain has acknowledged the importance of engagement and communications with marine communities since the beginning of the Project and as such, social dialogue about the Project, marine oil spill response and many related topics has been continuous across traditional and digital platforms since the Project was announced in 2012. Trans Mountain’s engagement and communications efforts have provided tens of thousands of exchanges with stakeholders through face-to-face meetings, open houses, workshops, presentations, website postings, telephone townhalls, online feedback forms, technical working group meetings, emails, telephone calls, letters, advertisements and digital media, including social media. The subject matter has ranged from very technical matters to general themes based on the audiences to receive the information and provide feedback.</p> <p>The NEB considered the adequacy of Trans Mountain’s engagement in Section 4.0, Public Consultation of the NEB Recommendation Report (Filing ID A77045) and stated:</p> <p>(p. 28) The Board is of the view that Trans Mountain has developed and implemented a broadly based public consultation program, offering numerous venues and opportunities for the public, landowners, governments and other stakeholders to learn about the Project, and to provide their views and concerns to the company...</p> <p>(p. 29) ...The Board is of the view that with Trans Mountain’s commitments and the Board’s recommended conditions, Trans Mountain can continue to effectively engage the public, landowners and other stakeholders, and address issues raised throughout the Project’s operational life.</p> <p>The feedback Trans Mountain received through its engagement and communications activities has been incorporated into the Project and has influenced the design of subsequent phases of engagement and communications. Trans Mountain’s complete record of its stakeholder engagement and communications activities from July 2015 to October</p>	<p>The Metchosin meeting hosted by WCMRC was it social dialogue as the input provided by attendees did not appear to change any maps of environmentally sensitive areas and therefore did not inform spill responses. Is holding a meeting and getting input and then ignoring it social dialogue or a public relations deception exercise? See FER direct evidence report to show there are no WCMRC plans to protect Ecological Reserves such as Race Rocks and Trial Islands ERs.</p>

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	<p>2018 (since the former OH-001-2014 proceeding) can be found in documents summarized in Table 1 of the Marine Engagement Summary report filed with Direct Evidence as Attachment 8.2.1 (Filing ID A6J610). Trans Mountain remains committed to ongoing engagement and communications throughout the life of the Project. Since the former proceeding, as cited in Trans Mountain’s direct evidence (Filing ID A95280), the Government of Canada has launched the Ocean Protection Plan (OPP); a \$1.5 billion dollar investment to protect Canada’s coasts. Oil spill response is part of the OPP, and the government regularly hosts dialogue and comment periods on key OPP initiatives and topic areas. Trans Mountain noted a representative of FER was in attendance at the OPP South Coast Dialogue Forum in Vancouver on October 22, 2018. Trans Mountain was also in attendance along with representatives from many commercial shipping, environmental and government sectors and Indigenous peoples of coastal communities. Trans Mountain is supportive of regional dialogues such as the OPP dialogues to advance regional solutions that would have impacts beyond those of TMEP. For example, oil spill response was discussed at the OPP dialogue on October 22, 2018 and currently the OPP “Lets Talk Ocean Protection Plan” online forum is seeking feedback on how Canada can better prepare for and respond to releases of hazardous and noxious substances into the marine environment. The comment period is open from September 2018 – February 2019</p> <p>References: Let’s Talk Ocean Protection Plan website: https://letstalktransportation.ca/OPP (Accessed December 14, 2018) Let’s Talk OPP website, Let’s Talk Hazardous and Noxious Substances: https://letstalktransportation.ca/HNS (Accessed December 14, 2018).</p>	
<p>92. 5.8.1.11 IR #92 – To TMX and TC Comparative World-wide Spills: Has there been any attempt to show or compare large marine oil spills of heavy grade oils in temperate waters in order to extrapolate and support limited scientific findings, as well as to promote a social dialogue?</p>	<p>TMX-092) Marine oil spills are individually unique, short-lived events making valid comparative analyses among them challenging. Factors such as the type of oil spilled; the fate and effects of the product as it weathers; detection; and response time all combine to significantly affect the success of the recovery measures used on different spills. International organizations such as the International Tanker Owners Pollution Federation (ITOPF), International Petroleum Industry Environmental Conservation Association (IPIECA), Interspil and the International Oil Spill Conference have all published volumes of publicly accessible information on oil spills. Trans Mountain will continue to ensure that oil spill prevention and mitigation measures are in place as per Trans Mountain’s marine commitments and NEB Conditions. Trans Mountain notes that this issue and other related marine oil spill case studies were previously addressed in the OH-001-2014 proceeding. Please see Trans Mountain’s responses to DNV IR No. 2.05.02e (Filing ID A4H8L7) and to Squamish IR No. 1.8d (Filing ID A3Y3R1).</p> <p>Transport Canada: The topic of comparing large marine oil spill of heavy grade oils in temperate waters falls outside of TC’s mandate. The subject matter of this IR falls within the mandate of ECCC which will respond to this information request on behalf of the Federal Authority intervenors.</p> <p>Environment and Climate Change Canada: Major spill events provide large-scale references for validating knowledge acquired through lab, test tank and field studies and is captured in the literature such as the proceedings of the International Oil Spill Conference: http://ioscproceedings.org/ and the AMOP Technical Seminar on Environmental Contamination and Response https://www.canada.ca/en/environment-climate-</p>	<p>An oil spill event is not short lived. Ample evidence that ecosystems do not recover some elements 30 to 40 years after a spill.</p>

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	<p>change/services/sciencetechnology/arctic-marine-oilspill-program/about.html . There have been several heavy grade oil spills in temperate waters over the course of history, including the MV Prestige off Spain in 2002, the MV Prestige off the coast of France in 1999, and the SS Arrow off Nova Scotia. Learning from these case studies is critical to the knowledge base of spill science.</p>	
<p>93. 5.8.1.12 IR #93 – To TMX and TC Response Operation Gaps: Has there been any substantive analysis based on standards for response gap analysis to show when, where, and what sea conditions (such as fog, waves, winds, currents in the Salish Sea) preclude safe and practical oil spill response so as to garner realistic performance expectations?</p>	<p>TC-Please see WCMRC Response to FER 5.8.1.3 IR #84.</p> <p>TMX-Please see Trans Mountain's response to NEB IR No. 1.65c (Filing ID A3W9H8) in the OH-001-2014 proceeding, and Trans Mountain's Reply Evidence in this proceeding (Filing ID A96622; PDF pp. 23-24).</p> <p>Transport Canada: Please see TC's response to Friends of Ecological Reserves 3.10.1.1 IR #16. As the subject matter of this IR also falls within the mandate of WCMRC, WCMRC have agreed to also respond to this information request in their IR responses.</p> <p>Canadian Coast Guard: Given the Coast Guard's mandate to respond to all ship-source, mystery-source, and marine pollution incidents that occur at oil-handling facilities as a result of loading and unloading, the Coast Guard Environmental Response Program assigns personnel and equipment on the basis of risk to ensure a rapid and effective response, should an incident occur. Coast Guard personnel are highly trained, have the right equipment, and develop specific and dynamic response strategies as an incident unfolds. Many factors come into play, including the specific location of the incident, weather and sea conditions, and characteristics of the spilled product. Coast Guard employs the Incident Command System (ICS) methodology, in collaboration with our response partners and Indigenous communities, to conduct an effective response. From the earliest moments in the response, Coast Guard takes all available information into account as it determines the appropriate response plan and protocols for each unique incident. The flexibility and adaptability of the ICS allows for the activation of relevant personnel and resources to deal with all elements of the response. This could include an Environmental Unit that is responsible for, amongst other things, the identification of the natural resources at risk, and scientific support from other government departments to provide advice on the dynamics of the spilled product. Timing of various elements of a response are dependent on the scope, scale and complexity of a specific incident. Under the ICS, Coast Guard works collaboratively with other response partners, including the polluter, the Response Organization (RO), Indigenous communities, and provincial, territorial, and municipal partners, and makes every effort to cascade the required resources to the incident as quickly as possible. This would be a combination of Coast Guard, RO, and contracted resources best suited for the situation at hand. Coast Guard's flexible contracting model permits the rapid deployment of other resources when and where they are needed.</p>	<p>We reviewed this earlier and felt obliged to seek IR in these hearings. Responses that send the intervenors back to earlier evidence is not an adequate response.</p> <p>The conclusion is that there are understated Operations Gap for oil spill recovery.</p>

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<p>94. 5.8.1.13 IR #94 – To TMX and TC Incident Management: Since the CCG adopted the Incident Command System only in March 2013, yet it takes many years to build competencies and relationships. Has there been any recognition that the Canadian Coast Guard (“CCG”) lacks the skills and capacity to competently assume a lead federal (Incident Commander/Team) role in the event of a transfer-of-command by the Response Party to government, or a trans-boundary US/Canada initiative?</p>	<p>TMX-094) Details on the CCG’s implementation of the Incident Command System can be found in the Opening Statement and Written Evidence of DFO and CCG, ECC, HC, NRCan, PC, and TC – Part 1, pages 188 and 189 (Filing ID A95292, PDF pp. 209-211) filed in this proceeding.</p> <p>Transport Canada: The topic of the CCG’s skills and capacity falls outside of TC’s mandate. The subject matter of this IR falls within the mandate of CCG, which will respond to this information request on behalf of the Federal Authority intervenors.</p> <p>Canadian Coast Guard: The Canadian Coast Guard has a long and successful history of responding to maritime incidents in collaboration with its many partners, including industry; Response Organizations; Municipal, Provincial and Territorial Governments; First Nations; and international partners such as the United States Coast Guard. As the federal agency with the legislative mandate for ensuring an appropriate response to ship- and mystery-source marine pollution incidents, Coast Guard has the skills and capacity to assume a leadership role for maritime incidents. Building upon existing relationships and capabilities, the implementation of the Incident Command System has enhanced the Coast Guard’s ability to integrate with partners and stakeholders throughout a response. In recent years, the Coast Guard, alongside its partners, has successfully applied the Incident Command System methodology to respond to many incidents. With regard to a US/Canada trans-boundary response, both the Canadian Coast Guard and the United States Coast Guard are signatories to the Canada-United States Marine Pollution Joint Contingency Plan, which provides a coordinated system for planning, preparedness and responding to harmful substance incidents in contiguous waters. Both the Canadian Coast Guard and the United States Coast Guard have adopted the Incident Command System.</p>	
<p>95. 5.8.1.14 IR #95 – To TMX and TC Full Compensation: Has there been any attempt made to provide the means to compensate for natural resource damage losses owing to temporary or permanent decline in goods and services that a healthy coastal environment confers (i.e., recreational and subsistence/cultural benefits)?</p>	<p>TMX-095) The topic of spill liability and compensation was fully addressed in the OH-001-2014 proceeding. Please see Views of the Board in Section 14.7.1, page 47 of the NEB Recommendation Report (Filing ID A77045). Trans Mountain notes that since the OH-001-2014 proceeding, Bill C-86, given Royal Assent on December 13, 2018, includes a provision to remove the per-incident limit of compensation from Canada’s Ship-Source Oil Pollution Fund among other changes to modernize the Marine Liability Act.</p> <p>References: Parliament of Canada website: C-86 A second Act to implement certain provisions of the budget tabled in Parliament on February 27, 2018 and other measures: http://www.parl.ca/LegisInfo/BillDetails.aspx?Language=en&Mode=1&billId=10127729 (Accessed December 15, 2018)</p> <p>Transport Canada-Existing provisions within the Marine Liability Act provide for compensation for a broad range of environmental damage, clean-up and containment costs, including;</p> <ul style="list-style-type: none"> • Clean-up and restoration of damaged property; • Measures to prevent environmental damage, so long as they are proportionate to the threat of damage ; • Reasonable measures for the reinstatement of the environment, which may include: o the removal of oil o 	

