Hearing Order OH-001-2014
File No. OF-Fac-Oil-T260-2013-03 02

IN THE MATTER OF
TRANS MOUNTAIN PIPELINE ULC
TRANS MOUNTAIN EXPANSION PROJECT

NOTICE OF MOTION

Name of person bringing motion:	LIVING OCEANS SOCIETY RAINCOAST CONSERVATION FOUNDATION
Decision or order requested:	1. An order that Trans Mountain Pipeline ULC provide full and adequate responses to those portions of Living Oceans Society's and Raincoast Conservation Foundation's Information Requests No. 1 identified herein by a fixed date. 2. An order that Trans Mountain's application be stayed until Trans Mountain has provided full and adequate responses to the Information Requests pursuant to s. 20(1) of the *National Energy Board Rules of Practice and Procedure*, 1995, SOR/95-208 (the "*NEB Rules*"), and that the Board apply s. 52(5) of the *National Energy Board Act*, RSC 1985, c N-7 ("*NEB Act*") to exclude the time taken for Trans Mountain to provide responses from the calculation of the 15 month time limit. 3. An order that the Hearing Order be amended to set new and reasonable deadlines for Round 2 Information Requests, written intervenor evidence, and argument once Trans Mountain provides full and adequate responses. 4. Such other relief as the Board may consider appropriate.

July 4, 2014

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Date submitted

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Signature

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Statement of Facts

1. On May 12, 2014, the intervenors Living Oceans Society ("Living Oceans") and Raincoast Conservation Foundation ("Raincoast") each submitted an Information Request No. 1 (Filing IDs A3W7J6 and A3W7J7, respectively) to Trans Mountain Pipeline ULC ("Trans Mountain").

2. On June 18, 2014, Trans Mountain filed a Response to Living Oceans Information Request No. 1 (Filing ID A3Y2T4) and a Response to Raincoast Information Request No. 1 (Filing ID A3Y3C0) (the "Responses"). In the Responses, Trans Mountain failed provide full and adequate responses to many of Living Oceans's and Raincoast's Information Requests No. 1. Particulars are provided in **Appendix A: Comments on Inadequacy of IR Responses to Living Oceans Society** and **Appendix B: Comments on Inadequacy of IR Responses to Raincoast Conservation Foundation** ("**Appendices A and B**").

3. Living Oceans and Raincoast had only 16 days to conduct a detailed review of Trans Mountain's Responses before filing this Notice of Motion.

4. Living Oceans and Raincoast submitted a letter to the Board on June 24, 2014 (Filing ID A3Y5D2), in which they described difficulties in accessing the answers to Information Requests, because the Responses did not contain Filing ID reference numbers and also contained unclear and non-specific references to documents or portions of documents which were onerous and difficult to locate. Living Oceans and Raincoast requested that the Board require Trans Mountain to supplement the Responses with Filing ID numbers.

5. Several intervenors supported this letter (see Filing IDs A3Y5U3, A3Y6I8, A3Y5X7, A3Y6I2). The Board issued a letter seeking comments (Filing ID A3Y5L3), following which Trans Mountain provided a response (Filing ID A3Y6F2), and Living Oceans and Raincoast replied (Filing ID A3Y7E1). As of July 4, 2014, no decision has been issued by the Board, and the additional clarification has not been provided.

6. Despite this difficulty, Living Oceans and Raincoast have made their best efforts to review the Responses as thoroughly as possible considering the short time line and the lack of specificity in Trans Mountain's Responses.

Grounds for the Requests

7. This motion is made pursuant to Hearing Order OH-001-2014 (Filing ID A3V6I2) (the "Hearing Order") and s. 35 of the *NEB Rules*.

8. In bringing this motion, Living Oceans and Raincoast rely on:

    - sections 15, 16, 18, 20(1) and (2) and 32-35 of the *NEB Rules*;
    - sections 12, 13, 20 and 52 of the *NEB Act*;
    - section 19(1)(a) of the *Canadian Environmental Assessment Act, 2012*, SC 2012, c 19, s 52 ("*CEAA 2012*"); and
    - the Hearing Order, Appendix I – List of Issues.

9. Pursuant to s. 19(1)(a) of *CEAA 2012*, the Panel must take into account the environmental effects of the Trans Mountain Expansion Project (the "Project"), including the environmental effects of any malfunctions or accidents that may occur in connection with the Project, and any cumulative environmental effects that are likely to result.

10. The List of Issues set out in the Hearing Order includes the Project's potential environmental effects, including cumulative environmental effects (Issue 4); the potential environmental effects of marine shipping activities that would result from the Project, including the effects of any malfunctions or accidents that may occur (Issue 5); the terms and conditions to be included in any approval the Board may issue (Issue 8); contingency planning for spills, accidents, or malfunctions during the operation of the Project (Issue 11); and safety during construction and operation of the Project (Issue 12).

11. The *NEB Rules* clearly establish that full and adequate responses to information requests are required. Subsection 34(1)(a) of the *NEB Rules* states that a party served with an information request is required to provide a full and adequate response in writing.

12. In the 16 days allotted, Living Oceans and Raincoast have identified, to the best of their ability, 77 inadequate answers in Trans Mountain's Responses to the 253 questions posed in their information requests – approximately 30 per cent. In **Appendices A and B** respectively, Living Oceans and Raincoast have identified the answers in the Trans Mountain Responses that are unresponsive or refused.

13. Living Oceans and Raincoast identified responses as unresponsive (where the response was insufficient) or refused (where no answer was provided). In all instances identified in **Appendices A and B**, Living Oceans and Raincoast seek full and responses, which they submit are relevant, reasonable, material, and required to provide the Board with a sufficient level of information for the Board to understand the issues in question.[1]

[1] Enbridge Northern Gateway Project Joint Review Panel, Letter concerning Notices of Motion from the Haisla Nation, Coastal First Nations, Gitxaala Nation, Sustainability Coalition, and BC Nature and Nature Canada – Requests for Full and Adequate IR Responses from Northern Gateway – Ruling No. 16 (27 January 2012) (Filing ID A2L5S7), online at https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/384192/620327/624909/785686/A101-1_-_Ruling_no._16_-

14. The responses sought in **Appendices A and B** concern, *inter alia*, the potential geographical extent of marine oil spills, cumulative effects of small marine oil spills, marine and terrestrial spill cleanup preparedness, potential spill impacts on human health and on marine species, and acoustic impacts of shipping on marine species. These issues are relevant and material to the issues the Board must consider, as set out in s. 19 of *CEAA 2012* and the Hearing Order's List of Issues (as described in paragraphs 8 and 9 above).

15. Full and adequate responses to the Information Requests are particularly important, because the Hearing Order does not include an opportunity for intervenors to test evidence by questioning Trans Mountain orally on its evidence. Intervenors will merely be able to submit Information Requests to Trans Mountain, in two rounds; there will be no cross-examination on Trans Mountain's evidence.

16. The Board has stated that in its view the Hearing process, which permits intervenors to file two rounds of information requests to Trans Mountain, to bring motions concerning the responses to those requests, to pose questions to other intervenors, and to submit and present argument, "meets the natural justice requirements for notice, an opportunity to know the case to be met, and to be heard."[2]

17. The duty of fairness which is owed by a body such as the Board to intervenors is, in essence, a duty to provide "a meaningful opportunity for individuals to present their case fully and fairly", or, to provide for "meaningful participation".[3] Living Oceans and Raincoast require the information identified in **Appendices A and B** in order to understand the Application, and its potential impacts, and to present their case fully.

18. Living Oceans and Raincoast also need responses in a timely manner in order to instruct and advise their experts and file written evidence by November 3, 2014. They will be unable to prepare expert reports to address issues of concern if full and adequate responses are not provided in a timely manner.

19. Living Oceans and Raincoast submit that, without full and adequate responses to their Information Requests, the hearing process cannot be meaningful and cannot meet the requirements of procedural fairness and natural justice.

_Motions_Haisla_Nation%2C_Coastal_First_Natikons%2C_Gitxaala_Nation%2C_Sustainability_Coalition_and_BC_Nature_and_Nature_Canada_-_A2L5S7.pdf?nodeid=785687&vernum=-2, at 4.

[2] National Energy Board, Ruling No. 9, April 24, 2014 (Filing ID A3W0L0).

[3] *Baker v. Canada (Minister of Citizenship and Immigration)*, [1999] 2 SCR 817 at pars. 30, 33, **Appendix C**.

20. Pursuant to s. 20(1) of the *NEB Rules*, where an applicant does not respond to a request for information, the Board may stay the application until the information is provided. Further, s. 52(5) of *NEB Act* permits the Board, with the Chairperson's approval, to extend a timeline to require that the applicant "provide information or undertake a study with respect to the pipeline."

21. Without a stay or extension, the current Round 2 intervenor Information Request deadline (September 11, 2014) and the deadline for intervenors to file written evidence (November 3, 2014) will become unreasonable. A party must not only know the case to be met, but know it in adequate time. The B.C. Court of Appeal has held, in a case about a disclosure of reports for a public hearing concerning a proposed rezoning bylaw, that where a decision will be of a "far-reaching nature", knowing the case to be met in adequate time is a question of "whether the timing … [is] adequate to permit members of the public to prepare an intelligent or reasoned response."[4]

22. Living Oceans and Raincoast submit that they are prejudiced by the inadequate responses and the unreasonable time lines which are impeding their ability to understand and know the case to be met.

23. Living Oceans and Raincoast therefore submit that a stay pursuant to s. 20(1) of the *NEB Rules* and an extension of the statutory timeline pursuant to s. 52(5) of the *NEB Act* are appropriate in the circumstances.

Decision Sought

24. Living Oceans and Raincoast request that the Board order:

    1. that Trans Mountain provide full and adequate responses to those portions of their Information Requests identified in **Appendices A and B** by a fixed date;

    2. that Trans Mountain's application be stayed until Trans Mountain has provided full and adequate responses to the Information Requests pursuant to s. 20(1) of the *NEB Rules*, and that the Board apply s. 52(5) of the *NEB Act* to exclude the time taken for Trans Mountain to provide responses from the calculation of the 15 month time limit;

[4] *Pitt Polder Preservation Society v Pitt Meadows (District)* (2000), 189 DLR (4th) 219 (BCCA) at para. 67, **Appendix D**; David Phillip Jones, Q.C. and Anne S. de Villars, Q.C., *Principles of Administrative Law*, 5th ed. (Toronto: Thomson Reuters Canada Limited, 2009) at 266, **Appendix E**.

3. the Hearing Order be amended to set new and reasonable deadlines for Round 2 Information Requests, written intervenor evidence, and argument, once Trans Mountain provides full and adequate responses; and

4. such other relief as the Board may consider appropriate.

Appendix A to the Notice of Motion of Living Oceans Society and Raincoast Conservation Foundation
July 4, 2014

Hearing Order OH-001-2014
Trans Mountain Pipeline ULC (Trans Mountain)
Application for the Trans Mountain Expansion Project
Procedural Direction No. 3 – Process for hearing motions to compel full and adequate responses to information requests (IRs)

Comments on Inadequacy of Trans Mountain's Round 1 IR Responses to Living Oceans Society

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
1.01	Please provide reports on all of the training, table top and deployment exercises conducted over the last two years, dealing with marine spills. Please include any briefing notes, participants' submissions, geographic area response plans, final reports and recommendations.	Please refer to the responses to NEB IR 1.69a and 1.69b. *The responses consist of 14 pages of charts outlining the objectives, scenarios and participants in various table top exercises. Pages 392-3 contain charts with "Learnings" summarized for most exercises.*	This answer is unresponsive in part. No geographic area response plans or final reports on the exercises were included among the materials referenced in the response. This information is relevant to assessing the potential effects of marine shipping, and specifically malfunctions or accidents that may occur.
1.02	Reference (i) states that Trans Mountain plans to conduct a comprehensive review of response equipment and locations that will examine the existing equipment available internally as well as the potential locations for supplemental equipment available through mutual aid partners including WCSS and CEPA	a) Please see A3S5I9, Application Volume 8C, TERMPOL Reports, TR 8C-12 S12 – Review of Trans Mountain Expansion Project Future Oil Spill Response Approach Plan Recommendations on Bases and Equipment for a comprehensive discussion of all queries posted in this Information Request. Further Discussion of this report is also included in Section 5 of Volume 8A. Please also refer to the response to NEB IR No. 1.64a.	This answer is unresponsive to the question asked. Living Oceans cannot locate responses to the questions posed within the TERMPOL report referenced or Section 5 of Volume 8A, and the response to NEB IR No. 1.64a is not responsive to the questions posed. This information is relevant to assessing the potential effects of marine shipping, and specifically malfunctions or accidents that may

[1] In this column, insert the relevant text of the IR that was asked. If the entire question is relevant to your submission, insert the full text. The references and preambles can be omitted (removed), unless they are essential to your submission.

[2] In this column, insert the relevant text of Trans Mountain's response to the IR. If the entire response is relevant to your submission, insert the full text.