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	<p>replanting of vegetation o cleaning of shorebirds o protection of an affected species’ nesting sites from predators,</p> <ul style="list-style-type: none"> • Post-incident studies to quantify ecological impacts and the progress of reinstatement measures; • Economic losses due to environmental damage, such as in the fisheries and tourism sectors; and • Subsistence fishing and harvesting. <p>The general criteria for such claims are:</p> <ul style="list-style-type: none"> • Damage caused as a result of contamination by oil by a ship and costs of preventive measures where there was a threat of pollution damage; • There must be a close link between the contamination and the costs claimed; • All claims should relate to measures that are reasonable and justified; • Claimants must prove how much they have spent, or in the case of claims for reinstatement to be undertaken, will spend, and must provide information to support this; • The expense must have actually been incurred or, in the case of environmental damage for reinstatement measures yet to be undertaken a firm commitment to incur the expenditure must have been given. 	
<p>96. 5.8.1.15 IR #96 – To TMX and TC Oily Wastes Management: Are there robust final solutions for the disposal of large amounts of oily wastes which can result in high costs and encumber spill response operations?</p>	<p>The Federal Authorities have redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter.</p> <p>TMX-096) Details on the management of oily wastes can be found in the Western Canada Marine Response Corporation’s direct evidence (Filing ID A96414, PDF p.22).</p>	
<p>97. 5.8.1.16 IR #97 – To TMX and TC Large Shoreline Workforce: Has there been any effort made to canvas and analyze results to determine the availability and willingness of public, including First Nations, to be members of a large, paid and supervised workforce for shoreline cleanup, oily waste management, and wildlife response?</p>	<p>Transport Canada has redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter.</p> <p>TMX-Trans Mountain notes that this and other related shoreline response issues were previously addressed in the OH-001-2014 proceeding. Please see Trans Mountain’s responses to Cowichan Tribes IR No. 1.08g (Filing ID A3Y2I8), Tsawout FN IR No. 1.36aa (Filing ID A3Y3T9), and Squamish Nation IR No. 1.8a (Filing ID A3Y3R1). Additionally, Western Canada Marine Response Corporation has revisited this topic in “An Update on the Status of the TMEP Enhanced Response Regime” (Filing ID A6L5G5 PDF pp. 22-28), as its direct evidence in this proceeding.</p>	<p>TMX site must register to download on the pretext of getting up-dates.</p>

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<p>98. 5.8.1.17 IR #98 – To TMX and TC Response Options for Bitumen-based Crude Oils: Do you now have a practical means or solution to track or recover bitumen-based crude oils if they submerge or sink. Such ramifications are highly likely in sediment-laden waters such as the Fraser River estuarine and open-sea environments.</p>	<p>TMX- 098) Notwithstanding that the likelihood of an oil spill by a Project-related tanker is low for the entire route as described in Section 8.1.2 of Trans Mountain’s direct evidence (Filing ID A6J6F4, PDF p. 65), Trans Mountain is funding or supporting a number of research initiatives, including the Underwater Seabed Cleanup and Assessment Technique Guide (“uSCAT”). The primary purpose of a uSCAT guide is to support planning, decisionmaking and operational response to nearshore oil that may have submerged or sunken, by providing both information and advice based on science, experience and best judgment. This initiative was led by a technical advisory committee and funding partners including Natural Resources Canada, the Canadian Coast Guard, Environment and Climate Change Canada, Fisheries and Oceans Canada and Western Canada Marine Response Corporation. The uSCAT guide is publically available for download at http://www.uscat.ca/. Additionally, as outlined in the direct evidence filed in this proceeding by WCMRC (Filing ID A6L5G5 PDF p. 22), and reply evidence filed by Trans Mountain (Filing ID A6L9U8, PDF p. 21), a draft marine Sunken and Submerged Oil Plan has been completed. WCMRC has also investigated the application of induced polarization telemetry to identify sunken oil deposits on the seafloor.</p> <p>Transport Canada: The subject matter of this information request falls outside of Transport Canada’s mandate. The subject matter of this IR falls within the mandate of ECCC, which will respond to this information request on behalf of the Federal Authority intervenors.</p> <p>Environment and Climate Change Canada The potential for submergences is influenced by several factors including oil density, water and oil temperature, salinity, sediment loading, wave and current energy. Tests by ECCC and other groups have found that diluted bitumen products will generally not sink or become submerged under the water surface in marine conditions by evaporation, emulsification/uptake of water or photo-oxidation. Extensive evaporation may result in some diluted bitumen submerging or even sinking in freshwater. Interactions with sediments can result in oil/sediment mixtures which will sink. ECCC and others are undertaking studies to advance the existing body of knowledge on tracking and recovery of submerged oil including bitumen-based crude oils. One example of an ECCC study related to tracking submerged oil was included in the Opening Statement and evidence in Annex 6.D.27: Measurement of Oil in Water Using a Field Fluorometer (MH-052-2018; A95292-2, Ch6, Annex 6.D.27).</p>	<p>One must register to download this reference</p> <p>Oversite board is big government and WCMRC.</p> <p>Not confident that as the government of Canada is an owner and WCMRC is a subsidiary of KM that there will be transparency and findings that may require a) substantial investment or b) findings that do not support the project will be made known.</p>
<p>99. 5.8.1.18 IR #99 – To TMX and TC Intensive Oil Spill Mitigation Solutions: Does TMX provide intensive solutions to contain, skim, pump, store, and treat a spill. Intensive measures including: heating oil for storage transfer; single-use of floating sea bladders; and use of a shore-washing agent to augment ambient water flushing and deluge of oil contaminated shores?</p>	<p>Transport Canada has redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter.</p> <p>TMX- Oil spill response at the Westridge Marine Terminal was fully addressed in the OH-0012014 proceeding (Filing ID A77045-1, PDF p 153). Western Canada Marine Response Corporation (WCMRC) is the Transport Canada-certified marine spill response organization for Canada’s West Coast. Direct evidence filed by WCMRC in this proceeding provides progress updates on the Enhanced Response Regime (ERR) including measures for marine oil spill mitigation and response (Filing ID A6L5G5, PDF pp.11-20, 22).</p> <p>Page</p>	
<p>100. 5.8.1.19 IR #100 – To TMX and TC</p>	<p>TMX-100) During a spill response, shoreline treatment recommendations are developed by Shoreline Cleanup and</p>	

Information Requests	Responses	Comment
<p>Shoreline Treatment Beyond Ambient Water Flushing and Deluge: Has there now been an explanation or solutions provided addressing what will happen once ambient water deluge and flushing of oiled sediment shores are no longer effective measures (due to oil weathering), even if shoreline washing agents are used to augment efforts since they are only effective for approximately one week after bitumen-based crude oil has been stranded on shores?</p>	<p>Assessment Technique (SCAT) teams to meet target endpoints established by Unified Command and in conjunction with a Net Environmental Benefit Analysis (NEBA). Please see Trans Mountain’s responses to CNV IR No. 2.3.08b (Filing ID A4H8G1), CPM IR No. 2.3.04d (Filing ID A4H8G7), and Squamish Nation IR No. 1.8 (a) (Filing ID A3Y3R1) in the OH-001-2014 proceeding.</p> <p>Transport Canada: The subject matter of this information request falls outside of Transport Canada’s mandate. The subject matter of this IR falls within the mandate of ECCC and CCG, which will respond to this information request on behalf of the Federal Authority intervenors.</p> <p>Environment and Climate Change Canada: Shoreline treating agents or surface washing agents (SWAs) are effective on solid surfaces but may not be suitable for application to sediments. The effectiveness of SWAs may diminish with oil weathering, but there are commercial products that remain effective, especially in combination with a warm water flush to reduce the viscosity of the oil. Other available shoreline treatment options include physical removal, warm/hot water wash, pressure washing, steam cleaning, sandblasting, sediment relocation or natural recovery, as outlined in “A Field Guide to Oil Spill Response on Marine Shorelines” (see FER-1.100-1 Annex A A Field Guide to Oil Spill Response on Marine Shorelines). In each case, the selection of the appropriate treatment option should be based on an evaluation of the net environmental benefit for the specific circumstances of the spill and the potential impact from the implementation of each measure.</p> <p>Canadian Coast Guard ECCC is part of the Incident Command System federal response family for marine environmental response incidents. Through collaborative response between departments, scientific data is shared to protect and restore various types of shoreline. Should the measure in place to address ambient water deluge and cleaning of oiled sediment shores come to be ineffective, ECCC will advise the Canadian Coast Guard accordingly. This information will enable Coast Guard to appropriately support suitable shoreline flushing techniques.</p>	
<p>101. 5.8.1.20 IR #101 – To TMX and TC Deterministic Oil Spill Trajectory Scenarios: The proponent's spill trajectory modelling predetermines how long and where oil will travel when applying wind conditions, rather than just based on currents alone. Has spill trajectory monitoring been done with currents alone because oil's duration on water can be longer than indicated and become more weathered over time?</p>	<p>Trans Mountain disagrees with the Board of the Friends of Ecological Reserves that the spill trajectory modelling results were predetermined. The oil spill trajectory and weathering modelling (Filing ID A3S5G9) was adjudicated in the OH-001-2014 proceeding as evidenced by reference to the spill model and results in the Board’s Report (Section 8.3.2 page 132 onwards). The model considered both winds and currents. Since both are part of the natural system and because values for winds and currents vary spatially and temporally, both need to be considered together and simultaneously to produce a realistic oil spill trajectory and fate simulation.</p> <p>Transport Canada has redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter.</p>	
<p>102. 5.8.1.21 IR #102 – To TMX and TC Future Marine Oil Spill Preparedness: Since the proponent has postulated the quantity and quality of spill response equipment to contain and recover mobile oil (e.g., vessels, barges, booms,</p>	<p>TMX- This topic has recently been addressed by Western Canada Marine Response Corporation in, “An Update on the Status of the TMEP Enhanced Response Regime”, filed with the NEB pursuant to Hearing Order MH-052-2018 (Filing ID A6L5G5). Trans Mountain also notes that this and other related shoreline response issues were addressed in the OH-001-2014 proceeding. Please see Trans Mountain’s responses to Cowichan Tribes IR No. 1.08g (Filing ID A3Y2I8) and Tsawout FN IR No. 1.36aa (Filing ID A3Y3T9).</p>	

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<p>skimmers, etc.) without factoring in the number of workforce members required, whether they will be fulltime paid employees, and the overall cost of an enhanced program, have these factors by now been considered in order to be realistic about oil spill preparedness.</p>	<p>Transport Canada -The current Response organization fee structure, as regulated by the Transport Canada, is designed to support a preparedness standard of 10,000 tonnes within a response organization’s geographical area of response (GAR). Requirements for augmented capacity will be considered as part of the NEB review process. The Proponent is best placed to provide additional information on this subject matter.</p>	
<p>103. 5.8.1.22 IR #103 – To TMX and TC Delay in Impact Mitigation from Dilbit Flashpoint, Flammability and Toxicity: Since the proponent’s assessment of the flammability of bitumen diluted with condensate (dilbits) did not categorically determine or state whether there will be a delay in on water tactical operations by initial responders that pertains to actual oil recovery or containment at or near V the tanker casualty, and since the analysis did not include the combined hazards of flashpoint and toxicity along with flammability, have these factors now been considered and have plans been formulated to deal with them?</p>	<p>Transport Canada has redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter.</p> <p>TMX- This issue was previously addressed in the OH-001-2014 proceeding. Please see Trans Mountain’s responses to Cowichan Tribes IR No. 1.081-Attachment 1 (Filing ID A4D3G7) and Attachment 2 (Filing ID A4D3G8); and Living Oceans IR Nos. 1.17, 1.24, and 1.25 (Filing ID A3Y2T4).</p>	<p>Instead of always referring to somewhere else, why not just answer briefly here?</p>
<p>104. 5.8.1.23 IR #104 – To TMX and TC Social Impact Mitigation: Since the torn social fabric of a community is often the legacy of a major spill event, has TMX provided any new solutions towards mitigating impacts to the social and cultural fabric of coastal communities directly affected by a large oil spill and large-scale clean-up operations?</p>	<p>Transport Canada has redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter.</p> <p>TMX-Spill effects on communities was fully addressed in the OH-001-2014 proceeding. Trans Mountain provided an update and overview of the Environmental and Socio-Economic Assessment in Section 3 of Trans Mountain’s direct evidence (Filing ID A6J6F4) in this proceeding, including a discussion of condition compliance activities for the Project to mitigate potential effects</p>	<p>The response is not responsive to central question how to restore coastal communities post spill.</p>

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<p>105. 5.8.1.24 IR #105 – To TMX and TC Public Oversight: In the past the proponent perpetuated the status quo of committees that are populated by topic-specific agency and industry experts who are not accountable to the public. This fosters a culture that lacks transparency, confidence and trust in both existing and evolving safety tanker operations, tanker casualty mitigation, and spill response preparedness conditions, rather than just based on currents alone. How has TMX decided to deal with this problem?</p>	<p>Transport Canada has redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter.</p> <p>Trans Mountain disagrees with the statements in the preamble to this question. The Project has been through an extensive public hearing process in OH-001-2014 and is currently undergoing another NEB hearing that has marine shipping-related components as its main focus. These processes provide excellent opportunities for the public to provide input on the Project. All marine shipping-related aspects of the Project have been assessed and appropriate mitigation has been applied as required based upon the results of robust studies and analysis. Trans Mountain plays an active role with the commercial shipping sector and will continue engaging with industry, regulators, Indigenous groups, coastal communities and other marine waterway users on British Columbia’s coast. Trans Mountain is proud to be part of an industry that is voluntarily funding research, as well as developing new technologies and approaches to mitigate impacts of commercial shipping, while enabling the growth of Canada’s vital marine trade.</p>	<p>The response is not responsive to central question which is lack of transparency.</p>
<p>106. 5.10.1.1 IR #106 – To DFO Provide reference to research which reflects the behaviour of Dilbit within the temperature range measured at Race Rocks in the Strait of Juan de Fuca.</p>	<p>Government of Canada publications are detailed below.</p> <p>Properties, Composition and Marine Spill Behaviour, Fate and Transport of Two Diluted Bitumen Products from the Canadian Oil Sands; Cat. No. En84–96/2013E– PDF; Government of Canada: Ottawa, ON, Canada, pp. 1–85, 2013. ISBN 978-1-10023004-7. Provides information on the physical properties of dilbit at different temperatures as well as the natural dispersion and treatment with chemical dispersant at different temperatures.</p> <p>King, T.L., B. Robinson, C. McIntyre, P. Toole, S. Ryan, F. Saleh, M.C. Boufadel, and K. Lee, Fate of Surface Spills of Cold Lake Blend Diluted Bitumen Treated with Dispersant and Mineral Fines in a Wave Tank, Environmental Engineering Science, Vol. 32(3), pp. 250--261, 2015. Covers information on the natural dispersion of dilbit at 8 and 15 °C as well the application of oil spill countermeasures to treat dilbit at those temperatures.</p> <p>King, T., B. Robinson, S. Ryan, K. Lee, M. Boufadel and J. Clyburne, J. Estimating the usefulness of chemical dispersant to treat surface spills of oil sands products. Journal of Marine Science and Engineering, 6(4), 128; 2018. Contains information on the weathering (i.e., changes in viscosities at various point in time after the initial release of various bitumen products at 6 and 15 °C in the supplementary materials). The paper outlines a model to estimate dispersant effectiveness of various bitumen blends at various points in time after the initial release in spring and summer conditions.</p> <p>Niu, H., Li, S., P. Li, T. King and K. Lee. Stochastic modeling of the fate and behaviour of an oil spill in the Salish Sea. International Journal of Offshore and Polar Engineering, 27(4), 337-345, 2017. https://www.onepetro.org/journal-</p>	

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	<p>paper/ISOPE-17-27-4-337 Modeling the fate and behaviour of dilbit compared to conventional oils under different environmental conditions in the Salish Sea.</p> <p>Yarranton, H. H. Motahhari, F. Schoegg, and Z. Zhou. Evaporative weathering of diluted bitumen films. Journal of Canadian Petroleum Technology, 54(4), 233-244, 2015.</p> <p>https://www.cheric.org/research/tech/periodicals/view.php?seq=1380519 Changes in the physical properties of dilbit at various temperatures.</p>	
<p>107. 5.10.1.2 IR #107 – To DFO, TC and WCMRC Provide reference to research which reflects the combination of physical factors including sedimentation, wave and current conditions and temperature conditions prevalent in the Strait of Juan de Fuca.</p>	<p>Transport Canada: The topic of spill research in the context of this IR is outside of TC’s mandate, and falls within the mandate of ECCC and DFO, which will respond to this information request on behalf of the Federal Authority intervenors.</p> <p>Environment and Climate Change Canada: A review of this topic can be found in the following reference: Hospital, A, J.A. Stronach, J. Matthieu, A Review of Oil Mineral Aggregates Formation Mechanisms for the Salish Sea and the Lower Fraser River, Proceedings of the Thirty-ninth AMOP Technical Seminar, Environment and Climate Change Canada, Ottawa, ON, pp 434-454, 2016.</p> <p>Fisheries and Oceans Canada See below for references relating to oceanography:</p> <p>Thomson, R.E., 1981. Oceanography of the British Columbia Coast, Canadian special publication of fisheries and aquatic sciences. Available online from the DFO library at</p> <p>Soontiens, N., Allen, S.E., Latonnell, D., Le Souëf, K., Machuca, I., Paquin, J.P., Lu, Y., Thompson, K. and Korabel, V., 2016. Storm surges in the Strait of Georgia simulated with a regional model. Atmosphere-Ocean, 54(1), pp.1-21.</p> <p>Soontiens, N. and Allen, S. 2017. Modelling sensitivities to mixing and advection in a sill-basin estuarine system. Ocean Modelling, 112, 17-32.</p> <p>See below for references relating to water properties:</p> <p>Labrecque, M.A., R.E. Thomson, M. Stacey, and J. Buckley. Residual currents in Juan de Fuca Strait. 1994. Atmosphere-Ocean, 32; 375-394.</p> <p>LeBlond, P.H., D.A. Griffin and R.E. Thomson. 1994. Surface salinity variations in Juan de Fuca Strait: Test of a predictive model. Cont. Shelf Res.: 14, 37-56.</p> <p>Masson, D. and Cummins, P.F., 2004. Observations and modeling of seasonal variability in the Straits of Georgia and Juan de Fuca. Journal of Marine Research, 62(4), pp.491-516.</p> <p>Thomson, R.E., S.F. Mihaly and E.A. Kulikov. 2007. Estuarine versus transient flow regimes in Juan de Fuca Strait. J. Geophys Res.-Oceans 112, C09022, doi:10.1029/2006JC003925.</p> <p>Foreman, M.G. G., W. Wiggins, A. MacFadyen, B.M. Hickey, R.E. Thomson, and E. Di Lorenzo. 2008, Modeling the Generation of the Juan de Fuca</p>	

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	<p>Eddy, J. <i>Geophys Res.-Oceans</i> J. <i>Geophys Res.-Oceans</i>, 113, C03006, doi:10.1029/2006JC004082.</p> <p>Thomson, R.E., and Roy A.S. Hourston. 2011. A matter of timing: The role of the ocean in the initiation of spawning migration by Late-run Fraser River sockeye salmon (<i>Oncorhynchus nerka</i>). <i>Fisheries Oceanography</i>, 20:1, 47-65.</p> <p>Thomson, R.E., R.J. Beamish, T.D. Beacham, M. Trudel, P.H. Whitfield, and R.A.S. Hourston. 2012. Anomalous ocean conditions may explain extreme variability in Fraser River sockeye salmon production, <i>Marine and Coastal Fisheries: Dynamics, Management, and Ecosystems Science</i>, 4: 415-437</p> <p>Thomson, R.E. 2014. The Physical Ocean. Chapter 2 In “The Sea Among Us: The Amazing Strait of Georgia”, Harbour Publishing, VP.O. Box 219, Madeira Park, BC, V0N 2H0. Eds. Richard Beamish and Sandy McFarlane, pp. 13-40.</p> <p>Drenner, S. M., S. G. Hinch, E. G. Martins, N. B. Furey, T. D. Clark, S. J. Cooke, D. A. Patterson, D. Robichaud, D.W. Welch, A.P. Farrell, and R.E. Thomson. 2015. Environmental conditions and physiological state influence estuarine movements of homing sockeye salmon. <i>Fisheries Oceanography</i>, doi:10.1111/fog.12110, 18 p.</p> <p>Yamada, Sylvia B., Richard E. Thomson, Graham E. Gillespie and Tammy C. Norgard. 2017. Lifting Barriers to Range Expansion: the European green crab <i>Carcinus maenas</i> Linnaeus, 1758) enters the Salish Sea, <i>Journal of Shellfish Research</i>, 36 (1), 1–8.</p> <p>See below for references relating to sedimentation:</p> <p>Johannessen, S.C., Macdonald, R.W., Wright, C.A. and Spear, D.J., 2017. Short-term variability in particle flux: Storms, blooms and river discharge in a coastal sea. <i>Continental Shelf Research</i>, 143, pp.29-42.</p> <p>Johannessen, S.C., Masson, D. and Macdonald, R.W., 2006. Distribution and cycling of suspended particles inferred from transmissivity in the Strait of Georgia, Haro Strait and Juan de Fuca Strait. <i>Atmosphere-Ocean</i>, 44(1), pp.17-27</p> <p>Hewitt, A.T. and Mosher, D.C., 2001. Late Quaternary stratigraphy and seafloor geology of eastern Juan de Fuca Strait, British Columbia and Washington. <i>Marine Geology</i>, 177(3-4), pp.295-316.</p> <p>Pawlowicz, R., Di Costanzo, R., Halverson, M., Devred, E. and Johannessen, S., 2017. Advection, Surface Area, and Sediment Load of the Fraser River Plume Under Variable Wind and River Forcing. <i>Atmosphere-Ocean</i>, 55(4-5), pp.293-313</p> <p>Johannessen, S.C., O'Brien, M.C., Denman, K.L. and Macdonald, R.W., 2005. Seasonal and spatial variations in the source and transport of sinking particles in the Strait of Georgia, British Columbia, Canada. <i>Marine geology</i>, 216(1-2), pp.59-77.</p> <p>Johannessen, S.C., Macdonald, R.W. and Paton, D.W., 2003. A sediment and organic carbon budget for the greater Strait of Georgia. <i>Estuarine, Coastal and Shelf Science</i>, 56(3-4), pp.845-860.</p> <p>Dinn, P.M., Johannessen, S.C., Macdonald, R.W., Lowe, C.J. and Whitticar, M.J., 2012. Effect of receiving environment on the transport and fate of polybrominated diphenyl ethers near two submarine municipal outfalls. <i>Environmental toxicology and chemistry</i>, 31(3), pp.566-573.</p> <p>Fisheries and Oceans Canada does not track or monitor waves</p>	

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<p>108. 5.10.1.3 IR #108 – To DFO, TC and WCMRC Since as noted above “Responders to the scene of an oil spill must have a good understanding of the chemical and physical properties of the oil along with the water conditions (temperature, mixing intensity, salinity and sediment composition), and how all of these variables interact, for an effective clean-up response plan”, provide a profile of these factors throughout the full range of the projected tanker route.</p>	<p>WCMRC- During the response to an environmental emergency requiring multi-agency cooperation, the Environmental Emergencies Science Table (the “Science Table”) can be convened to provide advice to the lead agency as part of an ICS response. The Science Table brings together relevant experts in the field of environmental protection such as response agencies, all levels of government, Aboriginal representatives, local communities, industries, environmental nongovernment organizations, and academic institutions.</p> <p>The Science Table of experts is able to develop consensus on protection and cleanup priorities, bring the right expertise, adapt the scale of response to a particular environmental emergency, and provide a forum for rapidly moving information to minimize damage to human life or health, or the environment while maximizing the use of limited response resources. These discussions can occur on-site, or by telephone or videoconference.</p> <p>Transport Canada The subject matter of this information request falls outside of Transport Canada’s mandate. The subject matter of this IR falls within the mandate of CCG and DFO, which will respond to this information request on behalf of the Federal Authority intervenors.</p> <p>Canadian Coast Guard Given the Coast Guard’s mandate to respond to all ship-source, mystery-source, and marine pollution incidents that occur at oil-handling facilities as a result of loading and unloading, the Coast Guard Environmental Response Program assigns personnel and equipment on the basis of risk to ensure a rapid and effective response, should an incident occur. Coast Guard personnel are highly trained, have the right equipment, and develop specific and dynamic response strategies as an incident unfolds. Many factors come into play, including the specific location of the incident, weather and sea conditions, and characteristics of the spilled product. Coast Guard employs the Incident Command System (ICS) methodology, in collaboration with our response partners and Indigenous communities, to conduct an effective response. From the earliest moments in the response, Coast Guard takes all available information into account as it determines the appropriate response plan and protocols for each unique incident. The flexibility and adaptability of the ICS allows for the activation of relevant personnel and resources to deal with all elements of the response. This could include an Environmental Unit that is responsible for, amongst other things, the identification of the natural resources at risk, and scientific support from other government departments to provide advice on the dynamics of the spilled product. Under the ICS, Coast Guard works collaboratively with other response partners, including the polluter, the Response Organization (RO), Indigenous communities, and provincial, territorial, and municipal partners, and makes every effort to cascade the required resources to the incident as quickly as possible. This would be a combination of Coast Guard, RO, and contracted resources best suited for the situation at hand. Coast Guard’s flexible contracting model permits the rapid deployment of other resources when and where they are needed.</p> <p>Fisheries and Oceans Canada: Relevant information is available in references provided in Fisheries and Oceans Canada’s responses to information request (IR) 106 and IR 107.</p>	