[3] In this column, explain why you consider the IR response to be inadequate.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
	partners. Request: a) Please advise whether this review will include consideration of: i) existing response equipment and locations along the tanker route; ii) personnel resources available along the tanker route; iii) a catalogue of future needs along the tanker route.		occur.
1.03	a) Please provide a list of the spill response tactics in which Trans Mountain's staff are trained.	a) Please refer to the response to Surrey Teachers IR No. 1.4a. Response to Surrey Teachers IR No. 1.4a: The emergency response plans (ERP) for the Trans Mountain Pipeline system (TMPL) contain procedures and response tactics for protecting habitat and wildlife in the situations described above. KMC's operations personnel are trained, and regularly practice these response tactics for protecting various environments in the event of a spill. If the product is already in ditches, streams, creeks or rivers response tactics include a number of booming techniques including but not limited to exclusion booming, deflection booming, along-shore (shore seal) booming, damming. Once the product is contained it is recovered using a number of tactics that vary based on the amount of product and the environment in which they are in. These tactics include but are not limited to sorbents, vacuum, and washing.	This answer is unresponsive to the question asked. In this question Living Oceans sought to understand what human resources Trans Mountain brings to oil spill response. In the response, no details are provided as to any specific training that Trans Mountain staff have received in spill response tactics. Rather, it refers generally to training, then gives a generic description of spill response tactics that may be undertaken by any variety of contractors. Furthermore, the Surrey Teachers' question was confined to "plans to protect the habitat and wildlife including salmon in local creeks and rivers in Surrey". This information is relevant to the assessment of effects of marine shipping, specifically accidents or malfunctions, and to contingency planning for spills, accidents or malfunctions.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		If there are anticipated wildlife impacts, either to habitat or the fauna a Wildlife Recovery plan is prepared specifically for the local habitat, and species impacted. The recovery plan is approved by the National Energy Board and/or Ministry of Environment and the site is monitored and fully restored.	
1.03	b) Please provide a list of the spill response equipment owned by Trans Mountain, specifying the makes and models of the equipment.	b) Please refer to the Application Volume 7, Section 4, Table 4.5.1 and the response to Province BC IR No. 1.1.10a. *Pages 30-31 of the Province of BC IR response contain a chart listing equipment by generic type.*	This answer is unresponsive to the question asked. Table 4.5.1 does not specify makes and models of containment booms, transfer pumps and skimmers. Without this information, it is impossible to assess whether or not equipment that would be useful in responding to a spill of diluted bitumen is on hand in any given location. This is relevant to the potential effects of accidents or malfunctions in marine shipping and to contingency planning for spills, accidents and malfunctions during construction and operation of the project.
1.04	c) Please describe what steps Trans Mountain has taken to assess the potential impacts to human and wildlife health from in situ burning of spilled dilbit. Please provide copies of any expert reports, including the data used to assess dispersion of products of combustion in air and water.	Please refer to the response to City Surrey IR No. 1.4k. City of Surrey IR No. 1.4k: The information provided in the Application, Volume 7, Appendix F, relates to special tactics for spill response that could be used by Trans Mountain (to respond to pipeline releases) or by the Western Canada Marine Corporation (WCMRC) (to respond to tanker incidents). In the event of a spill response strategies would be developed under an Incident Command Structure and approved by Unified Command.	This answer is unresponsive to the question asked. The fact that decisions to use in-situ burning would need approval from the appropriate regulatory authorities does not address the question of what steps Trans Mountain has taken to assess the potential impacts of in-situ burning. This information is relevant to the assessment of effects of accidents that may occur during marine shipping, contingency planning for spills, and human safety during operation of the project.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		This structure is expected to include Environment Canada and the BC Ministry of Environment who would provide advice on environmental priorities. Any decision to use in-situ burning would be based on net environmental benefit analysis and would need approval of the appropriate regulatory authorities. While existing planning standards approved by regulation focus on mechanical recovery, other response measures, including the use of dispersants and in-situ burning, exist and have proven effective in minimizing environmental harm in the event of a spill. However, the effectiveness of these measures can diminish as weathering of the oil progresses. While these methods are not appropriate in all cases, having conditional pre-approval for their use would avoid delays that diminish their effectiveness in situations when they offer a desirable means of diminishing environmental harm. Response organizations should be empowered with conditional preapprovals for in-situ burning, the use of dispersants and beach-cleaning agents. These response tactics, including in-situ burning, which is referenced in the preamble to this IR, are not currently used by Trans Mountain or by WCMRC as they are not approved for use. Should these tactics be approved for use, the relevant regulatory authority would likely set parameters for their use, including such things as use in proximity to residential areas.	

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
1.05	a) Please specify the make/model of skimmers and containment booms contained in the OSCAR response units.	a) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.	Refused. Without this information, it is impossible to assess whether or not equipment that would be useful in responding to a spill of diluted bitumen is on hand in any given location. Living Oceans submits that this information is highly relevant to multiple issues identified in the List of Issues, including the effects of accidents that may occur during marine shipping, accidents and malfunctions during construction and operation of the project, and contingency planning for spills,
1.08	b) What are the impacts of dispersed oil in the water column on marine biota?	b) Please refer to the response to Squamish Nation IR No. 1.1.8b. Squamish Nation IR No. 1.1.8b: ...The effects of dispersed oil on biota is well addressed in The National Academy of Sciences report on "Using Oil Spill Dispersants on the Sea." Dispersants would not be applied in areas where there is insufficient water depth to allow for dilution to concentrations that do not pose a risk to human health.	Unresponsive. Trans Mountain cites the entire 351 page National Academy of Sciences report. Given the importance of this information, which is highly relevant to the effects of marine shipping accidents and malfunctions, it should be provided in an accessible form. Trans Mountain should summarize the impacts that may occur.
1.09	a) Please provide specific information on the potential human health effects that may result from the creation of a smoke plume.	a) As described in Section 5.5.1.4 of Volume 8A, in situ burning is not one of the methods pre-approved by Transport Canada for oil spill response. It would only be considered on a case-by-case basis through consultation with Federal and local authorities and experts. Although in-situ burning (ISB) is considered in general to be a proven alternative response tactic, it can only be carried out after a special application to the	Unresponsive. Trans Mountain puts forward in-situ burning an effective spill mitigation tactic to be considered in response to its oil spills on water. The fact that in-situ burning would only be considered on a case-by-case basis, requires approval, or is unlikely near or at shore does not address the question of potential human health effects. An assessment of

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		Canadian Coast Guard through the Unified Command. Further, it is unlikely that mobile oil near or at shore would be removed via burning due to the difficulties to maintain ignition, smoke issues, and having to deal with the residues. Therefore nearshore response with booms, skimmers, pumps, and sorbents is viewed as a more practical, fast, and effective strategy.	the impacts of such a response on human health is needed in order that the intervenors and their experts may assess the risks posed and mitigation measures required by this response tactic. This is relevant to the effects of marine shipping accidents and malfunctions; contingency planning for spills, accidents or malfunctions; and safety during operation of the project.
1.10	d) Please advise what geographic locations along the pipeline and tanker route are considered amenable to the use of chemical dispersants. What method(s) of application would be recommended?	d) Please refer to the response to Farmer D IR No. 1.2a.2. Farmer D IR No. 1.2a.2: Dispersants are not approved for use in Canada. In the event of a spill response, strategies for their use could be proposed within the ICS structure and approved by the Unified Command. This structure is expected to include Environment Canada and the BC Ministry of Environment who would provide advice on environmental considerations. Any decision to use dispersants would be based on a net environmental benefit analysis and would need approval of the appropriate regulatory authorities.	Unresponsive. The referenced document does not contain any answer responsive to the question. This is relevant to the effects of marine shipping accidents and malfunctions and contingency planning for spills, accidents or malfunctions.
1.17	a) Has Trans Mountain conducted any wind modeling to explain the fate and behavior of vapours released into the atmosphere during weathering of any of the products likely to be carried on the pipeline? If so, please provide the data used, information regarding the model employed	a) An assessment of air quality effects from an urban pipeline spill has been conducted (RWDI 2014) and provided as an appendix to the Human Health Risk Assessment of Pipeline Spill Scenarios Technical Report by Intrinsik Environmental Sciences Inc. which was filed with the NEB as an attachment to the response to Surrey Teachers IR No. 1.5a (Surrey Teachers IR No. 1.5a – Attachment 1).	The response is unresponsive to the second question, which asked for the data used. This is relevant to the Board's assessment of the environmental and socioeconomic effects of the project.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
	and the results of the modeling. If not, please explain why the modeling has not been undertaken.		
1.18	a) Please provide a copy of a detailed air monitoring plan [that is applied in the event of a spill].	a) Air monitoring equipment is dispatched to the area of an incident immediately. Air monitoring begins in a downwind direction with priority being the closest un-evacuated area where people could be present. The data from the air monitoring equipment is given to the individuals responsible for air quality and human health impacts including the Safety Officer, Local Authority and Unified Command. The data is used to identify if individuals could be at risk for adverse health impacts, and make decisions regarding evacuation and/or shelter in place. Crude oil has a very strong odour, and can be detected by nose at lower concentrations than those which might cause negative health effects, however the effects to any single individual may occur at different rates of exposure. At the Burnaby Terminal real-time continuous ambient fence line monitors measure H2S, VOC, SO2 and weather parameters such as wind speed, wind direction, temperature and humidity. All data, real time and historic, can be viewed and downloaded from a secured website. The monitoring system has an integrated alarm system to send out email notifications to designated individuals should any applicable provincial regulatory ambient air quality objectives be reached. The thresholds for the email notifications are set to levels	Refused in part. No plan has been provided. This is relevant to the Board's assessment of the environmental and socioeconomic effects of the project, and contingency planning.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		below ambient air quality objectives to ensure a timely response is initiated prior to and potential exceedances. At the Sumas Tank Farm real-time continuous ambient fence line monitors measure H2S, VOC, SO2 and weather parameters such as wind speed, wind direction, temperature and humidity. All data, real time and historic, can be viewed and downloaded from a secured website. The monitoring system has an integrated alarm system to send out email notifications to designated individuals should any applicable provincial regulatory ambient air quality objectives be reached. The thresholds for the email notifications are set to levels below ambient air quality objectives to ensure a timely response is initiated prior to any potential exceedences.	
1.20	Reference (i) states: "Both Sumas and Burnaby terminals currently have continuous ambient stations that report H2S, SO2 and VOC measurements in addition to wind speed and wind direction." Request: a) Please provide finer scale mapping (than that provided in Reference (ii) -Figure 3.7– Map of Ambient Air Quality Monitoring Stations along the Proposed Pipeline Corridor) of the locations of the continuous ambient monitoring stations and the data	"...the continuous ambient monitoring stations at the Sumas and Burnaby Terminals...were installed ...in 2012 and 2013, respectively; therefore, 5 years of data does not exist. The units are still going through a calibration process on some of the sensors. For this reason, Kinder Morgan Inc. is not able to commit at this point to providing data from the monitoring units."	Refused. Living Oceans' experts are able to evaluate data and make adjustments for calibration errors; and in any event, the wind speed and direction data will be extremely useful in modeling local impacts. These are the best (i.e. most local) data that exist and, if modeling for the project has used this data, we cannot assess the modeling without seeing the data. Furthermore, Living Oceans notes that it seems unusual for the calibration process to be taking so long, as opposed to a normal calibration time, which might take days or perhaps weeks. If Trans Mountain cannot provide the data for this reason,

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
	referred to above that has been recorded by those stations for the past 5 years.		and cannot therefore adequately answer the question, Living Oceans seeks an explanation as to why it is taking so long. In order to assess human health impacts of the project, relevant to the assessment of the potential socio-economic effects of the project, it will be important to be able to compare the estimated emissions with actual emissions measured by continuous ambient monitoring.
1.30	a) Please provide a more spatially-resolved analysis to characterize population health and demographics in the vicinity of major Trans Mountain facilities, e.g., within 1, 2 and 5 km radia of the Sumas, Edmonton and Burnaby terminals.	a) Trans Mountain does not believe that the provision of community and social health data at the level of the Local Health Area (LHA) in the Metro Vancouver area is either useful or informative beyond the information that has already been provided in Technical Report 5D-8 in Volume 5D, Community Health Technical Report (Habitat Health Impact Consulting Corp. December 2013) at the level of the Health Service Delivery Area (HSDA). ...	Refused. This information is relevant to the socio-economic impacts of the project and safety during operation of the project.
1.32	a) Please identify critical receptors (homes, schools, health care facilities, recreational facilities, etc.), within a 5 km area of the Edmonton, Sumas and Burnaby terminals, by listing and mapping. Please include a characterization of the size, health, and demographics of the population within this zone.	a) ...The screening level human health risk assessment (SLHHRA) provided in Technical Report 5D-7 in Volume 5D […] assumed that people would be found on both a short-term and long-term basis at the maximum point of impingement (MPOI). […] The results of the SLHHRA [screening level human health risk assessment] for the Edmonton, Sumas and Burnaby terminals revealed that the maximum predicted levels of exposure to the COPC [chemicals of potential concern] remained below the health-based guidelines (or exposure limits) developed or recommended by regulatory authorities or reputable scientific authorities for the protection of human health.	Refused. This information is relevant to the socio-economic impacts of the project and safety during operation of the project.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		Given the level of conservatism incorporated in the SLHHRA, adverse health effects are not expected as a result of the additional tanks to be installed at the tank terminals as a part of the Project and there is no need to evaluate discrete receptor locations such as homes, schools, health care, facilities, recreational facilities, etc. Data regarding population and demographics of the communities and regions […] is provided in Section 6.0, Technical Report 5D-2 in Volume 5D, Socio-Economic Technical Report […]. Population data is available by census sub-division and therefore not available for specific radii around the Edmonton, Sumas and Burnaby Terminals. […]	
1.32	b) Please provide the locations of existing and foreseeable critical receptors and estimate concentrations and risks at those locations	b) Please refer to the response to Living Oceans IR No. 1.32a.	Refused. This information is relevant to the socio-economic impacts of the project and safety during operation of the project.
1.32	d) Please provide the chemical emissions inventory used in the air quality analysis for each terminal (Edmonton, Burnaby and Sumas). For each source and each chemical (COPCs), provide the emission rates (g/s), release locations, and other information needed to confirm assumptions and dispersion modelling.	d) Tanks were modelled in accordance with the guidance in the Air Dispersion Modelling Guideline for Ontario (Ontario Ministry of Environment 2009). Floating roof tanks were modelled with 8 point sources for terminals in British Columbia or 4 point sources for the terminal in Alberta located along the circumference of the tank. Fixed roof tanks were modelled with one point source in the centre to represent the vent. The stack diameter was set to 0.001 m and exit velocity was set to 0.001 m/s for each tank point source. The chemicals of potential concern (COPCs) emitted	Unresponsive in part. Tables 1.32d-1 to 1.32d-12 contain emission rates for VOCs only, as noted in the text here; and these are aggregated to a very high level. Thus, the rates for individual sources are not provided, nor location, nor other information needed to identify and confirm results. The largest VOC sources is the Vapour Recovery Unit; the report assumed 75% destruction efficiency, however, response to IR1.19 indicates additional details are not available. In addition to not identifying specific source parameters, no speciation is