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<p>109. 5.10.1.4 IR #109 – To DFO, TC and WCMRC If data on the physical factors prevalent in the waters along the tanker route of Southern British Columbia are not available to oil-spill responders, provide an explanation of how a decision to decrease the possibility of dilbit entering our waters can be made until these facts are available.</p>	<p>Please see WCMRC Response to FER IR 5.10.1.3 IR #108. WCMRC considers and monitors various environmental factors during spill response.</p> <p>Transport Canada: The topic of spill monitoring and the associated response is outside of Transport Canada’s mandate. Please refer to information provided by DFO.</p> <p>Fisheries and Oceans Canada: Relevant information is available in references provided in Fisheries and Oceans Canada's responses to information request (IR) 106 and IR 107.</p>	
<p>110. 5.10.1.5 IR #110 – To TMX Explain why the results of the Gainford study have been quoted in the Direct Evidence of TMX as evidence for the behaviour of Dilbit. This shows a complete lack of recognition of research reported since the Gainford Study. It has been clearly shown in research since that study was done, that one cannot make any conclusions from the Gainford study as it was not done in consideration of any physical factors which would parallel those found in the real world in the Salish sea and the Strait of Juan de Fuca. We found it astounding that TMX would use this study as rationalization for business as usual when dealing with a spill involving Dilbit.</p>	<p>TMX-110) The Gainford study was designed to simulate a range of factors and conditions similar to the potential receiving environment of Burrard Inlet, a part of the Salish Sea, as described in the report filing (Filing ID A3S5G2, PDF p.13). Further information is provided in Attachment 8.1.2 of Trans Mountain’s Direct Evidence, “Dilbit and Related Research – 2015 to 2018, A Summary” prepared by Polaris Applied Sciences, Inc. for the current proceeding (Filing ID A6J6H9). Please also see Section 8.1.2 of Trans Mountain’s direct evidence (Filing ID A6J6F4, PDF p. 59) for a summary of research conducted since the Gainford Study, much of which is representative of a range of conditions that may be found in different areas of the Salish Sea during various seasons. Research continues to corroborate the observations made by the researchers during the Gainford study, that diluted bitumen, in most respects, behaves similarly to conventional crude oils.</p>	<p>Hasn’t this Gainford study on Dilbit been discredited enough by research done later, that it is no longer relevant.</p>
<p>111. 5.10.1.6 IR #111 – To WCMRC Are the specifications of the equipment that you have been tested to pick up dilbit? Have you made specific plans to deal with dilbit?</p>	<p>WCMRC notes that this issue has been adjudicated in prior hearings. Please refer to Squamish FN IR 2.38. (Filing ID A4H9D0).</p> <p><i>Response to a diluted bitumen spill is no different than responding to other heavy conventional oil spills. As noted in the response to Squamish Nation IR No. 2.02a, the Gainford report (Technical Report TR 8C-12 S7, Volume 8C, A Study of Fate and Behavior of Diluted Bitumen Oils on Marine Waters, Filing IDs A3S5G2, A3S5G4, and A3S5G5) showed that fresh and weathered representative samples of diluted bitumen (CLB and AWB) would float on freshwater for eight days or more depending on local factors such as sediment and mixing energy. The salinity of Burrard Inlet water has a greater density than freshwater. The same tests showed that conventional skimming equipment is capable of removing both fresh and weathered oil.</i></p>	<p>It may have been adjudicated, but the FCA sought a review of the evidence earlier findings so leaning on older evidence. The response also does not match what is now known about dilbit and emulsification rates aka sinking.</p>

Information Requests	Responses	Comment
<p>112. 5.10.1.7 IR #112 – To WCMRC Are these dilbit spill recovery plans different from those used for conventional oil spills? If so please indicate the different actions anticipated. In particular when dealing with a spill in sensitive ecological areas.</p>	<p>WCMRC notes that this issue has been adjudicated in prior hearings. WCMRC’s oil spill response plan initially focuses on containment and recovery of surface oil as rapidly as possible to: 1) minimize spreading; 2) reduce the risk of shoreline contact; 3) reduce the risk of oil exposure on wildlife and wildlife habitat; and 4) prevent excessive weathering. Response would be further guided by Unified Command (UC) operating within an ICS response structure and informed by the Environmental Emergencies Science Table (the “Science Table”). Please see WCMRC Response to FER IR 5.10.1.3 IR #108. Additionally, WCMRC is developing site specific spill response strategies, known as geographic response strategies (GRS). A geographic response strategy (GRS) is a document that outlines operationally how to protect a particular site or sensitivity. It identifies the resources at risk and outlines how much equipment is required to protect that.</p>	<p>There are currently no Geographic Response Plans (GRS) for protecting the most sensitive areas on Southern Vancouver island that we can find on the WCMRC maps. As we pointed out in our submission, the marinas have GRS plans made for them on the map. Ecological Reserves do not have such plans.</p>
<p>113. 5.10.1.8 IR #113 – To WCMRC and TC Given that the intertidal zones of our 19 ecological reserves in the southern mainland and Vancouver Island area are often exposed to 50 knot and above winds and currents up to 7 knots, and given that they have very high biodiversity of marine algae and invertebrates and given that some ecosystems like Race Rocks Ecological Reserve can be exposed by high wave splash well into the supratidal zone, and given that nesting seabirds including black oystercatchers, pigeon guillemots and glaucous –winged gulls are located in the supratidal zone from February to July, and migratory seabirds including SARA-listed species (see Appendix 4) are present in large numbers in the fall and spring months, and given that it is a major over-wintering habitat for at least four gull species, black oystercatchers and three cormorant species, and given that harbor seals pup in the spring months, and given that the most northerly pupping colony of elephant seals and the only known one in Canada is located, and given that over a thousand Northern and California sea lions haul out from August to March, please describe the specific plans for dealing with a spill of dilbit in such an area.</p>	<p>Please see WCMRC Response to FER IR 5.10.1.7 IR #112.</p> <p>Transport Canada: The topic of specific plans for spill response in environmentally sensitive areas is outside of TC’s mandate. The subject matter of this IR falls within the mandate of CCG which will respond to this information request on behalf of the Federal Authority intervenors. WCMRC are also responding to this information request in their IR responses.</p> <p>Canadian Coast Guard: Given the Coast Guard’s mandate to respond to all ship-source, mystery-source, and marine pollution incidents that occur at oil-handling facilities as a result of loading and unloading, the Coast Guard Environmental Response Program assigns personnel and equipment on the basis of risk to ensure a rapid and effective response, should an incident occur. Coast Guard personnel are highly trained, have the right equipment, and develop specific and dynamic response strategies as an incident unfolds. Many factors come into play, including the specific location of the incident, weather and sea conditions, and characteristics of the spilled product. Coast Guard employs the Incident Command System (ICS) methodology, in collaboration with our response partners and Indigenous communities, to conduct an effective response. From the earliest moments in the response, Coast Guard takes all available information into account as it determines the appropriate response plan and protocols for each unique incident. The flexibility and adaptability of the ICS allows for the activation of relevant personnel and resources to deal with all elements of the response. This could include an Environmental Unit that is responsible for, amongst other things, the identification of the natural resources at risk, and scientific support from other government departments to provide advice on the dynamics of the spilled product. Under the ICS, Coast Guard works collaboratively with other response partners, including the polluter, the Response Organization (RO), Indigenous communities, and provincial, territorial, and municipal partners, and makes every effort to cascade the required resources to the incident as quickly as possible. This would be a combination of Coast Guard, RO, and contracted resources best suited for the situation at hand. Coast Guard’s flexible contracting model permits the rapid deployment of other resources when and where they are needed. Environmental response planning in the South Coast is ongoing as part of regular Coast Guard spill response preparedness activities. The Canadian Coast Guard Marine Spills Contingency Plan – National Chapter establishes the existing requirement for Geographically Specific Response Planning and the Canadian Coast Guard is currently working directly with Indigenous communities and other partners on the South Coast to develop Geographically Specific Response Plans, like the Greater Vancouver Integrated Response Plan, for this area. This process is ongoing and as plans are developed, they will be jointly exercised, updated and collaboratively maintained going forward.</p>	<p>We have pointed out that the GRS plans of WCMRC do not include any response for any of the sensitive areas mentioned in the information request. They highlight the importance of protecting highly publicly visible areas like marinas while ignoring ecologically sensitive areas mentioned in our question.</p> <p>It should be noted also that WCMRC sent out representatives to Metchosin to seek advice from local experts on the areas of concern along our 55 km of coastline with the potential of exposure to a dilbit spill. We cannot find any of this currently reflected in the GRS plans of WCMRC</p>

Information Requests	Responses	Comment
<p>114. 5.10.1.9 IR #114 – To TC, CCG and WCMRC Given that the intertidal zones of our 19 ecological reserves in the southern mainland and Vancouver Island area are often exposed to 50 knot and above winds and currents up to 7 knots, and given that they have very high biodiversity of marine algae and invertebrates and given that some ecosystems like Race Rocks Ecological Reserve can be exposed by high wave splash well into the supratidal zone. And given that nesting seabirds including black oystercatchers, pigeon guillemots and glaucous-winged gulls are located in the supratidal zone from February to July, and migratory seabirds including SARA listed species are present in large numbers in the fall and spring months and given that Race Rocks ER is a major over-wintering habitat for at least 4 gull species, black oystercatchers and three cormorant species, and given that harbor seals pup in the spring months, and given that the most northerly pupping colony of elephant seals and the only known one in Canada is located, and given that over a thousand Northern and California sea lions haul out from August to March, please describe the specific plans for dealing with a spill of dilbit on the shores of Race Rocks, Trial Island, Oak Bay Island and Ten Mile point ERs.</p>	<p>Please see WCMRC Response to FER IR 5.10.1.7 IR #112.</p> <p>Transport Canada: The topic of specific plans for spill response in environmentally sensitive areas is outside of TC’s mandate. The subject matter of this IR falls within the mandate of CCG which will respond to this information request on behalf of the Federal Authority intervenors. WCMRC are also responding to this information request in their IR responses.</p> <p>Canadian Coast Guard: Given the Coast Guard’s mandate to respond to all ship-source, mystery-source, and marine pollution incidents that occur at oil-handling facilities as a result of loading and unloading, the Coast Guard Environmental Response Program assigns personnel and equipment on the basis of risk to ensure a rapid and effective response, should an incident occur. Coast Guard personnel are highly trained, have the right equipment, and develop specific and dynamic response strategies as an incident unfolds. Many factors come into play, including the specific location of the incident, weather and sea conditions, and characteristics of the spilled product. Coast Guard employs the Incident Command System (ICS) methodology, in collaboration with our response partners and Indigenous communities, to conduct an effective response. From the earliest moments in the response, Coast Guard takes all available information into account as it determines the appropriate response plan and protocols for each unique incident. The flexibility and adaptability of the ICS allows for the activation of relevant personnel and resources to deal with all elements of the response. This could include an Environmental Unit that is responsible for, amongst other things, the identification of the natural resources at risk, and scientific support from other government departments to provide advice on the dynamics of the spilled product. Under the ICS, Coast Guard works collaboratively with other response partners, including the polluter, the Response Organization (RO), Indigenous communities, and provincial, territorial, and municipal partners, and makes every effort to cascade the required resources to the incident as quickly as possible. This would be a combination of Coast Guard, RO, and contracted resources best suited for the situation at hand. Coast Guard's flexible contracting model permits the rapid deployment of other resources when and where they are needed. Environmental response planning in the South Coast is ongoing as part of regular Coast Guard spill response preparedness activities. The Canadian Coast Guard Marine Spills Contingency Plan – National Chapter establishes the existing requirement for Geographically Specific Response Planning and the Canadian Coast Guard is currently working directly with Indigenous communities and other partners on the South Coast to develop Geographically Specific Response Plans, like the Greater Vancouver Integrated Response Plan, for this area. This process is ongoing and as plans are developed, they will be jointly exercised, updated and collaboratively maintained going forward.</p>	<p>We have pointed out that the GRS plans of WCMRC do not include any response for any of the sensitive areas mentioned in the information request. They highlight the importance of protecting highly publicly visible areas like marinas while ignoring ecologically sensitive areas mentioned in our question.</p> <p>It should be noted also that WCMRC sent out representatives to Metchosin to seek advice from local experts on the areas of concern along our 55 km of coastline with the potential of exposure to a dilbit spill. We cannot find any of this currently reflected in the GRS plans of WCMRC.</p>
<p>115. 5.10.1.10 IR #115 – To ECCC Please indicate whether there have been any equivalent studies have been done for baseline research for the shores of the Salish Sea and the Strait of Juan de Fuca. Please provide the results of this study.</p>	<p>Please refer to ECCC response to NEB IR 1.42 (A96556-4 Part 3 - IR 1.26 to 1.56-5 Annex 5.1.1 - A6L8X5) and Friends of Ecological Reserves IR 32, 33, 34, 35 and 37)</p>	<p>WRONG REFERENCE : This link lead to an unrelated report called 1.26 Vessel design, retrofit, operational, and maintenance measures (same as or similar to IR 1.44 directed at ECCC)</p>