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		from tank are total volatile organic compounds (VOCs) which were speciated separately. In addition to the tanks, there are emission control technologies (vapour combustion unit and vapour reduction unit) and berthed ship emissions at Westridge Marine Terminal. Tables 1.32d-1 to 1.32d-12 provide the modelling parameters used in the assessment (provided in Living Oceans IR No. 1.32d – Attachment 1). Section 3.4.4.2 of Technical Report 5C-4 in Volume 5C, Air Quality and Greenhouse Gas Technical Report (RWDI December 2013) provides more detailed information.	provided for VOCs. No additional information is provided in the new (June 2014) HHRA for these facilities. This information is relevant to the assessment of effects of accidents that may occur during marine shipping, contingency planning for spills, and human safety during operation of the project.
1.36	b) Please identify the specific sources associated with exceedences or near-exceedences of guidelines for acute exposure for the substances referred to. Please apportion the exceedances quantitatively among sources.	b) Trans Mountain is preparing a detailed human health risk assessment (HHRA) of the Westridge Marine Terminal that builds on the information provided in Technical Report 5D-7 in Volume 5D, Screening Level Human Health Risk Assessment of Pipeline and Facilities Technical Report (Intrinsik Environmental Sciences Inc. December 2013). The primary sources contributing to the exceedances will be provided in the detailed HHRA that will be filed with the National Energy Board on June 16, 2014.	Unresponsive. Living Oceans notes that in the HHRA which was filed on June 16, 2014, (1) sources contributing to exceedences are not identified, and (2) there is a short discussion of the frequency of exceedences at the MPOI (79 times per year) of respiratory irritants and also exceedence of NO2 1 hour AAQO. The information on sources is therefore still missing and highly relevant to the assessment of human safety during operation of the project.
1.37	The application provides concentration maps, e.g., Figures 5.2 and 5.3, and those in Volume 5C Figures, however, these maps do not have adequate spatial resolution and do not indicate neighborhoods, buildings, and	a) Trans Mountain is preparing a detailed human health risk assessment (HHRA) that builds on the information provided in Technical Report 5D-7 in Volume 5D, Screening Level Human Health Risk Assessment of Pipeline and Facilities Technical Report (Intrinsik Environmental Sciences Inc. December 2013).	Unresponsive. The realism and value of the HHRA is greatly increased when actual landuse and critical/vulnerable populations/receptors are identified. The HHRA for the Westridge Terminal identifies the closest residence (100 m

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
	other facilities where people live, work or recreate and might be exposed. Request: a) Please provide finer resolution mapping, noting the facilities described above.	Figures showing the spatial extent of predicted exceedances will be provide in the detailed HHRA such that readers will be able to identify neighborhoods, buildings, and other facilities where people live, work or recreate within the local study area. The detailed HHRA technical report will be filed with the National Energy Board on June 16, 2014.	distant) and the closest school (1 km distant), for example. Figure 5.2 in this report provides a single point for the maximum risk for respiratory irritants (MPOI or maximum point of impingement), but no spatial information is mapped for other locations. (This MPOI appears 1 km distant from the terminal, and appears to result from marine traffic emissions.) A long table in the appendix lists sites modeled but this difficult to interpret. Thus, information remains incomplete. This information is relevant to human safety during the operation of the project.
1.39	a) Please provide the scope of the tender statement regarding the pipeline risk assessment, including the spill outflow volume assessment.	a) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.	Refused. It appears to Living Oceans that the assessments performed were very selective and not necessarily the realistic worst case. For example, the assessment did not use the maximum outflow volume calculated, and the assessment was performed for a few "high consequence areas" only. Details of criteria to be used for a risk-based design are not provided. This information is relevant to the assessment of contingency planning for spills, and human safety during operation of the project.
1.39	b) Please provide a complete list of additional mitigation measures that are to be evaluated in this study to reduce risks and spillage to aquifers. If there are known mitigation measures that are not	b) In a risk-based design, consideration is given to any mitigation measure that can be implemented in the design to effectively mitigate a specific threat, with the caveat that mitigation measures being considered must be effective in addressing the threat. Please also	Unresponsive. If the information is provided after the September 11, 2014 deadline for Round 2 IRs, it cannot be the subject of Round 2 Information; if it is provided close to the deadline, the intervenors

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
	being considered, please explain why.	refer to the response to City Burnaby IR No. 1.07.14r. City of Burnaby No.1.07.14r: As committed to in NEB IR No. 1.81a, Trans Mountain will submit a risk assessment for Line 2 in Q3 of 2014. As described in the response to Allan R IR No. 1.17l, this risk assessment is being undertaken in support of a risk-based design. Risk-based design goes beyond the requirements of CSA Z662 and is an iterative approach in which risks are evaluated, and primary drivers of risk are identified. Using this approach, mitigation measures can be pre-emptively identified and incorporated at the design stage to address the principal risks. Because risk-based design is a process that focuses on identifying and pre-empting risk, it is a more rigorous approach than more traditional design approaches that don't incorporate the findings of specific risk assessments to identify and pre-empt risks. Given that the risk assessment and associated risk-based design process is ongoing, Trans Mountain does not have, at this time, a list of specific spill risks that have been controlled through the implementation of this process, however examples of typical risk mitigation strategies include the mitigation of 3rd Party damage through increased depth of cover, the mitigation of environmental consequences through the installation of mainline valves, and the mitigation of geotechnical threats through threat avoidance.	and their experts may not have sufficient time to examine it and intervenors may not have an opportunity to make Information Requests concerning it. If it is provided late in Q3, the intervenors' experts will have very little time to consider it and to address it in their expert evidence. This information is highly relevant to key issues before the Board, including the potential environmental and socio-economic effects of the project. Mitigation measures to be used by Trans Mountain must be made available for expert review.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
1.39	c) Please describe the criteria to be used to determine inclusion or exclusion of additional mitigation measures in the analysis. Additional mitigation measures to be considered must be evaluated with respect to such criteria.	c) Please refer to the response to City of Abbotsford IR No. 1.12a: "As committed to in NEB IR No. 1.81a, Trans Mountain will submit a risk assessment for Line 2 in Q3 of 2014. As described in the response to Allan R IR No. 1.17l, this risk assessment is being undertaken in support of a risk-based design so that mitigation measures may be incorporated into the design to address the principal risks. The risk-based design process is ongoing, and a list of specific mitigation measures is not yet available, however the types of risk mitigation measures that will be considered in the risk-based design process include both failure prevention and spill mitigation measures to ensure that risk is managed to levels that are As Low As Reasonably Practicable (ALARP). Inherent within the ALARP principle is acknowledgement that risk is associated with virtually all human endeavours. The management of risk to levels that are commensurate with ALARP requires a systematic means of identifying and measuring risks, along with the associated drivers of risk so that risk-appropriate means can be selected to manage those risks. Given the starting assumption that zero risk is impossible to achieve, the ALARP principle recognizes the diminishing levels of return associated with the implementation of risk mitigation techniques. In a world with limited resources available to manage risk, the management of risk to ALARP entails the mitigation of the greatest levels of risk with those limited resources until a level of diminishing returns is achieved. Therefore, the	Unresponsive. See the explanation for 1.39b above. Risk-based design should be guided by an agreed set of criteria to be used to determine what mitigation measures will be included. This information is highly relevant to key issues before the Board, including the potential environmental and socio-economic effects of the project, accidents and malfunctions during construction and operation, and contingency planning for spills.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		implementation costs of mitigation measures are a key consideration. The risk based design methodology does not directly input cost into the risk assessment and decision making process, but cost is an indirect outcome of the decisions made. An example that would apply would be to reduce risk of third party damage to ALARP, an alternative would be deeper burial of the pipeline which would be associated with higher cost tied to increased depth of cover.	
1.40	Reference (i) states that overland flow of oil "continues until the path reaches a stream or other surface water feature, or until the total spill volume is depleted from loss to the land surface and evaporation." (PDF page 5 of 37). Request: a) Please provide a consideration of the health and ecological impacts due to seepage into soils and further migration into vadose-zone and groundwater.	a) The environmental effects of oil spills on soil and groundwater are discussed in Section 6.2.2.1 of Volume 7. This section also discusses the response strategy and regulatory standards for cleanup in the unlikely event of a spill. Additional information on pipeline spills to the terrestrial environment including regulatory requirements, remediation standards, and response/mitigation strategies for agricultural lands, forested lands and wetlands is provided in Section 3 of Technical Report 7-1 of Volume 7, Ecological Risk Assessment of Pipeline Spills Technical Report (Stantec Consulting Ltd. December 2013).	Unresponsive. The response appears to presume that remediation will avoid contamination issues, and the 30 pages referred to do not answer the question. TR 7-1, the Stantec Report, discusses remediation strategies and regulations without mentioning impacts on health or ecology. Vol. 7 Section 6.2.2.1 discusses at length impacts of spills to the surface of various types of land, notes that it is important to protect aquifers, and states that this will be addressed in the design phase. Nothing in the referenced material deals with "further migration into vadose-zone and groundwater". This is relevant to the environmental effects of the project and contingency planning for spills.
1.40	b) Please confirm that residual contamination in soils can constitute a long-term source of	b) Please refer to the response to Living Oceans IR No. 1.40a.	Unresponsive for the same reasons as given for 1.40a above.

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	contamination in the local environment and significantly degrade water quality. If Trans Mountain is of the opinion that residual contamination in soils cannot constitute a long term source of contamination in the local environment including water quality, please explain why.		This is relevant to the environmental effects of the project.
1.40	c) Appendix D also states that if a minimum thickness of oil on surface water or soil is reached, "spreading stops and the oil travels no farther". Please provide an analysis of the dissolution and transport of the dissolved phase (both oil and by-products), which can affect a much wider area, and correct the statement quoted.	c) Spreading of the oil to a minimum thickness applies only to oil on water, such as the surface of a lake. Oil flowing over land does not have a minimum thickness threshold, and will be depending on local topography at the location of the spill. The model applied does not calculate dissolution or transport of the dissolved phase.	Refused in part. Dissolution and transport of the dissolved phase of oil is relevant to the environmental effects of the project and of marine shipping, and contingency planning for spills.
1.42	e) Please provide an analysis of toxic intermediate compounds that may be produced during degradation of residual hydrocarbons.	e) Typically, as petroleum compounds degrade they become less toxic. Comprehensive analysis of toxic intermediate compounds was not completed as part of the application.	Refused. Analysis of the potential for intermediate compounds to form during and following a spill event is a critical part of understanding what the actual impacts of a spill may be. For example, some of the compounds found in dilbit are high in sulphur and have a propensity to form other sulphurous compounds which may be acidic or otherwise toxic. This is relevant to the environmental and socio-economic effects of the project, the effects of marine shipping, and safety during operation of the project.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
1.44	a) Please account for detection and shutoff system delays and malfunctions in the calculation of spill outflow volumes.	a) Please refer to the response to NEB IR No. 1.95b. NEB IR No. 1.95b: Trans Mountain determined the most credible worst-case scenario for modelling volume outflow, is a full-bore opening of one pipeline. The potential for concomitant failure, i.e. a failure of one pipeline precipitating the failure of an adjacent pipeline, is considered to be more applicable to high-pressure natural gas pipelines. While Trans Mountain acknowledges that there are some scenarios in which simultaneous failures of parallel low-vapour pressure liquids pipelines could occur, it maintains that for the purposes of a risk assessment, the most credible worst-case scenario entails a full-bore opening of one pipeline. Trans Mountain chose to be conservative in selecting an assumption of having the opening located in the bottom of the pipe in determining the volume of product that could evacuate the pipeline in the immediate proximity of the failure location. As indicated in the Application, Volume 7, Risk Assessment & Management of Pipeline & Facility Spills, a time interval of ten minutes was assumed for the release prior to pump shutdown. During this interval, operations personnel would be verifying the validity of the low pressure SCADA and Leak Detection alarms and all pump stations would continue to operate. For a full bore rupture, the loss of	Refused. Trans Mountain allows 5 minute response time and 5 minute shutdown time for a full-bore bottom rupture, considered in the outflow analysis. Inadequate consideration is given to any other types of pipeline ruptures that might result in spills, which may be more likely than a full bore rupture, and be more difficult to detect. Additionally, inadequate consideration is given to instrument, power, valve, detection, operator or other failures that might affect the scenarios considered. This information is relevant to contingency planning for spills.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		pressure would be dramatic and the pump stations downstream of the rupture would quickly alarm on low suction pressure, followed by automatic shutdown of the station. The ten-minute period until pump shutdown time includes a five-minute recognition period for personnel to confirm that a full-bore failure has occurred. A five-minute valve closure time has been assumed for the closure of the main line block valves located upstream and downstream of the leak. At some locations, such as at river crossings, check valves will be employed, which will provide an immediate shut off and prevention of backwards flow from the downstream sections of the pipeline.	
1.44	c) Please provide analyses for pipeline failures other than full bore ruptures.	c) The outflow results contained in the Application are based on assumptions that represent what Trans Mountain consider to be a most credible worst-case scenario, which serves as the basis of the risk assessment. Beyond this most credible worst-case scenario, there are limitless combinations of spill scenarios involving spill magnitudes of lesser magnitude and or involving varying degrees of resolution. The modeling of each of these scenarios would consume a great deal of resources in an endeavour that Trans Mountain contends would be of questionable benefit. The credible worst-case scenario for a full bore rupture includes a level of conservatism in the assumptions modelled, and presents a worst case consequential impact for the length of the pipeline. All other failure scenarios considered	Refused. Information about other pipeline failures is relevant to the environmental effects of the project and contingency planning for spills. The analysis considered only one type of failure on the pipe (and major fittings): a full-bore bottom rupture. While this is likely a worst-case failure (although the analysis did not consider simultaneous failures of the twinned pipeline), other types of failures on the pipe (and major fittings) also occur, and should be considered as they are more common and may be more difficult to detect. Furthermore, the analysis considered only failures of the pipe itself and associated fittings. Industry experience has shown that gaskets, O-rings, control and relief valves, seal and pump packing, and pumps have been causes

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		would be of lesser magnitude and consequential impact in comparison to the analysis completed.	of incidents.
1.45	a) Please define the criteria in the outflow analysis and engineering design used to determine both preliminary and final valve spacing, as well as other technical control measures, to minimize worst-case spill volumes.	The outflow volumes presented in Volume 7, Appendix B are based on modeling which uses sophisticated computer algorithms, as is common practice in industry. The spill volumes generated through the analysis are based on the assumptions that are described in Section 3.1.6 of Volume 7 of the Application. These assumptions represent what Trans Mountain considers to be those associated with a most credible worst-case scenario with respect to spill volumes. ...As with the development of all risk mitigation measures through the application of a risk based design, valve optimization involves a rigorous iterative process. In this case, valve optimization involves a review of consequence-driven risk results, which, in turn are governed by factors that include the distribution and types of HCA along the pipeline, elevation profile, and valve spacing. Through an iterative approach that involves a sensitivity analysis in which the risk-reduction benefits associated with changes to the number of valves, the types of valves, and the locations of valves relative to elevation changes and HCA locations, an optimal valve configuration can be achieved.	Refused. Trans Mountain has not specified the criteria regarding placement of valves and other safety features, nor discussed the trade-offs used in the criteria, e.g., costs. Trans Mountain has not stated the sorts of risk-reduction benefits to be considered and how they will be determined, what costs and benefits will be considered, the uncertainties involved, the constraints and scope of the costs and benefits, and the strategy to select the "optimum." Trans Mountain indicates that an iterative approach will be used that improves safety, but the approach is not disclosed. This information is relevant to contingency planning for spills.
1.45	b) Please provide the engineering assessments undertaken to determine the valve spacing for Lines 1 and 2, as well as existing and proposed delivery lines from	With respect to the question posed in the first sentence of the information request, please refer to the response to NEB IR No. 1.91. With respect to the question posed in the second sentence of the information request, Section 4.4	Refused. See the explanation in the row above.