Information Requests	Responses	Comment
116. 5.10.1.11 IR #116 – To CAPP Does CAPP agree that more research is needed to learn how to deal with a marine spill of dilbit?	No response. A97061-1 NEB Ruling No. 25 - FER - Trans Mountain Expansion - Reconsideration - Notice of Motion directed at CAPP - A6Q7A9	CAPP sent a letter of comment to NEB indicating they would not respond to this request. NEB gave FER an opportunity to provide a letter of comment. A96949 FER letter of Comment Motion to Compel CAPP to respond to IR.
117. 5.10.1.12 IR # 117 – To CAPP Does the Canadian Association of Oil Producers believe that the Federal Agencies alone and the Canadian tax payer are entirely responsible for research and the monitoring needs associated with dilbit export?	No response. A97061-1 NEB Ruling No. 25 - FER - Trans Mountain Expansion - Reconsideration - Notice of Motion directed at CAPP - A6Q7A9	CAPP sent a letter of comment to NEB indicating they would not respond to this request. NEB gave FER an opportunity to provide a letter of comment. A96949 FER letter of Comment Motion to Compel CAPP to respond to IR.
118. 5.10.1.13 IR #118 – To CAPP Does the Canadian Association of Oil Producers believe that the Federal Agencies alone and the Canadian tax payer are entirely responsible for research and the monitoring needs associated with dilbit export?	No response. A97061-1 NEB Ruling No. 25 - FER - Trans Mountain Expansion - Reconsideration - Notice of Motion directed at CAPP - A6Q7A9	CAPP sent a letter of comment to NEB indicating they would not respond to this request. NEB gave FER an opportunity to provide a letter of comment. A96949 FER letter of Comment Motion to Compel CAPP to respond to IR.
119. 5.10.1.14 IR #119 – To CAPP and TMX Does the Canadian Association of Oil Producers agree that funding research to learn how to reduce environmental risk is a corporate responsibility and is a legitimate business expense for themselves?	TMX- 119) Trans Mountain notes the letter filed by the Canadian Association of Petroleum Producers with respect to this information request (Filing ID A96810). As an organization, Trans Mountain supports a variety of initiatives, both financially and through participation, which may assist in the reduction of environmental risk associated with the operation of its assets including those described in Trans Mountain’s direct evidence (Filing ID A6J6F4).	We expect that the oil producers of this country will take full responsibility for funding extensive research because of the environmental risk they bring. We thank TMX for their research funding commitments to date, but note it is discretionary in topic selection, duration and budget allocation as is the disclosure of results which may be proprietary.
120. 5.10.1.15 IR #120 – To CAPP and TMX Does the Canadian Association of Oil Producers and TMX agree to support an Endowment for research over the life of their project? It not why not?	No response. A97061-1 NEB Ruling No. 25 - FER - Trans Mountain Expansion - Reconsideration - Notice of Motion directed at CAPP - A6Q7A9	CAPP sent a letter of comment to NEB indicating they would not respond to this request. NEB gave FER an opportunity to provide a letter of comment. A96949 FER letter of Comment Motion to Compel CAPP to respond to IR.

Information Requests	Responses	Comment
121. 6.1.1.1 IR #121 – To Parks Canada How are the marine habitats shown in figure 6-2 managed differently than the marine areas outside of the NP?	Project-related marine shipping will not occur within Parks managed waters. The management of other activities within Parks boundaries is out of scope for the NEB reconsideration.	
122. 6.1.1.2 IR #122 – To Parks Canada Are any areas closed to fishing? crabbing, shell fish harvest?	Project-related marine shipping will not occur within Parks managed waters. The management of other activities within Parks boundaries is out of scope for the NEB reconsideration.	If Parks Canada is responsible for protecting critical habitat, we would hope that they have communicated very thoroughly, the location of these critical habitats to those who are responsible for identifying them. (this seems to be a convoluted process)
123. 6.1.1.3 IR #123 – To Parks Canada Has PC asked for closures from DFO to better achieve conservation objectives for listed species?	Project-related marine shipping will not occur within Parks managed waters. The management approach of other activities within Parks boundaries is out of scope for the NEB reconsideration.	If Parks Canada is responsible for protecting critical habitat, we would hope that they have communicated very thoroughly the location of these critical habitats to those who are responsible for identifying them. (this seems to be a convoluted process)
124. 6.2.1.1 IR #124 – To Parks Canada What is the description of highly suitable habitat and where are these critical habitats located for species at risk? Given that most of the species listed in Table 6-1, live on islands within the Gulf Island National Park and that their home and seasonal ranges are within close proximity to the projected tanker route of the TMX project, and given that many have ecological niches that involve near shore habitat, foraging areas or breeding areas.	Figures for all identified critical habitat for Gulf Islands National Park Reserve, Pacific Rim National Park Reserve and Fort Rodd Hill National Historic Site that are within the Marine Transportation Assessment Regional Study area were provided in Document A95299-40 Annex 10.G.04-A6J7D2 of the Government of Canada written submission	Thank you, the question was answered very well with this link
125. 6.2.1.2 IR #125 – To Parks Canada. What does Parks Canada plan to do for mitigation of impact on these rare populations in the event of dispersal of aerosol contaminants, deposits of toxic substances in the sub-tidal, intertidal and supra-littoral zones or emissions of toxic gases in the event of an oil spill involving dilbit in the Salish sea?	Transport Canada is the lead regulatory agency that manages and governs Canada’s Marine Oil Spill Preparedness and Response Regime, and the Canadian Coast Guard is the on-water federal lead agency for marine pollution response. Environment and Climate Change Canada is the lead agency for environmental emergencies. Under their leadership, Parks Canada would support spills response as appropriate. Parks Canada participates in joint exercises to prepare for emergency responses with Canada Coast Guard and Western Canada Marine Response Corporation.	If Parks Canada is responsible for protecting critical habitat, we would hope that they have communicated very thoroughly the location of these critical habitats to those who are responsible for identifying them. (this seems to be a convoluted process)

Information Requests	Responses	Comment
126. 6.2.1.3 IR #126 – To Parks Canada If Parks Canada knows the location of high value habitats and critical habitats for species listed in Table 1 have these been shared with other agencies such as the CCG or WCMRC?	Fisheries and Oceans Canada and/or Environment and Climate Change Canada are the Federal Authorities leading the identification of critical habitat and for publicly publishing that information. Parks Canada is responsible for protecting critical habitat within Parks Canada lands and waters. Responding	If Parks Canada is responsible for protecting critical habitat, we would hope that they have communicated very thoroughly the location of these critical habitats to those who are responsible for identifying them. (this seems to be a convoluted process)
127. 6.2.1.4 IR #127 – To Parks Canada What is known about winds, tides and currents in the National Parks systems that can inform oil spill response and improve the probability of safeguarding endangered species? Have physical environmental factors specific to locations on the islands, such as seasonal variations in onshore winds, current directions, and records of the effects of extreme storm events been provided to the RO agencies	Parks Canada does not collect these data. Transport Canada is the lead regulatory agency that manages and governs Canada’s Marine Oil Spill Preparedness and Response Regime, and the Canadian Coast Guard is the on-water federal lead agency for marine pollution response. Under their leadership, Parks Canada Agency would support spills response as appropriate.	If Parks Canada is responsible for protecting critical habitat, we would hope that they have communicated very thoroughly the location of these critical habitats to those who are responsible for identifying them. (this seems to be a convoluted process)
128. 6.2.1.5 IR #128 – To Parks Canada Interagency cooperation and setting priorities. Has Parks Canada ever met with Canadian Coast Guard or WCMRC to discuss how to protect highly important and vulnerable habitats in Parks and agreed on how to prioritize oil spill response actions and inform oil response agencies?	Parks Canada participates in exercises run by the Canadian Coast Guard and Western Canada Marine Response Corporation targeted towards emergency preparedness. This has included, among other things, a 2-day tabletop exercise that simulated the response to a 10,000 tonne spill within the boundaries of Gulf Islands National Park Reserve.	What are the plans beyond a 10,000 tonne spill?
129. 6.2.1.6 IR #129 – To Parks Canada Moving shipping lanes as a mitigation strategy. Has Parks Canada provided advice to other government agencies that regulate shipping Transport Canada (TC) on how to mitigate impacts on critical habitat within National Parks? We note that there is overlap between critical habitat from SRKW and shipping lanes. Has Parks Canada requested of TC that a move in the shipping lanes away from identified Critical Habitat as a mitigation strategy?	Project-related marine shipping will not occur within Parks managed waters. Transport Canada is the federal authority regulating marine shipping under the CNMCAA, and Fisheries and Oceans Canada is the lead Federal Authority on the southern resident killer whale recovery strategy. Parks Canada has not provided recommendations regarding shipping routes to either Fisheries and Oceans Canada or Transport Canada. However, Parks Canada is part of the collaborative process focused on the recovery of the southern resident killer whale	So why has Parks Canada not provided any advice? They can see the ships in the shipping lanes from some of their national parks even though no shipping occurs within their parks. (until one comes ashore of course.).

Information Requests	Responses	Comment
130. 6.2.1.7 IR #130 – To Parks Canada Assessment of damaged ecosystems and critical habitat. Please provide an assessment of the recovery potential for ecosystems of the Southern Gulf Islands and for the SARA and COSEWIC- listed species which may be affected by a dilbit spill in the Salish Sea. Pl	The likelihood of a particular species recovery is listed in its recovery or action plan, which are available online at the species at risk registry: https://wildlifespecies.canada.ca/species-risk-registry/sar/index/default_e.cfm . Parks Canada’s sitebased action plans outline the strategies and recovery actions that are planned on Parks Canada lands. Parks Canada has not conducted an assessment regarding the potential impacts of oil spills on the recovery potential of SARA or COSEWIC listed species in Gulf Islands National Park Reserve.	Maybe this is a gap that should be addressed immediately if dilbit is going to be shipped past your Park.
131. 6.3.1.1 IR #131 – To Parks Canada Please provide population monitoring sites and locations of on going monitoring. What evidence does Parks Canada have that protection of the habitat of these species is assured in the event of an oil spill in the offshore seas when prevailing winds and storms will subject the areas to contaminated sea spray?	Parks Canada monitors a wide variety of ecological indicators and has many different monitoring sites depending on the indicator. In the coastal and marine ecosystem of Pacific Rim National Park Reserve, Parks Canada monitors migratory shorebird habitat use, intertidal bivalves, the kelp fish community, kelp density, the black oystercatcher population, nesting seabird populations, seabird populations and the eelgrass fish community. However, these monitoring sites would not be helpful in predicting project-related impacts and therefore we consider <u>the question out of scope</u> for this assessment. Parks Canada has not conducted an assessment regarding the potential impacts of oil spills on the recovery potential of species listed in Pacific Rim National Park Reserve’s Multi-species action plan	It won’t be out of scope when the oil floods the beaches of the Pacific Rim National Park. Good luck Parks Canada!!
132. 6.3.1.2 IR #132 – To Parks Canada Provide plans from the RO agency for protection of the habitat of these species.	Requests for plans from the RO agency should be directed to the RO agency itself. Transport Canada is the lead regulatory agency that manages and governs Canada’s Marine Oil Spill Preparedness and Response Regime, and ECCC is the lead agency in environmental emergencies. Therefore, Parks Canada is unable to provide any plans from responding organizations.	So Does this mean even though it is SARA listed, it is not important enough to bother about?? Rare species gets extirpated by oil spill??
133. 6.4.1.1 IR #133 – To Parks Canada What evidence does Parks Canada have that protection of the habitat of this rare species is assured in the event of an oil spill in the offshore seas when prevailing winds and storms will subject the areas to contaminated sea spray	While critical habitat for seaside centipede lichen exists within Pacific Rim National Park Reserve, it is restricted to islands within the Broken Island Group, in particular Benson Island and Wouwer Island. This area is outside of the geographic limit of the Marine Transportation Assessment Regional Study and outside of the spatial area for consideration on the effects of marine shipping. This information was provided in the initial written response to NEB to err on the side of caution.	So Does this mean even though it is SARA listed, it is not important enough to bother about?? Rare species gets extirpated by oil spill??
134. 6.4.1.2 IR #134 – To Parks Canada Provide plans from the RO agency for protection of the habitat of these species	Requests for plans from the RO agency should be directed to the RO agency itself. Transport Canada is the lead regulatory agency that manages and governs Canada’s Marine Oil Spill Preparedness and Response Regime, and ECCC is the lead agency in environmental emergencies. Therefore, Parks Canada is unable to provide any plans from responding organizations.	So Does this mean even though it is SARA listed, it is not important enough to bother about?? Rare species gets extirpated by oil spill??
135. 6.5.1.1 IR #135 – To Parks Canada Given that the Critical habitat for Pink Sand-verbena was identified in the Final Recovery Strategy for the Pink Sand-verbena in Canada posted in February 2007 on the SARA Public Registry. Please indicate what evidence does Parks Canada have that	Parks Canada has not conducted any assessment on the potential impacts of the project on pink sand-verbena.	So Does this mean even though it is SARA listed, it is not important enough to bother about?? Rare species gets extirpated by oil spill??

Information Requests	Responses	Comment
protection of the habitat of this species is assured in the event of an oil spill in the offshore seas when prevailing winds and storms will subject the areas to contaminated sea spray.		
136. 6.5.1.2 IR #136 – To Parks Canada Provide plans from the oil-spill recovery agency for protection of the habitat of this species.	Requests for plans from the RO agency should be directed to the RO agency itself. Transport Canada is the lead regulatory agency that manages and governs Canada’s Marine Oil Spill Preparedness and Response Regime, and ECCC is the lead agency in environmental emergencies. Therefore, Parks Canada is unable to provide any plans from responding organizations.	So Does this mean even though it is SARA listed, it is not important enough to bother about?? Rare species gets extirpated by oil spill??
137. 6.6.1.1 IR #137 – To Parks Canada Given that the critical habitat of the Contorted-pod Evening-primrose was identified in the Recovery Strategy for the Contorted-pod Evening-primrose (<i>Camissonia contorta</i>), in Canada, please indicate what evidence does Parks Canada have that protection of the habitat of this species is assured in the event of an oil spill in the offshore seas when prevailing winds and storms will subject the areas to contaminated sea spray.	Parks Canada has not conducted an assessment on the impacts of the project on contorted-pod evening primrose.	So Does this mean even though it is SARA listed, it is not important enough to bother about?? Rare species gets extirpated by oil spill??
138. 6.6.1.2 IR #138 – To Parks Canada Provide plans from the RO for protection of the habitat of this species.	Requests for plans from the RO agency should be directed to the RO agency itself. Transport Canada is the lead regulatory agency that manages and governs Canada’s Marine Oil Spill Preparedness and Response Regime, and ECCC is the lead agency in environmental emergencies. Therefore, Parks Canada is unable to provide any plans from responding organizations	So Does this mean even though it is SARA listed, it is not important enough to bother about?? Rare species gets extirpated by oil spill??
139. 6.7.1.1 IR #139– To Parks Canada What evidence does Parks Canada have that protection of the habitat of this rare species is assured in the event of an oil spill in the offshore seas when prevailing winds and storms will subject the areas to contaminated sea-spray.	Parks Canada has not conducted an assessment on the impact of the project on Edward’s beach moth.	So Does this mean even though it is SARA listed, it is not important enough to bother about?? Rare species gets extirpated by oil spill??
140. 6.7.1.2 IR #140 – To Parks Canada Provide plans from the RO for protection of the habitat of the Edwards’ Beach Moth (<i>Anarta edwardsii</i>) in Gulf Islands.	Requests for plans from the RO agency should be directed to the RO agency itself. Transport Canada is the lead regulatory agency that manages and governs Canada’s Marine Oil Spill Preparedness and Response Regime, and ECCC is the lead agency in environmental emergencies. Therefore, Parks Canada is unable to provide any plans from responding organizations.	Parks Canada might at least take the responsibility of finding out this information.

Information Requests	Responses	Comment
<p>141. 6.8.1.1 IR #141 – To Parks Canada What evidence does Parks Canada have that protection of the habitat of this rare species is assured in the event of an oil spill in the offshore seas when prevailing winds and storms will subject the areas to contaminated sea spray.</p>	<p>Parks Canada has not conducted an assessment on the impacts of the project on contorted-pod evening primrose.</p>	<p>So Does this mean that even though it is SARA listed, it is not important enough to bother about?? Rare species gets extirpated by oil spill?</p>
<p>142. 6.8.1.2 IR #142 – To Parks Canada Provide plans from the RO for protection of the habitat of the Contorted-pod Evening-primrose (Camissonia contorta) in the Gulf Islands National Park Reserve of Canada.</p>	<p>Requests for plans from the RO agency should be directed to the RO agency itself. Transport Canada is the lead regulatory agency that manages and governs Canada’s Marine Oil Spill Preparedness and Response Regime, and ECCC is the lead agency in environmental emergencies. Therefore, Parks Canada is unable to provide any plans from responding organizations.</p>	<p>Perhaps Parks Canada needs to start finding out about these plans very soon and perhaps they should have a major input into decisions on a project which could have a large impact on the very ecosystems and species it is mandated to protect.</p>
<p>143. 6.9.1.1 IR #143 – To Parks Canada Given that this Multi-species action plan seeks a balanced approach to reducing or eliminating risks and that potential economic benefits of the recovery of the species at risk found in these sites cannot be easily quantified, what are the estimated expenditures which are not reflected in your current budget that would be necessary to ensure protection of this unique area from the effects of a dilbit-involved oil spill?</p>	<p>All waters around the Fort Rodd Hill National Historic Site are within Department of National Defence’s controlled access zone, as part of the Esquimalt naval base. Under their leadership, Parks Canada is able to support spills response as appropriate.</p>	<p>I guess DND can control the onset of the oil spray from a disaster offshore too. They weren’t an intervenor so we can’t check with them.</p>
<p>144. 6.9.1.2 IR #144 – To Parks Canada What baseline studies on ecosystems and species have been completed within the Fort Rodd Hill National Historic site?</p>	<p>Parks Canada monitors a wide variety of ecological indicators and has many different monitoring sites depending on the indicator. However, the baseline information provided from these monitoring sites would not be helpful in predicting project-related impacts and therefore we consider the question out of scope for this assessment. Data collection at Fort Rodd Hill has focused on species at risk, and baseline information are outlined in the Multi-species Action Plan for fort Rodd Hill National Historic Site of Canada. Responding</p>	<p>Then It is doubtful that Parks Canada has had much pro-active input into the plans to emphasize protection of the priority of sensitive ecosystems. WCMRC has plans to protect marinas in place, but not the sensitive ecosystems of the Victoria and Juan de Fuca traffic corridor.</p>

Information Requests	Responses	Comment
<p>145. 6.9.1.3 IR #145– To Parks Canada What contact with RO (i.e. WCMRC) has Parks Canada had about this sensitive area and how are actions planned for protection reflected in present RO plan?</p>	<p>Parks Canada participates in exercises run by the Canadian Coast Guard and Western Canada Marine Response Corporation targeted towards emergency preparedness. Transport Canada is the lead regulatory agency that manages and governs Canada’s Marine Oil Spill Preparedness and Response Regime, and Environment and Climate Change Canada is the lead agency in environmental emergencies. Under their leadership, Parks Canada would assist with an emergency response as appropriate. Parks Canada works collaboratively with other agencies and Indigenous groups to ensure the protection of ecological and cultural resources should an oil spill occur.</p>	
<p>146. 6.9.1.4 IR #146 – To Parks Canada Has your department requested a re-location of tanker traffic lanes to a more direct route which would put them much further from the Victoria waterfront, providing more protection for Fort Rodd Hill ecosystems and historical values in the event of a spill of dilbit, or in fact for any oil spill?</p>	<p>Marine shipping is regulated through Transport Canada and Parks Canada defers to their expertise regarding the regulation of shipping routes. While Fort Rodd Hill National Historic Site falls within the Marine Transportation Assessment Regional Study, the waters around the site are within Department of National Defence’s control zones as part of the Esquimalt naval base. Parks Canada has not provided recommendations regarding shipping routes to either Fisheries and Oceans Canada or Transport Canada. Along with Fisheries and Oceans Canada and Environment and Climate Change Canada, Parks Canada is part of the collaborative process focused on species at risk recovery and has provided input into applicable recovery strategies. Parks Canada is aware of cultural resource values along the coastline at the Fort Rodd Hill National Historic Site and would work collaboratively with other agencies and Indigenous groups to ensure their preservation should an oil spill occur.</p>	<p>Then It is doubtful that Parks Canada has had much pro-active input into the plans to the priority of sensitive ecosystems. WCMRC has plans to protect marinas in place, but not the sensitive ecosystems of the Victoria and Juan de Fuca traffic corridor.</p>
<p>147. 6.9.1.5 IR #147 – To Parks Canada Do you think it would be important to remove tanker traffic from along the coast of Victoria and route it in a more direct trajectory out into the Strait of Juan de Fuca?</p>	<p>Marine shipping is regulated through Transport Canada and Parks Canada defers to their expertise regarding the multiple factors that influence the location of shipping routes. Along with Fisheries and Oceans Canada and Environment and Climate Change Canada, Parks Canada is part of the collaborative process focused on species at risk recovery and has provided input into applicable recovery strategies.</p>	<p>Then It is doubtful that Parks Canada has had much pro-active input into the plans to the priority of sensitive ecosystems. WCMRC has plans to protect marinas in place, but not the sensitive ecosystems of the Victoria and Juan de Fuca traffic corridor.</p>
<p>148. 7.2.1.1 IR #148 – To TMX and WCMRC We request that TMX and WCMRC supply the information sheets required by WorkSafe BC and clarify why human health and oil spills are not included in their Marine Public Outreach Program? We note that this program has only recently been issued for External Review. Who are the external reviewers?</p>	<p>Please see WCMRC Response to FER IR 5.4.1.1 IR #54. TMX-148) The NEB Condition 131 Marine Public Outreach Program is focused on the communication of boating safety around deep draft vessels in commercial shipping lanes: Marine Public Outreach Program Trans Mountain must file with the NEB, at least 3 months prior to commencing operations, a report describing completed activities and observed outcomes of Trans Mountain’s Marine Public Outreach Program, and any further planned activities for this program. The report must also include: a) a summary of Trans Mountain’s consultation with the Pacific Pilotage Authority regarding the scope of work and activities to be undertaken through the program, including: i) the resources and information that Trans Mountain has provided or will provide to the Pacific Pilotage Authority to addresses the impacts of increased Project-related tanker traffic in the Salish Sea; ii) the activities or actions that Trans Mountain will undertake to communicate applicable information on Project-related vessel timing and scheduling to fishing industry organizations, commercial and recreational vessel operators, Aboriginal groups, and other affected , in</p>	<p>The public, and the first responders can be put at serious risk in the event of an inevitable catastrophic spill of dilbit. We can find no evidence that the public outreach program has done anything to show responsibility in this matter.</p>