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	Burnaby Terminal to the Westridge Marine Terminal. Please specify maximum valve spacing.	of the CSA Z662-11 code does not prescribe a maximum valve spacing for LVP. NEB IR No. 1.91 states: "CSA Z662 clause 4.4.3 advocates an engineering assessment for isolation valve spacing, or alternatively references clause 4.4.4, which provides valve spacing recommendations in accordance with table 4.7. Table 4.7 indicates that minimum valve spacing for a Low Vapour Pressure (LVP) pipeline is not required (NR). The preliminary valve locations for Line 2 and the two proposed delivery lines from Burnaby to Westridge terminal were based on practical considerations such as co-location of pre-existing valve sites on adjacent pipelines, accessibility, and site suitability for construction and operations. As a form of Engineering Assessment, Trans Mountain is committed to and undertaking a risk based design for Line 2 segments, as the risk level is sensitive to valve location and spacing, and it is through the iterative risk based design process that final valve site locations will be established. For the reactivated segments of Hinton to Hargreaves and Darfield to Black Pines, as well as the existing operating pipelines between these stations, a separate valve optimization analysis will be performed based on outflow analysis, and overland and stream flow modeling. The outflow analysis, and overland and stream flow modeling will be completed by Q3 2014. See also response to NEB IR No. 1.86c and 1.97b.	
1.45	c) Please determine worst case spill volumes for each of the major types of products to be transported.	As stated in response to Part a) of this Information Request, the spill volumes generated through the outflow analysis are based on the assumptions that are described in	Unresponsive. See explanation for 1.45(a) above. This information is relevant to the potential environmental effects of the project, including

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		Section 3.1.6 of Volume 7 of the Application. These assumptions represent what Trans Mountain considers to be those associated with a most credible worst-case scenario with respect to spill volumes. Based on the results of outflow modeling, volumes vary as a function of pipeline position, depending on variables such as elevation profile and the location of the modelled spill relative to that elevation profile, as well as other variables, such as valve spacing, and the location of the spill relative to the location of the adjacent isolating block valves. The most credible worst-case scenario outflow volumes therefore change as a function of pipeline location, as depicted in the charts provided in Appendix B, Volume 7 of the Application (B18-3).	accidents and malfunctions.
1.45	d) Please estimate emissions from pump stations for each type of product transported along the pipeline.	The level of detail for each type of product to complete this calculation is not available from the referenced industry document (Canadian Association of Petroleum Producers 2007).	Refused. This information is relevant to the assessment of contingency planning for spills, and human safety during operation of the project.
1.45	e) Please provide ERAs and HHRAs using a multipathway approach for each product to be transported.	...Cold Lake Winter Blend (CLWB) was selected as a representative dilbit product because it is currently transported by Trans Mountain, and because it is expected to continue to be transported by the new pipeline.	Refused. This information is relevant to the assessment of contingency planning for spills, and human safety during operation of the project.
1.46	a) Please provide the past record of leaks, ruptures and other failures needed to estimate probabilities of multiple types of failure, for both Trans Mountain and other pipeline systems. The analysis should incorporate other	a) Please refer to the response to Eliesen M IR No 1.10a for a list of incidents on the Trans Mountain Pipeline system. All other information requested is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.	Refused. This information is relevant to the assessment of contingency planning for spills, and human safety during operation of the project.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
	references, e.g., 2007 and 2014 assessments by the Alberta ERCB.	*The response contains a number of charts and cannot be reproduced here. To the extent that it is relevant to the IR, it is confined solely to incidents on the Trans Mountain pipeline system.*	
1.47	The Application does not consolidate failure rates that have been calculated for portions and certain types of failures for Line 2. The analysis excludes certain types of failures which historical experience would indicate to be relevant (e.g. internal and external corrosion). The TMEP threat assessment (V7 Appendix A: Threat Assessment Report) notes that its estimates exclude (1) equipment failure, defined as failures occurring in pressure retaining components other than pipe and fittings, including valves, flanges, gaskets, etc., and (2) failures from geotechnical/hydrological forces, e.g., subsidence, earth movement, seismic activity, floods, stream erosion, and rock falls. The NEB website lists 81 spill events on the Trans Mountain Pipeline system from which data could be developed to inform a more robust failure frequency estimation. Request:	a) Please refer to the response to Eilesen M IR No. 1.10a for a list of incidents related to the Trans Mountain System. *The response contains a number of charts and cannot be reproduced here. To the extent that it is relevant to the IR, it is confined solely to incidents on the Trans Mountain pipeline system.*	Refused. The question seeks a description of the historical experience of failures on pipeline systems carrying similar product, including information relevant to failure frequency estimation--e.g. type of failure, cause, volume, product spilled, etc. This information is critical to the evaluation of the reasonableness of Trans Mountain's risk estimates. This information is relevant to contingency planning for pipeline spills and mitigation measures.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
	a) Please describe historical experience, especially recent accidents relevant to the Trans Mountain Pipeline system. This should include the Enbridge Kalamazoo River spill, as well as Trans Mountain's recent spills and incidents, including but not limited to: • 240 m3 Suisun Marsh diesel spill on April 28, 2004 • Walnut Creek pipeline fire on November 9, 2004 (owned by Kinder Morgan Energy Partners • 246 m3 Terasen Pipelines sweet crude oil spill on July 15, 2005 • 232 m3 Westridge Line synthetic crude oil spill on July 24, 2007 • 200 m3 2009 Burnaby Terminal sweet crude oil spill on May 6, 2009 • 110 m3 Sumas terminal (Abbotsford) sweet crude oil spill on January 24, 2012 (response time over 6 hr) • .8 m3 TMPL Mainline Kingsvale North pipeline spill on June 12, 2013 • 4 m3 TMPL Mainline @KP 966 on June 26, 2013		
1.47	b) For each event reviewed, please provide discovery time, response times, spill volumes, monitoring, causes, responses, probabilities,	b) Please refer to the response to Eilesen M IR No. 1.10a.	Refused. The material does not include such critical factors as discovery and response times, NEB and

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
	impacts, and NEB and liability determinations.		liability determinations, monitoring regimes. This information is relevant to contingency planning for pipeline spills and mitigation measures.
1.47	c) Please discuss all measures used to evaluate and validate or reconcile the calculated probabilities and spill volume scenarios against historical experience.	c) As committed to in the response to NEB IR No. 1.81a, Trans Mountain will submit a risk assessment for Line 2 in Q3 of 2014 to NEB. Detailed risk results, including quantitative estimates of failure frequency will be provided with that risk assessment, along with a report that describes the risk assessment approach. For the purposes of that risk assessment, Trans Mountain is employing assumptions that correspond to a most credible worst-case scenario, involving a full-bore rupture. As revealed by a review of industry incident statistics, however, the vast majority of crude oil failures are associated with spill volumes that are much lower than those associated with this worst-case scenario. To illustrate this fact, the US DOT's Office of Pipeline Safety Hazardous Liquids Incident Data for the period 2002 – 2009, inclusive was queried, and filters were performed so that the dataset represented large-diameter (≥20" diameter), on-shore crude oil pipelines with years of construction 1990 or later. The median spill volume for this dataset was determined to be 20 bbls.	Unresponsive. If the information is provided after the September 11, 2014 deadline for Round 2 IRs, it cannot be the subject of Round 2 Information; if it is provided close to the deadline, the intervenors and their experts may not have sufficient time to examine it and intervenors may not have an opportunity to make Information Requests concerning it. If it is provided late in Q3, the intervenors' experts will have very little time to consider it and to address it in their expert evidence. This information is highly relevant to key issues before the Board, including the potential environmental and socio-economic effects of the project and contingency planning for spills.

Appendix B to Notice of Motion of Living Oceans Society and Raincoast Conservation Foundation

4 July 2014

Hearing Order OH-001-2014
Trans Mountain Pipeline ULC (Trans Mountain)
Application for the Trans Mountain Expansion Project
Procedural Direction No. 3 – Process for hearing motions to compel full and adequate responses to information requests (IRs)

Comments on Adequacy of Trans Mountain's Round 1 IR Responses to Raincoast Conservation Foundation

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
1.04 a	Please provide the number of hypothetical oil spill scenarios that resulted in the probabilities of oil presence and shore oiling being greater than 0% outside of the Marine RSA.	Please refer to the response to NEB IR No. 1.67, which explains that some amount of oil may eventually cross virtually any practical boundary that might be used to define the RSA. The drawings referenced above provide probability contours for the presence or absence of crude oil on the water surface as a result of the stochastic analysis of hypothetical spill scenarios. These probability contours provide the response to the question. While this is a useful representation in the stochastic analysis for the probability of oil presence, it does not represent the quantity or thickness of crude oil present. Crude oil thickness will generally be greater in the areas closer to the hypothetical spill location (where the probability of oiling is also greater), and lesser in areas with a low probability of oiling. As a result, the contours provide a conservative representation of oil presence, but should not be used to infer the quantity of oil present.	The answer is unresponsive to the question asked. **Relevance:** The Marine RSA determines the spatial boundaries of the risk assessment, and as such, if defined by areas with potential for oil presence, should include all areas within the boundaries of appropriate modelled spill scenarios. This is relevant to the potential environmental effects of accidents or malfunctions that may occur during marine shipping.

[1] In this column, insert the relevant text of the IR that was asked. If the entire question is relevant to your submission, insert the full text. The references and preambles can be omitted (removed), unless they are essential to your submission.

[2] In this column, insert the relevant text of Trans Mountain's response to the IR. If the entire response is relevant to your submission, insert the full text.

[3] In this column, explain why you consider the IR response to be inadequate.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		Most of the crude oil associated with the hypothetical crude oil spills would remain within the RSA, unless the hypothetical spill location was close to the RSA boundary.	
1.04 b	Please provide the number of hypothetical oil spill scenarios that resulted in the probabilities of oil presence and shore oiling being 0% outside of the Marine RSA.	Please refer to the response to Raincoast IR No. 1.04a.	The answer is unresponsive to the question asked. The response references another response (1.04a) that is unresponsive. **Relevance:** The Marine RSA determines the spatial boundaries of the risk assessment, and as such, if defined by the presence of oil, should include all areas within the boundaries of appropriate modelled spill scenarios. This is relevant to the potential environmental effects of accidents or malfunctions that may occur during marine shipping.
1.04 c	Given that multiple hypothetical oil spill scenarios resulted in probabilities of oil presence and shore oiling being greater than 0% outside the Marine RSA, please provide additional justification for the existing Marine RSA boundaries.	Please refer to the response to Raincoast IR No. 1.04a.	The answer is unresoonsive to the question asked. The responses references another response (1.04a) that is unresponsive. **Relevance:** The Marine RSA determines the spatial boundaries of the risk assessment, and as such, if defined by oil presence, should include all areas within the boundaries of appropriate modelled spill scenarios. This is relevant to the potential environmental effects of accidents or malfunctions that may occur during marine shipping.
1.10 a	Given the evidence in Reference (iii) that the cumulative effects of oil releases can have significant ecological effects, please provide referenced justification for why the	The release of contaminated bilge water (oil concentration > 15 mg/L) is an illegal activity under the Canada Shipping Act Vessel Pollution and Dangerous Chemicals Regulations and MARPOL (International Convention for the Prevention of Pollution	The answer is unresponsive to the question asked. Trans Mountain asserts that existing legal standards effectively preclude the possibility of small discharges of oil. However, the existence of monitoring or regulations prohibiting the release of contaminated bilge water cannot prevent oil releases from happening, not least because, as the response also notes,