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	<p>conjunction with the Pacific Pilotage Authority’s activities; and iii) any issues or concerns raised by the Pacific Pilotage Authority and how Trans Mountain has or will address them;</p> <p>b) a description of the actions or activities that Trans Mountain has or will undertake to incorporate into its own public engagement efforts the activities of the Pacific Pilotage Authority and Transport Canada regarding enhanced safe boating practice education for small vessel operators;</p> <p>c) a plan and schedule for all ongoing and future activities and actions under the program, including anticipated completion dates; and</p> <p>d) a summary of its consultations with Transport Canada, the Canadian Coast Guard, the Chamber of Shipping for British Columbia, commercial and tourism associations and potentially affected Aboriginal groups.</p> <p>Of note, Trans Mountain is also responsible for BCEAO Condition 11, requiring outreach for NEB Condition 131 to include Indigenous groups. The scope of the plan for Condition 131 is explained in Table 2 of Section 2.0 of the most recent version of the draft plan which was filed as Attachment 9.2.2 to Trans Mountain’s direct evidence (Filing ID A6J6I4). The plan is not due for submission to the NEB until 3 months prior to operations of the first Project vessels.</p>	
<p>149. 7.5.1.1 IR #149 – To TC, HC, CCCE and WCMRC Whereas research done on dispersants has indicated serious health and environmental problems even several years after the use of certain dispersant have shown these effects, are there any plans for using any of these dispersants in the event of a dilbit spill?</p>	<p>Please see WCMRC Response to FER IR 5.7.2.5 IR #76.</p> <p><i>WCMRC notes that this issue has been adjudicated in prior hearings. Please refer to Squamish FN IR 1.1.8 (b)). (Filing ID A3Y3R1). Dispersants were not used during response to the Marathassa incident. WCMRC participated in the Gainford tests during which dispersant use on diluted bitumen was tested, the report is on record as part of Hearing OH-001-2014 proceeding. WCMRC does not stock dispersants.</i></p> <p>Transport Canada The subject matter of this information request falls outside of Transport Canada’s mandate. The subject matter of this IR falls within the mandate of ECCC, CCG and HC which will respond to this information request on behalf of the Federal Authority intervenors.</p> <p>Environment and Climate Change Canada The use of alternative response measures such as spill treating agents is limited by laws prohibiting the introduction of substances into Canada’s waters that may cause harm to marine ecosystems, human health, and marine resources such as fish stocks and aquaculture. Consequently, these would not be used as a response tool under Canada’s existing Marine Oil Spill Preparedness and Response Regime. The Government of Canada under the OPP has announced it is considering legislative changes to strengthen environmental response to oil spills in water by expanding the available response options to include Alternative Response Measures which would otherwise be prohibited. Any future amendment to legislation to enable the use of Alternative Response Measures will be subject to a Net Benefit Analysis test on a case-by-case basis.</p> <p>Canadian Coast Guard: No dispersants are currently approved for use in response to ship-source oil spills in Canada. The Government of Canada, under the Oceans Protection Plan, has announced it is considering legislative changes to strengthen environmental response to ship source oil spills in water by expanding the available response options to include alternative response measures subject to a net environmental benefit analysis.</p> <p>Health Canada: Health Canada is unable to say whether these dispersants would be used in the event of a diluted bitumen spill because the department does not have a role in authorizing the use of dispersants within this context.</p>	<p>Good to know this information that “No dispersants are currently approved for use in response to ship-source oil spills in Canada.” Let’s hope it stays that way, and that policy won’t change to allow dispersants so that “out of site of the public” doesn’t become a priority.</p>

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<p>150. 7.7.1.1 IR #150 – To TMX and HC Would TMX indicate if the findings that initiated this assessment have altered in any way since the 2015 letter, and would HC indicate if it is still concerned with this level of uncertainty</p>	<p>HC- As indicated in Government of Canada direct evidence submission (MH-052-2018; A95292-2, Ch8, p 195-197), Health Canada is not aware of information that would alter the views expressed in the department’s 2015 Letter of Comment (OH-001-2014; A4S0Z6) concerning the topic of uncertainties associated with the proponent’s air pollutant dispersion modelling related to marine vessel traffic.</p> <p>TMX-In its 2015 Letter of Comment (Filing ID A4S0Z6), Health Canada expressed concern over the uncertainties that were identified by several intervenors (namely Environment Canada, Metro Vancouver and Fraser Valley Regional District) in the air dispersion modelling that served as the basis of the predicted health risks in the human health risk assessment (HHRA). Health Canada acknowledged in its 2015 Letter of Comment that it relied on other government agencies with expertise in air dispersion modelling to verify that correct, accepted and/or validated methods were used to predict the ground-level air concentrations of the chemicals of potential concern (COPC). Uncertainties in the air dispersion modelling were identified during a set of meetings with the Lower Fraser Valley Air Quality Coordinating Committee (LFVAQCC) on September 25, 2014 and November 13, 2014 to discuss the Project. The LFVAQCC includes staff from Environment Canada, the BC Ministry of the Environment (now BC Ministry of Environment & Climate Change), Metro Vancouver, Port Metro Vancouver (now Vancouver Fraser Port Authority) and the Fraser Valley Regional District. Uncertainties that could not be addressed during the meeting were taken away by Trans Mountain as informal information requests (IIRs). Responses to the IIRs were filed with the NEB on December 1, 2014 (Filing IDs A4F5C8 and A4F5C9). Trans Mountain acknowledged in its response to the IIRs that several of the uncertainties identified in the air dispersion modelling could not be addressed at that time but would be addressed in an update to the air quality assessment. The remaining uncertainties were outlined in Government of Canada (GoC) IR No. 2.01 (Filing ID A4H6A5, PDF pages 1-3 of 467), which reiterated its request for “the impacts on air quality be remodelled with data that includes Project emissions from the Westridge Marine and Burnaby Mountain Terminals, as well as associated Projectrelated marine emissions, incorporating Marine Emission Inventory Tool (MEIT) marine emissions (i.e., hotelling, maneuvering, and in transit) and updates to Westridge Marine Terminal emissions from engineering changes in the Vapour Recovery and Vapour Control Units”. Similar to Health Canada’s 2015 Letter of Comment (Filing ID A4S0Z6), GoC IR No. 2.01 (Filing ID A4H6A5, PDF page 1-3 of 467) suggested that the uncertainties in the air quality predictions (i.e., ground-level air concentrations of the COPC) reduced the confidence that could be assigned to the conclusions of the HHRA and requested that Trans Mountain update the HHRA if the update to the air dispersion modelling predicted further increases in the concentrations of the COPC over land. In its response to GoC IR No. 2.01, Trans Mountain committed to updating the HHRA if the updated air quality assessment based on near final engineering design of the Westridge Marine Terminal revealed increases in the air quality predictions of the COPC (GoC F-IR No. 2.01; Filing ID A4L0A5, PDF page 6-7 of 15). On January 30, 2017, as part of the Vancouver Fraser Port Authority’s permit application process, Trans Mountain filed an update to the air quality assessment that addressed the uncertainties described in GoC IR No. 2.01. Details surrounding the updated air dispersion modelling can be found as an attachment to Trans Mountain’s response to NEB Reconsideration IR No. 1.01 (Filing ID A6L9C3). Comparison of the air quality predictions that served as the basis of the 2014 HHRA with those presented in the updated air quality</p>	<p>Health Canada is not aware and yet TMX is Confident ?...</p> <p>“The overall findings of the 2017 HHRA continue to demonstrate that the likelihood of adverse health effects as a result of the routine operation of the Project, including the potential increase in marine vessel traffic associated with the Project, are low.”</p>

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	assessment revealed increases in certain COPC at the maximum point of impingement. For this reason, the HHRA was updated and filed with the NEB on September 26, 2017 (Filing IDs A5U5A7 and A5U5A8). The overall findings of the 2017 HHRA continue to demonstrate that the likelihood of adverse health effects as a result of the routine operation of the Project, including the potential increase in marine vessel traffic associated with the Project, are low.	
<p>151. 7.9.1.1 IR #151 – To TMX and HC Provide an update of whether the recommendations of “Major Human Health Impacts of the Kinder Morgan Trans Mountain Pipeline Expansion” have been considered and implemented.</p>	<p>Health Canada has redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter.</p> <p>TMX- Consideration was given to the recommendations provided within the 2015 report written by Takaro et al. (Major Human Health Impacts of the Kinder Morgan Trans Mountain Pipeline Expansion) which was filed in the OH-001-2014 proceeding (Filing IDs A4L6U5 and A4L9R1). Most of these recommendations were addressed in Trans Mountain’s reply evidence in the OH-001-2014 proceeding (Filing IDs A4S7E9 and A4S7F0). The recommendations relate specifically to the following:</p> <ul style="list-style-type: none"> ☐ The spill scenarios evaluated in the human health risk assessments (HHRAs) with respect to spill location and spill circumstance (i.e., weather conditions); ☐ The fact that age-dependent adjustment factors (ADAFs) were not incorporated into the HHRAs; ☐ The impact of the Project on climate change; and, ☐ The potential for increased exposure to 1,3-butadiene and benzene as a result of the Project. <p>The exception is the recommendation for the incorporation of ADAFs in the HHRAs. Although considered in the development of Trans Mountain’s reply evidence, it was not specifically addressed. For completeness, a discussion is provided below. Takaro et al. (2015) recommends that ADAFs be incorporated when assessing longterm risks of carcinogenic compounds that act via a mutagenic mode of action. Because the focus of the marine spill HHRA was on short-term exposures (Filing ID A3Y1E9), the incorporation of ADAFs would only be relevant to the HHRA of routine marine transportation (Filing IDs A3Y1F7 and A3Y1F8). The assessment of carcinogenic risks followed Health Canada’s 2010 “Guidance on Human Health Detailed Quantitative Risk Assessment for Chemicals”, which states that arithmetic weighting can be used to determine a weighted lifetime cancer risk estimate. This approach accounts for all life stages and was referred to as a “composite receptor” in the HHRA. Health Canada’s guidance on conducting detailed quantitative risk assessments does not describe the use of ADAFs. In its “Interim Guidance on Human Health Risk Assessment for Short-Term Exposure to Carcinogens at Contaminated Sites”, Health Canada (2013) identifies ADAFs for different life stages. These ADAFs can be used when assessing non-threshold carcinogens that act through a mutagenic mode of action. The highest ADAF of 10 relates to the infant life stage, with the ADAFs diminishing with advancing life stages (e.g., ADAFs = 5 for toddler, 3 for child, 2 for teenager and 1 for adult). The calculated incremental lifetime cancer risks for the Project were described in Section 5.2.1.2 of the HHRA (for inhalation, PDF page 70 of 150 of Filing ID A3Y1F7) and Section 5.2.2.2 (for multiple exposure pathways, PDF page 74 of 150 of Filing ID A3Y1F7). The maximum calculated cancer risks of the individual carcinogens for the marine transportation assessment were 0.018 in 100,000 and 0.0032 in 100,000 for the inhalation and multiple exposure pathways, respectively. Conservatively applying the highest possible ADAF of 10 to the calculated cancer risks across all life stages still would not result in an incremental lifetime cancer risk that exceeds the benchmark of 1 in 100,000 recommended by Health Canada (2010). This indicates that the incorporation of ADAFs</p>	<p>We think that we will personally cut the risk if it takes that long to rationalize and get away from the first whiff of a dilbit spill. We advocate for a public outreach program funded by TMX.</p>

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	<p>in the assessment of long-term risks to carcinogenic compounds would not change the conclusion of the marine transportation HHRA, which is that the incremental cancer risks from the Project-related increase in marine vessel traffic are deemed to be essentially negligible.</p> <p>References: Health Canada. 2010. Part V: Guidance on Human Health Detailed Quantitative Risk Assessment for Chemicals (DQRACHEM), Version 2.0. September 2010. Contaminated Sites Division, Safe Environments Directorate, Health Canada. Ottawa, ON. ISBN: 9781-100-17926-1. Health Canada. 2013. Interim Guidance on Human Health Risk Assessment for Short-Term Exposure to Carcinogens at Contaminated Sites. Contaminated Sites Division, Safe Environments Directorate, Health Canada. Ottawa, ON. ISBN: 978-1-100-21839-7. Takaro, T., Brubacher, A., Lubik, A., Nicol, A., Amrit, L., Khakh A. 2015. Major Human Health Impacts of the Kinder Morgan Trans Mountain Pipeline Expansion. A report for BROKE and NOPE. Edited by Anya Keefe. Submitted May 2015. 71 pp.</p>	
<p>152. 7.9.1.2 IR #152 – To TMX and HC Provide an update on what information will be provided to the public in the area affected by a dilbit spill whether it occurs on the land portion or at the Westridge terminal area or in areas along the populated portion of the route of tanker traffic.</p>	<p>Health Canada has redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter.</p> <p>TMX- In the unlikely event of a spill, including incidents occurring at the Westridge Marine Terminal (WMT), a coordinated response will be initiated, and a Unified Command established. The Unified Command will include representation from the Responsible Party (e.g., the vessel operator for ship-source spills), the directly impacted Indigenous community, as well as relevant federal, provincial and local government authorities. Applicable response plans which may be activated in the event of a spill, including Trans Mountain’s WMT Emergency Response Plan, WCMRC’s Oil Spill Response Plan, and/or the Greater Vancouver Integrated Response Plan (GVIRP), employ a consistent approach with regards to information and communication management. A Joint Information Centre (JIC) including a Public Information Officer (PIO) is established to support Unified Command to effectively manage rapid communication resources and public messaging. The JIC is responsible for developing and releasing the most current and accurate facts to the media and public. Additionally, a Liaison Office (LO) may be established. As the point of contact for assisting and cooperating with agency representative(s), elected officials, Indigenous groups, and other stakeholders involved with the incident response, the LO facilitates close working relationships and contributes to the response and recovery effort by sharing information, and gathering questions and concerns from involved parties or groups.</p>	<p>What about “or in areas along the populated portion of the route of tanker traffic.” ?</p> <p>Better response times for Vancouver, not for the rest of us however.</p>
<p>153. 7.10.1.1 IR #153 – To HC What are the health risks of dilbit?</p>	<p>Health Canada has not completed a human health risk assessment under CEPA of bitumen or diluted bitumen. However, the department and Environment and Climate Change Canada have published an assessment of Natural Gas Condensates (NGCs), often used as a diluent in diluted bitumen at a concentration of up to 50%, under CEPA within the context of the Government of Canada’s Chemical Management Plan. The assessment report was published on Dec. 31, 2016. The assessment concluded that inhalation of NGC evaporative emissions in the vicinity of NGC storage tanks, as well as certain rail and truck NGC loading and unloading facilities may be harmful to human health as defined under CEPA. Exposure resulting from loading of NGCs onto ships at ports was evaluated and determined to not pose</p>	<p>Health Canada, you are passing on your responsibility to others here. This matter is very much your responsibility</p>