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
	cumulative ecological effects of small discharges of oil likely to occur with Project-related marine traffic was not included in the submission?	from Ships). Such releases could come from vessels of any size, including small pleasure vessels, fishing vessels, and large cargo vessels (not restricted to oil tankers). Compliance monitoring and enforcement of this legislation is the responsibility of Transport Canada. Cumulative ecological effects of small discharges of oil (< 15 mg/L hydrocarbon) were not considered as a residual effect because effective compliance monitoring and enforcement of existing legislation (which is designed to protect the marine environment) should prevent cumulative effects. The ecological effects of large oil spills are discussed at length in Reference (iii) but no conclusive data is provided on the cumulative effects of small spills. Research on the effects of small oil discharges is limited by the fact that such spills are often unplanned, unreported and have limited spatial and temporal range. Research by Serra-Sogas et al. (2008) concluded that the occurrence of chronic oil spills had declined in British Columbia's marine Exclusive Economic Zone over the ten year study period. While an average of 0.42 spills per hour of oil spill aerial monitoring patrol was recorded before 1997, this figure had declined to 0.05 spills per hour of patrol by 2007 (Serra-Sogas et al. 2008). As noted by Serra-Sogas et al. (2008), a new oil spill surveillance aircraft was scheduled for operation in British Columbia in 2008. This aircraft (introduced in January 2008) allowed for greater spatial coverage of surveys,	small spills are often unplanned. **Relevance:** Impacts from project related activities are cumulative. This is a major omission from the assessment. This is relevant to the cumulative environmental effects of the Project and marine shipping. **Explanation:** Trans Mountain failed to provide referenced justification for why the cumulative ecological effects of small discharges of oil likely to occur with Project-related marine traffic were not included in the submission. Further, we note that Trans Mountain states that effective compliance monitoring and enforcement should prevent cumulative effects of oil spills; this statement is incorrect. "Tankers discharge [oil] regardless of the port-state programme in place" (Environment Canada 2010). Evidence from Serra-Sogas et al. (2008) finds that the Marine RSA experiences a number of chronic oil spills, which may be legal or illegal, accidental or intentional. Although Trans Mountain repeats in their responses that Serra-Soga et al. (2008) found evidence of a decline in the rate of chronic oil spills, Trans Mountain's contention that "the decline in oil spill observations indicates that chronic oil spills are becoming increasingly rare in British Columbia" is unsubstantiated and misleading.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		improved spill observation and the ability to operate in a wider range of weather conditions. The decline in oil spill observations indicates that chronic oil spills are becoming increasingly rare in British Columbia waters and the improved monitoring will act as a deterrent to non-compliant vessel operators.	
1.10 b	Given the evidence in Reference (iv) and elsewhere, please provide additional information on chronic small discharges of oil as an existing habitat disturbance in the Marine and Terminal RSAs.	…Existing marine water and sediment quality in the Marine regional study area (RSA) for the Westridge Marine Terminal (Burrard Inlet east of the First Narrows) are described in Section 7.6.8 of Volume 5A. The baseline hydrocarbon levels in sediment in the Marine RSA for the Westridge Marine Terminal (reflected in concentrations of polycyclic aromatic hydrocarbons) reflect numerous sources, including stormwater runoff, spills on land that are transported to the sea, and vessel traffic. Various monitoring programs have collected in-situ water quality data (temperature, dissolved oxygen, salinity, turbidity, pH) in the Marine RSA for marine transportation and the results indicate good water quality. Sediment surveys in the southern Strait of Georgia and Juan de Fuca Strait for the Washington State Department of Ecology indicated good sediment quality, with contaminant concentrations below state and national regulatory guidelines in most samples and below detection limits in two thirds of samples (Washington State Department of Ecology 2013). Chronic oil spills are, by their nature, small volume and generally unplanned and undocumented. Therefore, it is not	The answer is unresponsive to the question asked. **Relevance:** Chronic small discharges of oil can have important adverse environmental effects locally and regionally. Currently, impacts from the Westridge Terminal are evident, and these will likely increase with an increase in vessel traffic and oil shipment. This is relevant to the environmental effects of the Project and marine shipping. **Explanation:** Trans Mountain provides information regarding chronic oil sources and sediment survey results but states that it cannot provide a "comprehensive description of chronic oil spills". Raincoast did not request a comprehensive description but asked for additional information on chronic oil spills. Although Trans Mountain includes Serra-Sogas et al. (2008) in their response, they choose to focus only on the reported trend of decline in observed oil spills, rather than other relevant results. In particular, Serra-Sogas et al. (2008) documented a relatively high number of chronic oil spills in the Marine RSA. This is considered background, baseline information on the status of chronic oil spills in the Marine RSA. Yet, Trans Mountain excluded the information from their assessment and

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		possible to provide a comprehensive description of chronic oil spill conditions in the Marine RSA for either the Westridge Marine Terminal or for the marine transportation component of the Project. The only discharge from vessels that is allowed under the Vessel Pollution and Dangerous Chemicals Regulations of the Canada Shipping Act, 2001 is that of bilge water treated to have less than 15 mg/L hydrocarbon. It is the responsibility of Transport Canada to ensure legislation governing oil spills is enforced to minimize the frequency of their occurrence. Research by Serra-Sogas et al. (2008) concluded that the occurrence of chronic oil spills had declined in British Columbia's marine Exclusive Economic Zone over a ten year study period. While an average of 0.42 spills per hour of oil spill aerial monitoring patrol was recorded before 1997, this figure had declined to 0.05 spills per hour of patrol by 2007 (Serra-Sogas et al. 2008). As noted by Serra-Sogas et al. (2008), a new oil spill surveillance aircraft was scheduled for operation in British Columbia in 2008. This aircraft (introduced in January 2008) allowed for greater spatial coverage of surveys, improved spill observation and the ability to operate in a wider range of weather conditions. The decline in oil spill observations indicates that chronic oil spills are becoming increasingly rare in British Columbia waters and the improved monitoring will act as a deterrent to non-compliant vessel operators.	in their response. Furthermore, regulations and their enforcement are not relevant to the question asked.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
1.10 c	Please provide additional information regarding the potential effects of Project-related vessel chronic oils spills (e.g. routine discharge of <15 mg/L or accidental/malfunction-related discharge of >15 mg/L oil into marine environments) to Pacific herring and associated habitats.	The release of contaminated bilge water (i.e., of greater than 15 mg/L hydrocarbon) is an illegal activity under the Canada Shipping Act Vessel Pollution and Dangerous Chemicals Regulations and MARPOL (International Convention for the Prevention of Pollution from Ships). Trans Mountain will use reputable vessel operators who have an excellent track record of compliance with all shipping regulations. Please see Section 5.6 of Volume 8A for the assessment of potential effects of an accidental tanker spill on marine fish, including Pacific herring.	The answer is unresponsive to the question asked. **Relevance:** Chronic small discharges of oil can have important adverse environmental impacts locally and regionally. Currently, there are documented impacts from the Westridge Terminal and shipping. These impacts will increase with an increase in vessel traffic and oil shipment. This is relevant to the environmental effects of the Project and marine shipping. **Explanation:** Again, regulations and their enforcement are not relevant to the question asked. Regulations and monitoring cannot prevent accidental or intentional oil spills from occuring in the Marine RSA. Trans Mountain does not provide the requested additional information on routine or accidental discharge of oil to Pacific herring and associated habitats.
1.12 a	Without empirical data (and given studies from elsewhere suggesting that noise affects other fish species), how did Trans Mountain reach the conclusion that it was acceptable to ignore effects of underwater noise on fish? Please provide supporting references.	The potential effect of behavioural disturbance to marine fish and invertebrates due to underwater noise from Project-related vessels was considered for inclusion in the assessment of marine fish and fish habitat. However, for the reasons presented in Section 4.3.6.4.1 of Volume 8A, it was determined that a detailed assessment of this potential effect was not required. Supporting references are provided in Section 4.3.6.4.1 of Volume 8A.	The answer is unresponsive to the question asked. **Relevance:** Noise can have negative impacts on fish and can cause habitat displacement and other deleterious effects. This is relevant to the environmental effects of the Project and marine shipping. **Explanation:** In Volume 8A Section 4.3.6.4.1 (Filing ID A3S4Y3, PDF page 54), Trans Mountain states that "several reviews on the effects of anthropogenic sounds on fish and invertebrates have concluded that there is a lack of empirical data and knowledge …" However, we note that empirical data are available for

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
			several species that inhabit the Marine RSA (e.g. Pacific herring) and were ignored by Trans Mountain. Without an explanation for their decision, beyond their simple referral back to the document, their response is inadequate.
1.12 b	Given the scientific evidence that noise can affect fish, why did Trans Mountain not conduct additional research to quantify responses of Canadian Pacific fishes to ship noise? Please provide supporting references.	Please refer to the response to Raincoast IR No. 1.12a.	Trans Mountain's response is unresponsive to the question asked, as noted in the explanation concerning the response to Raincoast IR No. 1.12a above. **Relevance:** Noise can have negative impacts on fish, and can result in habitat displacement and other deleterious effects. This is relevant to the environmental effects of the Project and marine shipping.
1.12 c	Please include at least one marine fish as an indicator species representing the potential effects of auditory injury or sensory disturbance due to underwater noise.	Please refer to the response to Raincoast IR No. 1.12a.	The answer is unresponsive to the question asked, as noted in the explanation to the response to Raincoast IR No. 1.12a above. **Relevance:** Noise can have negative impacts on fish, and can result in habitat displacement and other deleterious effects. This is relevant to the environmental effects of the Project and marine shipping.
1.13 a	Please include a description of the "historical low" (a population collapse) and its suspected drivers (overfishing) that occurred in the 1960s to complement Trans Mountain's description of the Strait of Georgia Pacific herring population "historical high".	The requested information is not required for assessing potential effects of the increase in Project-related marine vessel traffic on the Pacific herring indicator. Project effects are assessed against existing (baseline) conditions, which are defined as the current state of the environment prior to the commencement of Project operations (refer to Section 3.4 of Volume 8B, Biophysical Technical Report 8B-1, Marine Resources – Marine	Trans Mountain's response is unresponsive to the question asked. **Relevance:** Current baseline conditions do not implicitly represent historical abundances. Assessing project impacts against existing baseline conditions will not capture circumstances that could prevent return to historical conditions. Potential

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		Transportation Technical Report [Stantec Consulting Ltd. December 2013]). Existing conditions for Pacific herring are described in Section 4.3.2 of Volume 8B, Biophysical Technical Report 8B-1, Marine Resources – Marine Transportation Technical Report (Stantec Consulting Ltd. December 2013), and Sections 4.2.6.5.2 and 4.2.6.7.2 of Volume 8A. The assessment of potential effects of the increase in Project-related marine vessel traffic on Pacific herring concludes that effects will be of negligible magnitude and not significant (refer to Section 4.3.6.6.2 of Volume 8A).	impacts on herring populations are relevant to the assessment of the environmental effects of marine shipping activities. **Explanation:** Trans Mountain presents an inaccurate characterization of Pacific herring populations. The description of the Strait of Georgia Pacific herring population's recent "historical high" implies that populations in the past were all lower. In other words, Trans Mountain introduced a comparative assertion that invokes unsubstantiated information preceding the "current state of the environment." Evidence from McKechnie et al. (2014) in addition to TEK and anecdotal observations all suggest otherwise. Pacific herring were likely more abundant in the past; in periods before industrial extraction. This information should inform statements about current Pacific herring baseline conditions. Only assessing Project-related effects against existing baselines excludes important long-term ecological information that is essential for informed decision making. This constrained approach is unscientific and misleading.
1.13 b	Please provide additional information regarding Strait of Georgia herring populations derived from additional sources (e.g. oral historical knowledge, early historical observations, marine sediment analyses and archaeological studies) to complement the relatively short-term Fisheries and Oceans Canada baseline information that Trans Mountain relies upon in their application.	The requested information is not required for assessing potential effects of the increase in Project-related marine vessel traffic on the Pacific herring indicator. Project effects are assessed against existing (baseline) conditions, which are defined as the current state of the environment prior to the commencement of Project operations (refer to Section 3.4 of Volume 8B, Biophysical Technical Report 8B-1, Marine Resources – Marine Transportation Technical Report [Stantec Consulting Ltd. December 2013]). Existing conditions for Pacific herring are described in Section 4.3.2 of Volume 8B, Biophysical	The answer is unresponsive to the question asked for reasons discussed below. The response is the same as used in response to 1.13 a, and does not answer the question. **Relevance:** Current baseline conditions do not implicitly represent historical abundances. Assessing project impacts against only baseline conditions will not capture impacts preventing return to historical conditions. Potential impacts on herring populations are relevant to the assessment of the environmental effects of marine shipping activities.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		Technical Report 8B-1, Marine Resources – Marine Transportation Technical Report (Stantec Consulting Ltd. December 2013), and Section 4.2.6.5.2 of Volume 8A. The assessment of potential effects of the increase in Project-related marine vessel traffic on Pacific herring concludes that effects will be of negligible magnitude and not significant (refer to Section 4.3.6.6.2 of Volume 8A).	**Explanation:** Without acknowledging historical baselines in their assessment, Trans Mountain has no means of assessing existing baselines for Pacific herring or any other potentially affected species in the Marine RSA.
1.13 d	Please confirm that no information similar to "DFO Important Areas for Pacific herring" identified in Figure 4.2-20 (Reference (iii)) is available for areas important to Pacific herring in US waters. If so, please correct Figures 4.3 and 4.2-20 (References (ii) and (iii)) to reflect that no information is available in US waters to identify Important Areas for Pacific herring in the Marine RSA.	Trans Mountain is not aware of any information similar to Fisheries and Oceans Canada's (DFO's) Important Areas for Pacific herring in the United States (US) portion of the Marine regional study area (RSA). Figure 4.3 (Reference [ii]) and Figure 4.2-20 (Reference [iii]) do not imply that this information is available for the US portion of the Marine RSA.	The answer is unresponsive to the question asked. **Relevance:** Figures are an important element of Trans Mountain's submission that many will refer to and depend on. Lacking appropriate detail and necessary descriptive information, the figures can be misleading and confusing. These specific figures, relevant to potential impacts on herring populations, are relevant to the assessment of the environmental effects of marine shipping activities. **Explanation:** Figures 4.3 (Reference [ii]) and 4.2-20 (Reference [iii]) imply that US waters have no Important Areas for Pacific herring when the reality is simply that these areas have not been identified. Brief text on the figure legends would address this.
1.13 f	Please confirm whether an established baseline of information exists for Pacific herring in the Marine RSA with particular reference to Pacific herring distribution.	Baseline information for Pacific herring in the Marine regional study area (RSA), including distribution of spawning areas, is provided in Section 4.3.2 of Volume 8B, Biophysical Technical Report 8B-1, Marine Resources – Marine Transportation Technical Report (Stantec Consulting Ltd. December 2013), and Sections 4.2.6.5.2 and 4.2.6.7.2 of Volume	The answer is unresponsive to the question asked**.** **Relevance:** Baselines for distribution of marine fish distribution are an important component of the risk assessment. Potential impacts

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		8A.	on herring populations are relevant to the assessment of the environmental effects of marine shipping activities. **Explanation:** A confirmation was requested, not a reference to Trans Mountain's Application. The IR specifically asks about Pacific herring distribution and Trans Mountain only responds to the distribution of Pacific herring *spawning areas*. Resident Pacific herring and the various juvenile stages of Pacific herring should also be considered.
1.13 g	Do the "DFO Important Areas for Pacific herring" referenced by Trans Mountain include areas important to the small populations of non- migratory Pacific herring described by Trans Mountain (References (ii) and (iii))?	The Fisheries and Oceans Canada (DFO) Important Areas (IAs) for Pacific herring within the Marine regional study area (RSA) may include habitats important to non-migratory populations of Pacific herring. However, Therriault et al. (2009) report that these resident populations are found in Puget Sound and inlets on the eastern side of the Salish Sea, which for the most part are outside of the Marine RSA.	The answer is unresponsive to the question asked. **Relevance:** Non-migratory Pacific herring are likely an important and unique component of herring meta-populations and should be considered potentially present in any location within the Marine RSA. Potential impacts on herring populations are relevant to the assessment of the environmental effects of marine shipping activities. **Explanation:** Trans Mountain acknowledges that the DFO Important Areas for Pacific herring within the Marine RSA *may* include habitats for non-migratory populations of Pacific herring. However, Trans Mountain fails to mention additional relevant literature that suggests resident herring might spawn elsewhere in the Marine RSA. In keeping with Trans Mountain's assumptions for other poorly studied species (e.g. some marine birds), non-migratory Pacific herring should be considered potentially present in any location within the Marine RSA.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
1.15 b	Please provide supporting scientific evidence that the sensitivity of marine fish and associated habitat is a function of the degree of exposure of the particular habitat to dissolved hydrocarbons.	Refer to Reference (i) above, pages 55-56 of 116. In a toxicological context, exposure is a precursor of effects. In the absence of exposure, a toxicological response will not be induced. The referenced pages explain how marine habitat was classified in order to focus on the likelihood of exposure, such that deep water habitat (<30 m deep) was assigned the lowest overall sensitivity, and shallow habitat was assigned a higher sensitivity. Areas of particular management concern as outlined in Table 5.4 (page 56 of reference (i)) were given additional consideration regardless of water depth.	The answer is unresponsive to the question asked. The IR asked for supporting scientific evidence but Trans Mountain simply restates marine fish and habitat classification from their Application. The statement that exposure is a precursor of effects and that without exposure a toxicological response will not be induced does not address the IR. **Relevance:** Trans Mountain's assessment of marine fish and habitat sensitivity as a function of exposure is not a full assessment of sensitivity. For many species or habitats this approach may be inadequate or incorrect. Trans Mountain's generalized approach requires scientific justification and explanation. Although Trans Mountain did grant other areas of management concern additional consideration, areas of management concern and species of management concern are not fully documented in the Marine RSA. This information is relevant to the Board's assessment of the potential environmental effects of marine shipping.
1.15 c	Other than the five marine fish and fish habitat data sources listed in Table 4.4. (Reference (i)), please list any additional GIS data sources used in Figure C.3 (Reference (ii)).	Please refer to the response to FER IR No. 1.01.02.	The answer is unresponsive to the question asked. The response it cross-references (FER IR No. 1.01.02, Filing ID A3Y2D7) was specific to data sources for the locations of ecological reserves, as opposed to data sources for marine fish and fish habitat or other data sources applicable to Figure C.3, which illustrates biological sensitivity factors for fish and fish habitat. **Relevance:** This information is relevant to the Board's assessment of the potential environmental effects of marine shipping.
1.15 f	Please provide a list of the fish and invertebrate species within	Table 5.4 of reference (i) provides the basis for the development of biological sensitivity	The answer is unresponsive to the question asked. Trans Mountain references a table that sets out the BSF

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	the Marine RSA that are without any delineated habitat in classification BSF 4 (References (i) and (ii)).	factors for different types of marine habitat.	classifications for marine fish but does not answer the question asked. **Relevance:** This information is relevant to the Board's assessment of the potential environmental effects of marine shipping.
1.15 g	Please provide tables which summarize the area and percent of Pacific herring spawning areas (US and Canada), DFO Important Herring Areas (Canada) and holding areas (US) within the Marine RSA that will be exposed to oil under the various oil spill scenarios in the PQERA as opposed to the current oil spill scenario tables that only list the area and percent area of fish habitat oiled (i.e. Table 6.5, Reference (i)).	The approach that has been taken (i.e., development of biological sensitivity factors representing a hypothetical sensitive species) is intended to provide a conservative assessment of the likelihood of adverse environmental effects occurring to any life stage or species of fish.	The answer is unresponsive to the question asked. **Relevance:** As they are the dominant forage fish and a cornerstone species in the Salish Sea**,** threats to Pacific herring populations should be specifically addressed. This information is relevant to the Board's assessment of the potential environmental effects of marine shipping.
1.15 h	Please provide a detailed explanation as to why much of the open waters of the Marine RSA are described as BSF 1 (References (i) and (ii)), even though those areas contain habitat classified as BSF 1, 2, and 3. Is Trans Mountain using the presence of the lowest ranking BSF as representative for the entire water column BSF?	Tables 6.5, 6.6, 7.5, 7.6, 8.5, and 8.6 in reference (i) provide summary information as to the area of fish habitat affected by crude oil under the stochastic oil spill scenarios. Biological sensitivity factors 1, 2 and 3 are mutually exclusive (non-overlapping). Biological sensitivity factor 4 is evaluated independently of the other three sensitivity factors, as explained in Section 6.3 of reference (i).	The answer is unresponsive to the question asked. **Relevance:** This information is relevant to the Board's assessment of the potential environmental effects of marine shipping. **Explanation:** It is still not clear why, if the Biological sensitivity factors 1, 2, and 3 are mutually exclusive, as Trans Mountain claims, much of the open water of the Marine RSA described as BSF

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			1, when those waters contain habitat classified as BSF 1, 2, and 3.
1.16 a	In terms of marine fish and marine fish habitat recovery from a large oil spill, please justify Trans Mountain's reliance on only four EVOS-focused scientific sources given the wealth of scientific literature available on marine fish and marine fish habitat exposed to oil in cold-water environments.	Section 9.0 of reference (i) provides the requested justification.	The answer is unresponsive to the question asked. **Relevance:** This is relevant to the Board's assessment of the potential environmental effects of marine shipping. **Explanation:** This reference fails to clarify why Trans Mountain only used four EVOS-focused studies when there is a wealth of scientific literature available on marine fish and marine fish habitat exposed to oil in cold-water environments.
1.16 b	Please elaborate on how the lack of quantitative baselines for marine fish and habitat in pre-EVOS Prince William Sound complicated scientific investigations that sought to detect and measure the specific effects of the EVOS on marine fish, marine fish habitat and other marine species.	Additional discussion of this issue can be found in reference (ii) above (EVOSTC 2010), pages 1 to 7. As defined by EVOSTC, the recovery goal for injured ecosystem resources and services was "a return to conditions that would have existed had the spill not occurred". Without suitable baseline information, this definition of recovery is problematic.	The answer is unresponsive to the question asked. In addition, Trans Mountain refers the reader to a scientific reference for the relevant discussion; this information should be part of Trans Mountain's submission as many of the potentially affected species have no quantitative baselines in the Marine RSA. **Relevance:** Trans Mountain states that the definition of recovery is problematic without baseline information, but fails to mention that effective mitigation from the effects of oil spills is impeded without quantitative baselines. This is relevant to the Board's assessment of the potential environmental effects of marine shipping.
1.16 c	Please state, given the weight of evidence derived from numerous scientific studies relating to the	Pearson et al. (2013) provide a recent review of the Pacific herring story following the EVOS. The biomass of Pacific herring in	The answer is unresponsive to the question asked.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
	effects of EVOS on Pacific herring, whether EVOS significantly impacted Prince William Sound Pacific herring in the two year post-spill period and afterwards.	Prince William Sound was high and increasing throughout the 1980's. Although the spill occurred at a time when herring eggs were being laid, and estimates of their exposure are conflicting, such exposure did not produce effects at the population level. The biomass of herring remained high from 1989 through to the summer of 1992, but the expected high biomass of Pacific herring did not materialize in the spring of 1993 (four years after the spill). Between the spring of 1992 and the spring of 1993, it appears that there was high mortality of all year classes, not attributable to the EVOS. Pearson et al. (2013) reviewed multiple hypotheses regarding the cause of the decline of Pacific herring in Prince William Sound, as well as hypotheses regarding the lack of subsequent recovery.	**Relevance**: Impacts to herring in Prince William Sound from EVOS are relevant to potential effects on herring populations from an accident or malfunction that may occur as a result of the project and marine shipping, and as such are relevant to the Board's assessment of the potential environmental effects of marine shipping. **Explanation:** Instead of answering the question asked, Trans Mountain provides a brief history of Prince William Sound herring and partially summarizes a single publication.
1.16 d	Please clarify Trans Mountain's statement that there are "no remaining ecologically significant effects" on Pacific herring following the EVOS (Reference (i)). In particular, answer and provide supporting evidence for: i) whether the EVOS ever had ecologically significant effects on Pacific herring; and ii) the approximate year(s) when those ecologically significant effects became "insignificant".	This topic is well covered by Harwell and Gentile (2006) and Pearson et al. (2013). It is reasonable to conclude that some herring eggs were exposed to harmful concentrations of hydrocarbons in the water during the spring of 1982 as a result of the EVOS. The degree to which such exposure would have caused population-level effects on Pacific herring, in the context of natural variability in egg deposition and survival, is debatable and is reviewed by Harwell and Gentile (2006) and Pearson et al. (2013). It is stated (Pearson et al. (2013)) that both Trustee and EXXON-funded studies agreed that any effects on herring eggs were limited to 1989.	The answer is unresponsive to the question asked. **Relevance:** Impacts to herring in Prince William Sound from EVOS are relevant to potential effects on herring populations from an accident or malfunction that may occur as a result of the project and marine shipping, and as such are relevant to the Board's assessment of the potential environmental effects of marine shipping. **Explanation:** Trans Mountains fail to clarify the statement.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
			Trans Mountains fail to confirm whether the EVOS ever had ecologically significant effects on Pacific herring, instead discussing population-level effects. Trans Mountains fail to provide an estimate of when ecologically significant effects became insignificant.
1.16 e	Please provide additional supporting scientific evidence for Trans Mountain's statement that the "effects of the EVOS on marine fish populations … were either not significant to begin with, or recovery occurred within one or two years at most" (Reference (i)).	Please refer to the response to Raincoast IR No. 1.16d.	The answer is unresponsive to the question asked. Trans Mountain's response in 1.16 d does not answer 1.16 e. **Relevance:** Impacts to fish in Prince William Sound from EVOS are relevant to potential effects on herring populations from an accident or malfunction that may occur as a result of the project and marine shipping, and as such are relevant to the Board's assessment of the potential environmental effects of marine shipping.
1.16 f	Please reconcile Trans Mountain's statement that the "effects of the EVOS on marine fish populations … were either not significant to begin with, or recovery occurred within one or two years at most" (Reference (i)) with the findings of the Reference (ii).	Please refer to the response to Raincoast IR No. 1.16d.	The answer is unresponsive to the question asked. Trans Mountain's response in 1.16 d does not answer 1.16 f. **Relevance:** Impacts to fish in Prince William Sound from EVOS are relevant to potential effects on herring populations from an accident or malfunction that may occur as a result of the project and marine shipping, and as such are relevant to the Board's assessment of the potential environmental effects of marine shipping.
1.16 g	Please reconcile Trans Mountain's expectation in the event of a large oil spill in the Marine RSA that "recovery of the marine fish community", including Pacific herring,	The basis for this statement is explained in the three preceding paragraphs in Section 11.2 (pages 103-104 of 116) in reference (i), as well as in the supporting technical analysis of Sections 5, 6, 7 and 8 of that document. Also refer to the responses to Raincoast IR No.	The answer is unresponsive to the question asked. Trans Mountain's response in 1.16 c and d does not answer 1.16 g. **Relevance:**

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	would be rapid and any lost productivity would be "compensated for by natural processes within one to two years" (Reference (i)) with the Reference (ii) conclusion that Pacific herring in Prince William Sound have not recovered.	1.16c and 1.16d above.	Impacts to fish in Prince William Sound from EVOS are relevant to potential effects on herring populations from an accident or malfunction that may occur as a result of the project and marine shipping, and as such are relevant to the Board's assessment of the potential environmental effects of marine shipping.
1.16 h	Other than evidence from the EVOS, is there any evidence from cold- water oil spills to suggest that the marine fish community or marine fish habitat was impacted for any period greater than two years? Please describe this evidence.	Harm to marine fish populations seems to be the exception, rather than the rule, following marine oil spills. This is a subject area that was addressed in evidence submitted as part of the Enbridge Northern Gateway Project Hearings (Reply Evidence: Recovery of the Biophysical and Human Environments from Oil Spills. Enbridge Northern Gateway Project. July, 2012.)	The answer is unresponsive to the question asked. Trans Mountain references another technical document from another hearing process without specific pages or other references, along with an unsubstantiated statement, proper response. **Relevance:** This is evidence is relevant to potential effects on herring populations from an accident or malfunction that may occur as a result of the project and marine shipping, and as such are relevant to the Board's assessment of the potential environmental effects of marine shipping.
1.18	As DFO Important Salmon Areas are shown in Figure 4.2-21, it would be prudent to include essential fish habitat in the US, to reflect the importance of near-shore waters to salmon in the US waters of the marine RSA. Request: a) Please amend Figure 4.2-21 to reflect the essential fish habitat in US waters.	It is acknowledged that essential fish habitat (EFH) for Pacific salmon in United States waters includes all estuarine and marine areas within the Marine regional study area (RSA). For the assessment of potential effects of the increase in Project-related marine vessel traffic on Pacific salmon (refer to Section 4.3.6.6.3 in Volume 8A), it was conservatively assumed that salmon migrate through all estuarine and marine habitats within the Marine RSA. Therefore, amending Figure 4.2-21 in Volume 8A is not considered necessary.	The answer is unresponsive to the question asked. **Relevance:** Canadian salmon do not distinguish migration routes in US or Canadian waters. Figure 4.2-21 should be amended to include the US extent of important salmon areas for Canadian bound salmon. This is relevant to the Board's assessment of the potential environmental effects of marine shipping on Pacific salmon. **Explanation:**