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	<p>an unacceptable risk to human health. The health effects examined included, among other things, neurological effects seen in laboratory animals after exposure to NGC vapours, as well as cancer following long term exposure to benzene vapours (a component of NGCs).</p>	
<p>154. 7.10.1.2 IR #154 – To HC. Are the health risks posted on your website, if so please provide a link.</p>	<p>As Health Canada has not completed a human health risk assessment under CEPA of bitumen or diluted bitumen, no information specific to potential health risks due to these substances has been published on its website. However, information concerning the human health risk assessment of natural gas condensates (often a significant component of diluted bitumen) that was conducted under CEPA is available at: https://www.canada.ca/en/health-canada/services/chemical-substances/petroleumsector-stream-approach/stream-4/natural-gas-condensates.html</p>	<p>Health Canada, you are passing on your responsibility to others here. This matter is very much your responsibility</p>
<p>155. 7.10.1.3 IR # 155 – To HC What information have you sought from TMX on the toxicity of Dilbit and the plans to inform the public who would be involved in the event of an oil spill involving dilbit.</p>	<p>Health Canada has not sought information from the Proponent concerning the potential toxicity of diluted bitumen or plans to inform the public who would be involved in the event of an oil spill involving diluted bitumen.</p>	<p>Health Canada, you are passing on your responsibility to others here. This matter is very much your responsibility</p>
<p>156. 7.12.1.1 IR #156 – To TC Could Transport Canada provide the ERAP for the existing transport of Dilbit on the BC Coast and indicate what modifications to that ERAP are planned for the increased transport of Dilbit from the TMX project:</p>	<p>The Transportation of Dangerous Goods Act and its regulations (including ERAP requirements) do not apply to commodities transported by pipeline governed by the National Energy Board Act. Likewise, the Transportation of Dangerous Goods Act excludes dangerous goods confined only by the permanent structure of a vessel, which are regulated by the Canada Shipping Act, 2001. In the case of the TMX project, an ERAP would be required for flammable liquids (such as Dilbit) if the mode of transport is by rail in a tank car exceeding 10 000L. There are no modifications planned to any ERAPs of Dilbit from the TMX project. <u>Transport Canada does not disclose the contents of an ERAP as it contains third-party information.</u></p>	<p>Well that just makes us feel real confident in the system. “There are no modifications planned to any ERAPs of Dilbit from the TMX project. <u>Transport Canada does not disclose the contents of an ERAP as it contains third-party information. “ The corporate secrets over shadow public health. Seems TC has lost its way.</u></p>
<p>157. 7.12.1.2 IR #157 – To HC and CCCE Given that “no single reference with comprehensive chemical composition data for dilbit and synbits is readily available,” please provide specific site safety plans that will address this problem given the importance of worker safety.</p>	<p>Environment and Climate Change Canada: Compositional data relevant to spill response and planning for several diluted bitumen and related products, entitled “Physiochemical properties of petroleum products” is available on the Government of Canada Open Data portal under the Spills Technology Databases: https://open.canada.ca/data/en/dataset/53c38f91-35c8-49a6-a437b311703db8c5 The Government of Canada plans to add more data on oil sands products to the Open Data Portal as research is completed over the coming years. Specific site safety plans are developed on-site for the specific site. The following are typical guidelines ECCC would use to address site safety: A Safety Management System established whereby safety and health are systematically delivered and communicated throughout the Incident Management’s organization from command to field. A Dedicated Safety Officer builds safety plans and ensures health and safety of all responders. Safety is considered a priority in all overall incident objectives, and safety discussed at all meetings. A Hazard and Risk Assessment is undertaken that is particular to the incident and the working environment that includes, but not limited to: sea conditions, transportation, chemical exposures, and operations. Safety Communication and Monitoring are undertaken to deliver, record, assess, and alter responder safety throughout the course of an incident. Training and</p>	<p>We wonder just what Health Canada is responsible for if “Health Canada does not foresee a role for the department in providing site specific safety plans because they are not part of Health Canada activities within the context of occupational health.”</p>

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	<p>Certification are required whereby responders are trained and certified prior to deployment for the duties and working environments they are tasked with. Personal Protective Equipment is provided to responders suitable for their operations, hazards, and working conditions, and responders are oriented and trained in their use. Hygiene and Decontamination are addressed whereby personal hygiene facilities and decontamination measures are readily available, and their standard of use is communicated.</p> <p>Health Canada Health Canada does not foresee a role for the department in providing site specific safety plans because they are not part of Health Canada activities within the context of occupational health.</p>	
<p>158. 7.12.1.3 IR #158 – To HC and CCCE Will the comprehensive composition data for dilbit and synbits be made public and available to the responding organizations?</p>	<p>Natural Resources Canada: Yes. Beyond ongoing publication of compositional information within scientific papers, the Canadian Association of Petroleum Producers has regular sampling of pipeline streams collected, analyzed, and posted on the "Crude Monitor" website.</p> <p>Environment and Climate Change Canada: Compositional data relevant to spill response and planning for several diluted bitumen and related products, entitled "Physiochemical properties of petroleum products" is available on the Government of Canada Open Data portal under the Spills Technology Databases. They can be found at the following location: https://open.canada.ca/data/en/dataset/53c38f91-35c8-49a6-a437-b311703db8c5 More oil sands products data is planned to be added as research is completed over the next few years.</p> <p>Health Canada: Health Canada has not evaluated the chemical composition of bitumen, diluted bitumen, or synthetic diluted bitumen.</p>	
<p>159. 7.12.1.4 IR #159 – To HC and CCCE Prior to the possible occurrence of a spill of dilbit on a coastline, what information will be provided to the public living nearby on what precautions will be necessary in the event of a spill.</p>	<p>Health Canada has redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter.</p> <p>Not in the proponents TMX- WCMRC responses.</p>	<p>NOT ANSWERED? GO TO TMX Health Canada, you are passing your responsibility to a private company with a vested interest in non-disclosure. This matter is very much your responsibility.</p>
<p>160. 7.12.1.5 IR #160 – To HC and CCCE For members of the public living near shorelines that may be impacted, please provide the procedure for informing and evacuating if necessary once a spill occurs.</p>	<p>Health Canada has redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter.</p> <p>Not in the proponents TMX- WCMRC responses.</p>	<p>NOT ANSWERED? GO TO TMX Health Canada and Environment Canada you are passing your responsibility to a private company with a vested interest in non-disclosure. This matter is very much your responsibility</p>
<p>161. 7.12.1.6 IR #161 – To HC and CCCE Where agricultural communities are involved, such as in the coastline of the District of Metchosin, Vancouver Island on the Strait of Juan de Fuca please outline the procedures for protection of livestock from harmful exposure to these chemicals</p>	<p>Health Canada has redirected this information request to the Proponent for response, as the Proponent is best placed to provide information on this subject matter</p> <p>Not in the proponents TMX- WCMRC responses.</p>	<p>NOT ANSWERED? GO TO TMX Health Canada and Environment Canada you are passing your responsibility to a private company with a vested interest in non-disclosure. This matter is very much your responsibility</p>

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<p>162. IR- 162 Will you present the statistical analysis using a number of resources including Environment Canada for wind speeds throughout the Strait of Juan de Fuca, especially in the areas of inter-crossing traffic lanes to the East of Race Rocks. Perhaps they could request Tetra Tech Canada to do a statistical analysis using data available from Environment Canada recorded at Race Rocks.</p>	<p>162) Trans Mountain presented a metocean report (Filing ID A3S4U6), as part of its original Application: “Meteorological and Oceanographic Data Relevant to the Proposed Westridge Terminal Shipping Expansion”, November 2013. Wind tables and wind roses were produced for all buoys and coastal meteorological stations along the shipping route, including Race Rocks. These wind roses were based on publicly available data from Environment Canada and the NOAA, and were based on several years or decades of wind data. The wind speed information provided by the Board of Friends of Ecological Reserves is generally consistent with the information used in the metocean report. As a result, Trans Mountain considers this issue to be fully addressed in the OH-001-2014 proceeding, and it will not provide the additional analysis requested.</p> <p>IR</p>	<p>It may be fully addressed but then why was the wind data from the entrance of the Strait of Juan de Fuca from Tetra Tech considered to be representative for the whole of the strait? Trans Mountain cannot get off the hook by saying this has been fully addressed since conclusions based on inappropriate data would lead us to believe that ROs can handle an oil spill most of the time in the Strait of Juan de Fuca.. whereas in fact they cannot, and they know they cannot, but the public is expected to believe that they can clean up anything.</p>
<p>163. IR- 163 Will TMX present a revised estimation of the number of days when equipment can realistically be deployed in the Strait of Juan de Fuca for oil spill clean-up.</p>	<p>TMX- Please see Trans Mountain’s response to FER Reconsideration IR No. 16</p>	<p>See above comment</p>
<p>164. IR- 164 Will you explain to the NEB, intervenors and the public the reality of the risk and the probability of being able to adequately protect the marine and coastal environment including the critical habitat of sensitive species including the SRKW, others on the SARA registry, and commercially and non-commercial important species in the Georgia Strait and the Strait of Juan de Fuca .</p>	<p>TMX-Response: 164) Risks of Project-related marine shipping were addressed in the OH-001-2014 proceeding. The Board’s Report acknowledged that achieving zero risk is impossible for most developments and found that in regard to spills from the Project-related marine shipping, there is a very low probability of a marine spill from a Project-related tanker that may result in a significant effect (high consequence) (Filing ID A77045-1, PDF p.11).</p>	<p>A very inadequate answer here.</p>

NEB request to TC on a suggestion from FER about moving the shipping lanes away from Trial Islands and Oak Bay Islands Ecological Reserves. File name Dec-30-A96991-2 Response to Information Request No.3 from the National Energy Board - A6Q5R3.

Question # NEB 3.01	Question # NEB 3.01 Lateral displacement of shipping lane
Reference: A96349-2,	Reference: A96349-2, Board of Friends of Ecological Reserves, Opening statement and direct evidence, PDF pages 5 and 6 of 12
Preamble	The reference states that current shipping transits within 1 to 2 km of three Ecological Reserves in the Victoria to Race Rocks area, and suggests that a lateral displacement of the shipping lanes in this area towards the demarcation line between the Canadian and American boundary. The reference notes that lateral displacements away from shores can also mitigate damage to environmentally sensitive ecosystems such as Ecological Reserves, including in terms of noise reduction and allowing for greater response time if a vessel should need assistance.
Request:	Discuss the feasibility (safety, technical, and economic) of lateral displacement within the shipping lanes in the Victoria to Race Rocks area, or movement of those shipping lanes, as proposed in the reference, its potential effectiveness as a mitigation measure, and whether it warrants further study
Response:	Transport Canada has not evaluated the feasibility of lateral displacement of vessel traffic within the shipping lanes in this area, or movement of those shipping lanes and, as such, Transport Canada is not in a position to speak to potential effectiveness of this proposal as a mitigation measure. Transport Canada will be conducting a feasibility study on potential amendments to the Traffic Separation Scheme in this area of the Salish Sea, to explore what may be possible to reduce the impacts of underwater noise on SRKW. Preliminary scoping work on what this study should consider began in December 2018.
Responding FA	Transport Canada