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
			Section 4.3.6.6.3 in Volume 8A (the provided reference) deals solely with the vessel wake impacts on salmon near intertidal habitats. The response indicates that the assessment conservatively assumes salmon migrate through the entire RSA. However, such an assumption in the context of vessel wake impacts does not address uses of habitat that might be affected by factors other than wake action. The DFO Important Salmon Areas referenced in Vol 8A are then referenced in Vol 8C Termpol Fish as Jamieson etc, both working papers that do not appear to be online. No additional information on what DFO's Important Salmon Areas include could be found in the application. Presumably, the areas should be roughly equivalent to Essential Fish Habitat in the US. Ultimately, there are spatial data in Canada and the US that reflect areas important for salmon. The implication of Figure 4.2-21 is that only the areas labeled as Important Salmon Areas are important to Canadian bound salmon. Assuming that the entire RSA is a migration route necessarily implies that it would all be considered Important Salmon Areas, whether or not a shapefile from DFO is limited in its spatial extent.
1.29 a	Given the general lack of quantitative information regarding at-sea distribution and abundance of marine birds in the Marine RSA, please provide a referenced justification for why Trans Mountain decided that additional fieldwork was not necessary.	The marine bird assessment took the conservative assumption that marine birds are present throughout the Marine local study area (LSA) and Marine regional study area (RSA), and focused on the ecology and anticipated behavioural responses of indicator species in relation to Project-related activities, based on scientific literature.	The answer is unresponsive to the question asked. **Relevance:** If Trans Mountain is to assess potential threats and consequences to species, understanding relationships between organisms and their environment requires knowledge of geographic distribution and abundance of species. This is relevant to the Board's assessment of the potential environmental effects of marine shipping.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
			Explanation: Trans Mountain provides no additional supporting or clarifying information. No justification is given for not performing additional fieldwork to compensate for the absence of quantitative at-sea distribution and abundance.
1.29 b	Please provide an indication of the levels of uncertainty in associated risk assessments in the absence of these quantitative data.	There is a degree of uncertainty about the distribution and abundance of birds at sea in the Marine local study area (LSA) and Marine regional study area (RSA), whereas nesting colonies and other coastal populations are reasonably well documented. However, the risk assessment primarily considered the potential effects of oil spills, which are well understood in principle; therefore, there is little uncertainty in the assessment provided.	The answer is unresponsive to the question asked. **Relevance:** Uncertainty is relevant to the Board's ability to assess the potential environmental effects of marine shipping. **Explanation:** Trans Mountain's statement that nesting colonies are well documented is misleading. Although colony locations may be well described, information regarding the ecological status of those colonies may be more than two decades old in the Marine RSA. Further, Trans Mountain's statement that other coastal populations are well described is misleading~~,~~ and nonspecific.
1.30 a	Please provide a detailed referenced evidence base for the conclusion that shorebirds can tolerate low to moderate exposure to oil.	The approach to developing biological sensitivity factors for avian guilds is based upon that of the U.S. Natural Resource Damage Assessment (NRDA) process. Several factors act in concert to determine the sensitivity of birds to oil exposure. These include consideration of the probability that they will encounter spilled oil in their habitat (greater for seabirds and diving birds than for shorebirds or birds that spend little time on the water surface), as well as other factors that arise from exposure (probability and quantity of oil ingestion from preening or with food,	The answer is unresponsive to the question asked. **Relevance:** Impacts of oil on shorebirds are relevant to the Board's ability to assess the potential environmental effects of marine shipping. **Explanation:** The probability of shorebird oiling and death given an encounter with surface oil is estimated by Trans Mountain's sources as 0.35. The estimate simply does not equate to

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		and particularly the potential for loss of buoyancy and thermal insulation as a result of external oil exposure). The U.S. Department of the Interior developed the Natural Resource Damage Assessment Model for Coastal and Marine Environments (NRDAM/CME). Technical documentation supporting this model (French et al. 1997) provides the basis for classifying the sensitivity of various wildlife groups to oil exposure. Table 4.5 of French et al. (1997) identifies several behavioural guilds of bird species, and provides a probability of oiling and death (Pw) given an encounter with surface oil. These include: • Dabbling waterfowl (Pw = 0.99) • Surface seabirds (Pw = 0.99) • Nearshore aerial divers (Pw = 0.35) • Wading birds and Shorebirds (Pw = 0.35) • Aerial Seabirds (Pw = 0.05) • Hawks (Pw = 0.01). …	shorebirds being able to tolerate low to moderate exposure to oil.
1.30 b	Please define the term "lightly oiled" as used in Reference (i).	…Avian guilds such as alcid seabirds which spend much of their time on the water surface, and which dive for food, have a high probability of extensive or whole-body oiling in the event of encountering an oil slick. This oil exposure causes their pelate to lose buoyancy and thermal insulation properties, resulting in the death of the exposed individuals. In contrast, other guilds of birds living around water (such as shorebirds) have a lower probability of exposure because stranded oil tends to be patchy in its distribution, and the birds are less likely to	The answer is unresponsive to the question asked, except potentially to the extent that "light" oiling appears to be contrasted with "extensive or whole-body oiling", which term or terms (it is unclear whether or not they are intended as synonyms) is or are also undefined. The response is unreferenced and unsubstantiated. Furthermore, Trans Mountain appears to suggest that an as-yet-undefined "lighter" oiling scenario is less likely to result in death, which was not the question posed in the IR. **Relevance:**

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		become immersed in the oil. Oiling of the pelage for these individuals is likely to be both lighter, and more patchy than for alcids. As a result the probability of death as a consequences is lower.	It is important that Trans Mountain define the terms it uses in its Application, such as the term "lightly oiled", which are relevant to the assessment of the potential environmental effects of marine shipping.
1.31 a	Please provide a detailed referenced rationale for the basis on which Trans Mountain reconciles empirical evidence of several incidents per year in the US Salish Sea with a model prediction of one spill of any size in 46 years from Project related traffic.	As noted in Volume 8C TR8C-12 Termpol 3.15, if the Project goes ahead then, if no additional risk reducing measures are implemented, the frequency will be 1 in every 46 years. If all the risk reducing measures discussed in this report are implemented the frequency will be 1 in every 237 years. Trans Mountain has proposed inclusion of all additional risk reducing measures and recommended the same to the NEB and Termpol. Therefore the oil spill frequency of any size will be 1 In every 237 years. As noted in Volume 8C TR8C-6, Termpol 3.8, Section 6.5, which discusses tanker incidents in the US portion of the Salish Sea it is noted that "There was one allision in 2006, but no collision or grounding incidents in the five year time period. This gives an annual frequency of 0.2 for allision...it gives an indication of what impact a high level of navigational risk controls can have on the level of navigational safety in the area, because of the low or non-existing number of allision, collision and grounding. These accident types are the ones directly related to the effectiveness of the navigational risk controls implemented in the area." Oil spill from a tanker is prevented by preventing the occurrence of allision, collision and grounding, which is evident from the data.	The answer is unresponsive to the question asked. **Relevance:** It is important for intervenors and others to understand how such numbers as "1 in every 237 years" are calculated. This is relevant to the Board's assessment of potential environmental effects of marine shipping. **Explanation:** The claim is not reconciled with the evidence. No additional references are given beyond Trans Mountains own submission. No rationale is given for extrapolation of only one type of event (allision in this case) to the model output. Furthermore, the return period of 1 in every 237 years makes such a reconciliation even more unlikely, and detailed explanation more important.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
1.32 a	Please explain how Trans Mountain will incorporate the presence of these hydrodynamic fronts [energetic tidal fronts that create strong down-welling currents] in its spill scenarios for Georgia and Haro Straits.	Please refer to the responses to Farmer D IR No. 1.2b, and 1.2c2 to 1.2c6. Farmer D IR Response 1.2b: b2) The occurrence of these fronts was known, but not their specific locations. b3) H3D uses the same temporal and spatial structure as the model described in Ref. (xvi), including the method of implementing the semi-implicit in time solution. It has been upgraded with respect to schematization of the non-linear terms, a modified flux-corrected transport algorithm is now used for scalars, and a variable number of active layers at the top of the model grid has been introduced, to allow simulation of relatively thin river plumes in the presence of large tides, for instance. b9) Small-scale processes such as fronts, which have widths of 100 m or so, cannot be reproduced by a hydrodynamic model with a resolution of 1000 m. However, the model reproduces the mixing processes and energy dissipation processes in Haro Strait very well, as evidenced by the reproduction of the salinity distribution in a section through Juan de Fuca Strait, Haro Strait and the Strait of Georgia, and by the reproduction of the barotropic tide through the system. As such, the model is an excellent tool with which to simulate spill behaviour and address the questions relevant to the Trans Mountain	The answer is unresponsive to the question asked, as the question is answered only indirectly if at all. The answer Raincoast infers may have been given is set out below. Raincoast requires a full and adequate response if the inferred response set out below was not the one Trans Mountain intended to provide. **Relevance:** The concern is for the deep submergence of water soluble fractions of BTEX and other PAHs that can be acutely toxic to aquatic organisms. If Trans Mountain does not incorporate the presence of the hydrodynamic fronts into its spill scenarios, the question of the fate of aquatic organisms exposed to water soluble fractions taken to great depths by tidal fronts will be left unanswered. This is relevant to the potential environmental effects of marine shipping. **Answer is inferred to be:** Trans Mountain does not intend to incorporate the presence of fronts into its spill modeling for the Turn Point region because: a) the significance of these features may be somewhat overstated; b) the existing model meets the minimum requirements set by the NEB; c) the postulated subduction would have very little impact on the fate of an oil spill; d) Model H3D, as configured for this Application, meets these criteria; and. e) the model answers the questions: 1. What is the trajectory and fate of spilled oil?

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		Expansion Project Application: what is the trajectory and fate of spilled oil? What shorelines are potentially affected by a spill? What are the consequences for air quality? To address these questions, a large areal coverage is needed, to accommodate spills anywhere along the proposed shipping route. H3D, as configured for this Application, meets these criteria. b10) H3D is usually operated in hydrostatic mode, but in special cases where flow conditions and the ability to use a high resolution grid warrant, a non-hydrostatic version has been used. Although energetic tidal fronts are found in Haro Strait, they tend to occupy only a small fraction of the water surface, and with the exception of the Turn Point front (Ref. xiii), are generally located lateral to the main flow (e.g., Ref. viii). The significance of these features may be somewhat overstated in Ref viii) which states that "the turbulence intensities which we observed are potentially large enough to support all of the mixing required by the overall circulation in Haro Strait.", citing a dissipation rate of 4 x 10-5 W kg-1. However, bottom friction alone can account for a similar value: speed = 1.5 m/s, K = 0.003, H = 225, ε = 0.003 * 1.53 / 225 = 3 x 10-5 W kg-1, but acts over a much larger area. b11) Please refer to the response to Farmer D IR No 1.2b10. For the purposes of Trans Mountain's project needs, H3D provides the	2. What shorelines are potentially affected by a spill? 3. What are the consequences for air quality?

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		best balance between the quality of results and efficiency of execution. For instance, Ref. (xiv) states that using a 64-processor Linux cluster "the model runs twice as fast as real time", admittedly for their particular application, but it is generally true that non-hydrostatic computations are very time-consuming, particularly because they require solution of a three-dimensional inhomogeneous Helmholtz equation. The results using H3D were deemed credible and relevant to conducting the risk assessment. b12) This question presupposes that the model used was inadequate. As discussed in the response to Farmer D IR No. 1.2c3, the model used for Volume 8C, S9 - Modeling the fate and behaviour of marine oil spills for the Trans Mountain expansion project is credible and relevant to conducting the risk assessment. The postulated subduction would have very little impact on the fate of an oil spill. Necessary resources were made available to the contractor. b13) Please refer to the response to Farmer D IR No. 1.2c3 for a discussion of why the inability to resolve tidal fronts a significant shortcoming of the modelling done for the Application. Trans Mountain believes that appropriate and credible information on oil spill modeling has been included with the application to enable the appropriate level of risk assessment to have been conducted and risk informed decision making in accordance with the National Energy Board's Letter,	

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		"Filing Requirements Related to the Potential Environmental and Socio-Economic Effects of Increase Marine Shipping Activities, Trans Mountain Expansion Project" dated 10 September, 2013. No additional modeling or assessment is contemplated. c2) The statement provided in c2) is not wholly accurate, although it is worded to imply a hard division between oil fractions. The more volatile a particular fraction, the faster its rate of evaporation, and the more soluble, the faster its rate of solution. There are no restrictions on evaporation or dissolution, except for molecular diffusion from the inner part of the slick to the evaporating surface. Any fraction of the oil that does not evaporate or dissolve can participate in the other fate pathways – an important one being contact and retention by the shore. However, another important pathway is recovery, which would reduce the amount of oil that washes up on shores. No fraction of the oil is automatically assumed to remain on the surface: dispersion due to wave action can bring any oil components under the surface in droplet form; also, the estimated density of the oil at the surface is continuously compared to the surface water density to evaluate the potential for sinking. c6) Based on the information in Ref. viii), if oil were to be drawn down into the water column by the front investigated in Ref. viii), it is estimated that the oil could be drawn	

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		down to a depth of perhaps 10 m, based on Fig. 7 of that reference. However, the oil would then rise to the surface, also as shown in Fig. 7. The rise would be driven by both upward-moving currents and the buoyancy of the oil.	
1.32 b	Please explain how Trans Mountain's spill response methods will provide for the recovery of oil that is submerged by adduction processes.	Please refer to the response to Farmer D IR No. 1.2c3. Farmer D IR Response 1.2c3: Subduction zones, as described in the references provided, occur, and they could potentially subduct parts of an oil slick. However, several other factors need to be borne in mind to assess the occurrence and significance of this process: 1) The encounter rate between a slick and the subduction zones. These zones exist as linear elements of small surface area, and generally lateral to the main current flow. 2) The rate at which oil is dragged down in these zones. Or, does the oil merely collect along the front, as does other debris? If that is the case, the front serves as an excellent location at which to skim oil during spill cleanup. 3) The subduction zones do not remove oil from the surface permanently. As shown in Ref. viii), Figure 16, material that is brought down into the water column from the surface is eventually returned to the surface. This	The answer is unresponsive to the question asked. It appears that Trans Mountain may believe that conventional clean-up approaches will address spilled oil that is submerged by abduction processes. A high degree of uncertainty surrounds this conclusion, as no supporting empirical data exist. **Relevance:** This is relevant to the potential environmental effects of marine shipping and contingency planning for spills.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		process can be compared to the vertical dispersion process due to wave action, in which breaking waves that have sufficient energy to generate droplets of oil lead to a flux of oil into the water column. The droplets are kept within the water column by turbulence, but when the wind dies down, they return to the surface. 4) With regard to the potential for oil – sediment interaction and the high energy levels found at these tidal fronts, and the study in Ref. (xv), it should be pointed out that the study used sediment concentrations of 10,000 mg/L, concentrations well above the maximum suspended sediment concentration that can be found in the Strait of Georgia or in the Lower Fraser River. In Khelifa et al (2005) it was shown that OMA formation stopped for energy dissipation rates below 1 m2/s3, which is well above rates quoted for energy dissipation due to tidal fronts in Haro Strait. This means that the significance of tidal front is very limited with respect to the formation of OMAs. Please refer to the response to NEB IR No.1.62a.	
1.32 c	Please provide an assessment of the toxicity risks to finfish and other aquatic organisms from submerged, water-soluble oil fractions such as benzene.	This assessment is provided in the Detailed Quantitative Ecological Risk Assessment for Loading Accidents and Marine Spills, submitted to the NEB on May 14, 2014, as the response to NEB IR No. 1.62d (NEB IR No. 1.62d – Attachment 1).	The answer is unresponsive to the question asked, as it is incomplete. **Relevance:** This is relevant to the potential environmental effects of the project and marine shipping.

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
			Explanation: Some details on the risk to aquatic organisms are provided; however, these reports largely focus on concentrations at the water surface and only partially address water-soluble fractions of MAHs and PAHs. Modeling and assumptions omit important considerations that require further clarifications.
1.33	Please provide access to the shapefiles used to produce the maps for all locations and spill scenarios, and in particular, the spill scenario shapefiles at Arachne Reef.	Relevant and credible spill scenario results in the form of stochastic modeling results in commonly used format have been provided with the application. Trans Mountain believes that its Application contains appropriate and credible information to allow informed decision making in accordance with the National Energy Board's Letter, "Filing Requirements Related to the Potential Environmental and Socio-Economic Effects of Increase Marine Shipping Activities, Trans Mountain Expansion Project" dated 10 September, 2013. Therefore, the information requested will not be provided.	Trans Mountain has refused to answer. Shapefiles have not been provided. **Relevance:** Making these shapefiles available will allow intervenors to carry out independent assessments, which are necessary to confirm the reliability and efficacy of Trans Mountain's spill scenario modelling. This is relevant to the Board's assessment of the potential environmental effects of marine shipping. **Explanation:** The justifications for not providing requested shapefiles cite bare minimum standards and requirements for filing, which should not preclude Trans Mountain from providing further information.
1.34 a	Please identify the sediment concentrations at which diluted bitumen is likely to sink?	Two factors are necessary for diluted bitumen to interact with suspended sediments and sink: a high level of energy, characterized by the energy dissipation rate, and a significant concentration of suspended sediment. These two parameters cannot be dissociated; hence the suspended sediment concentration has to be quantified at the same time as energy dissipation rate. The modelling studies found that at no time in the shipping route was there	The answer is unresponsive, as it is incomplete and raises additional questions. **Relevance:** Understanding the potential and likelihood of diluted bitumen sinking is critically important in reliably predicting risks associated with the transport of dilbit. The fate and behavior of spilled dilbit has serious implications for determining effective

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		both sufficient energy and sufficient sediment concentration to form oil-mineral aggregate, using equations for the rate of formation found in the published literature, as described in the Volume 8C TR8C-12 S9-Modeling the fate and behaviour of marine spills for the Trans Mountain Expansion Project.	cleanup procedures and contingency planning, and the potential for environmental effects of marine shipping. **Explanation:** Uncertainty remains about Trans Mountain's conclusions resulting from their modeling. Trans Mountain indicates that those conditions do not occur on the shipping route. However the modelling presented throughout Volume 8C shows that oil spills are not constrained to the shipping route. What is considered the "shipping route"? Do the conditions under which oil will sink surround the shipping route? Are similar conditions present elsewhere in the Marine RSA? Trans Mountain's response implies that conditions that would cause the sinking of oil are not present anywhere in the study area.
1.34 c	Please provide the Test Simulation described for March 2002 in Reference (v).	The reference to the simulation described for March 2002 is about jet fuel spill modeling in the Fraser River and the Strait of Georgia. It was part of the Vancouver Airport Fuel Facility Corporation (VAFFC) Application for the development of a loading facility on the Fraser River to convey jet fuel directly to the airport. This application received the Environmental Assessment Certificate in December 2013. The results of the March 2002 simulation can be found in the VAFFC Application submitted to the BC Environmental Assessment Office early 2009.	The answer is unresponsive to the question asked. No link is provided to this document nor is the name of the document provided. The site contains dozens of documents that address various aspects of jet fuel spills. **Relevance**: This information is relevant to the potential environmental effects of the project and marine shipping, and to contingency planning.
1.34 d	Please provide the Effective Density of oil components described in Reference (vi) at 10.0 C vs. 25.0 C.	Please refer to the response to NEB IR No. 1.60b for information on the dependence of oil density on temperature. For information on the overall product density and its evolution with time, please refer to the Gainford Study presented in the Application: Volume 8C TR8C-12 S7 - A study of fate and behaviour	The answer is unresponsive to the question asked. The question is not specifically answered in the cross-referenced documents. **Relevance**:

IR #	IR Wording [1]	Trans Mountain's response to IR [2]	Intervenor's explanation for claiming IR response to be inadequate [3]
		of diluted bitumen oils on marine waters.	This information is relevant to the potential environmental effects of marine shipping.
1.35 a	Please provide spatially explicit estimates, supported by population estimates, of the numbers of marine mammals and birds that would be exposed to oil in each spill scenario.	…the biological data for multiple receptor species is not available … to satisfy this request.	The answer is unresponsive to the question asked. **Relevance**: The numbers of marine mammals and birds affected by an oil spill is relevant to the assessment of the potential environmental effects of marine shipping.

Case Name:

Baker v. Canada (Minister of Citizenship and Immigration)

Mavis Baker, appellant;
v.
Minister of Citizenship and Immigration Respondent, and
The Canadian Council of Churches, the Canadian Foundation for Children, Youth and the Law, the Defence for Children International-Canada, the Canadian Council for Refugees, and the Charter Committee on Poverty Issues, interveners.

[1999] S.C.J. No. 39

[1999] A.C.S. no 39

[1999] 2 S.C.R. 817

[1999] 2 R.C.S. 817

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REJB 1999-13279

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1 Imm. L.R. (3d) 1

89 A.C.W.S. (3d) 777

1999 CanLII 699

File No.: 25823.

Supreme Court of Canada

1998: November 4 / 1999: July 9.

Present: L'Heureux-Dubé, Gonthier, Cory, McLachlin, Iacobucci, Bastarache and Binnie JJ.

ON APPEAL FROM THE FEDERAL COURT OF APPEAL (81 paras.)

Immigration -- Humanitarian and compassionate considerations -- Children's interests -- Woman with Canadian-born dependent children ordered deported -- Written application made on humanitarian and compassionate grounds for exemption to requirement that application for immigration be made abroad -- Application denied without hearing or formal reasons -- Whether procedural fairness violated -- Immigration Act, R.S.C., 1985, c. I-2, ss. 82.1(1), 114(2) -- Immigration Regulations, 1978, SOR/93-44, s. 2.1 -- Convention on the Rights of the Child, Can. T.S. 1992 No. 3, Arts. 3, 9, 12.

Administrative law -- Procedural fairness -- Woman with Canadian-born dependent children ordered deported -- Written application made on humanitarian and compassionate grounds for exemption to requirement that application for immigration be made abroad -- Whether participatory rights accorded consistent with duty of procedural fairness -- Whether failure to provide reasons violated principles of procedural fairness -- Whether reasonable apprehension of bias.

Courts -- Appellate review -- Judge on judicial review certifying question for consideration of Court of Appeal -- Legal effect of certified question -- Immigration Act, R.S.C., 1985, c. I-2, s. 83(1).

Immigration -- Humanitarian and compassionate considerations -- Standard of review of humanitarian and compassionate decision -- Best interests of claimant's children -- Approach to be taken in reviewing humanitarian and compassionate decision where children affected.

Administrative law -- Review of discretion -- Approach to review of discretionary decision making.

The appellant, a woman with Canadian-born dependent children, was ordered deported. She then applied for an exemption, based on humanitarian and compassionate considerations under s. 114(2) of the Immigration Act, from the requirement that an application for permanent residence be made from outside Canada. This application was supported by letters indicating concern about the availability of medical treatment in her country of origin and the effect of her possible departure on her Canadian-born children. A senior immigration officer replied by letter stating that there were insufficient humanitarian and compassionate reasons to warrant processing the application in Canada. This letter contained no reasons for the decision. Counsel for the appellant, however, requested and was provided with the notes made by the investigating immigration officer and used by the senior officer in making his decision. The Federal Court -- Trial Division, dismissed an application for judicial review but certified the following question pursuant to s. 83(1) of the Act:

"Given that the Immigration Act does not expressly incorporate the language of Canada's international obligations with respect to the International Convention on the Rights of the Child, must federal immigration authorities treat the best interests of the Canadian child as a primary consideration in assessing an applicant under s. 114(2) of the Immigration Act?" The Court of Appeal limited its consideration to the question and found that the best interests of the children did not need to be given primacy in assessing such an application. The order that the appellant be removed from Canada, which was made after the immigration officer's decision, was stayed pending the result of this appeal.

Held: The appeal should be allowed.

Per L'Heureux-Dubé, Gonthier, McLachlin, Bastarache and Binnie JJ.: Section 83(1) of the Immigration Act does not require the Court of Appeal to address only the certified question. Once a question has been certified, the Court of Appeal may consider all aspects of the appeal lying within its jurisdiction.

The duty of procedural fairness is flexible and variable and depends on an appreciation of the context of the particular statute and the rights affected. The purpose of the participatory rights contained within it is to ensure that administrative decisions are made using a fair and open procedure, appropriate to the decision being made and its statutory, institutional and social context, with an opportunity for those affected to put forward their views and evidence fully and have them considered by the decision-maker. Several factors are relevant to determining the content of the duty of fairness: (1) the nature of the decision being made and process followed in making it; (2) the nature of the statutory scheme and the terms of the statute pursuant to which the body operates; (3) the importance of the decision to the individual or individuals affected; (4) the legitimate expectations of the person challenging the decision; (5) the choices of procedure made by the agency itself. This list is not exhaustive.

A duty of procedural fairness applies to humanitarian and compassionate decisions. In this case, there was no legitimate expectation affecting the content of the duty of procedural fairness. Taking into account the other factors, although some suggest stricter requirements under the duty of fairness, others suggest more relaxed requirements further from the judicial model. The duty of fairness owed in these circumstances is more than minimal, and the claimant and others whose important interests are affected by the decision in a fundamental way must have a meaningful opportunity to present the various types of evidence relevant to their case and have it fully and fairly considered. Nevertheless, taking all the factors into account, the lack of an oral hearing or notice of such a hearing did not constitute a violation of the requirement of procedural fairness. The opportunity to produce full and complete written documentation was sufficient.

It is now appropriate to recognize that, in certain circumstances, including when the decision has important significance for the individual, or when there is a statutory right of appeal, the duty of procedural fairness will require a written explanation for a decision. Reasons are required here

given the profound importance of this decision to those affected. This requirement was fulfilled by the provision of the junior immigration officer's notes, which are to be taken to be the reasons for decision. Accepting such documentation as sufficient reasons upholds the principle that individuals are entitled to fair procedures and open decision-making, but recognizes that, in the administrative context, this transparency may take place in various ways.

Procedural fairness also requires that decisions be made free from a reasonable apprehension of bias, by an impartial decision-maker. This duty applies to all immigration officers who play a role in the making of decisions. Because they necessarily relate to people of diverse backgrounds, from different cultures, races, and continents, immigration decisions demand sensitivity and understanding by those making them. They require a recognition of diversity, an understanding of others, and an openness to difference. Statements in the immigration officer's notes gave the impression that he may have been drawing conclusions based not on the evidence before him, but on the fact that the appellant was a single mother with several children and had been diagnosed with a psychiatric illness. Here, a reasonable and well-informed member of the community would conclude that the reviewing officer had not approached this case with the impartiality appropriate to a decision made by an immigration officer. The notes therefore give rise to a reasonable apprehension of bias.

The concept of discretion refers to decisions where the law does not dictate a specific outcome, or where the decision-maker is given a choice of options within a statutorily imposed set of boundaries. Administrative law has traditionally approached the review of decisions classified as discretionary separately from those seen as involving the interpretation of rules of law. Review of the substantive aspects of discretionary decisions is best approached within the pragmatic and functional framework defined by this Court's decisions, especially given the difficulty in making rigid classifications between discretionary and non-discretionary decisions. Though discretionary decisions will generally be given considerable respect, that discretion must be exercised in accordance with the boundaries imposed in the statute, the principles of the rule of law, the principles of administrative law, the fundamental values of Canadian society, and the principles of the Charter.

In applying the applicable factors to determining the standard of review, considerable deference should be accorded to immigration officers exercising the powers conferred by the legislation, given the fact-specific nature of the inquiry, its role within the statutory scheme as an exception, and the considerable discretion evidenced by the statutory language. Yet the absence of a privative clause, the explicit contemplation of judicial review by the Federal Court -- Trial Division, and the individual rather than polycentric nature of the decision also suggest that the standard should not be as deferential as "patent unreasonableness". The appropriate standard of review is, therefore, reasonableness simpliciter.

The wording of the legislation shows Parliament's intention that the decision be made in a humanitarian and compassionate manner. A reasonable exercise of the power conferred by the

section requires close attention to the interests and needs of children since children's rights, and attention to their interests, are central humanitarian and compassionate values in Canadian society. Indications of these values may be found in the purposes of the Act, in international instruments, and in the Minister's guidelines for making humanitarian and compassionate decisions. Because the reasons for this decision did not indicate that it was made in a manner which was alive, attentive, or sensitive to the interests of the appellant's children, and did not consider them as an important factor in making the decision, it was an unreasonable exercise of the power conferred by the legislation. In addition, the reasons for decision failed to give sufficient weight or consideration to the hardship that a return to the appellant's country of origin might cause her.

Per Cory and Iacobucci JJ.: The reasons and disposition of L'Heureux-Dubé J. were agreed with apart from the effect of international law on the exercise of ministerial discretion under s. 114(2) of the Immigration Act. The certified question must be answered in the negative. The principle that an international convention ratified by the executive is of no force or effect within the Canadian legal system until incorporated into domestic law does not survive intact the adoption of a principle of law which permits reference to an unincorporated convention during the process of statutory interpretation.

Cases Cited

By L'Heureux-Dubé J.

Applied: Pushpanathan v. Canada (Minister of Citizenship and Immigration), [1998] 1 S.C.R. 982; Committee for Justice and Liberty v. National Energy Board, [1978] 1 S.C.R. 369; disapproved: Liyanagamage v. Canada (Minister of Citizenship and Immigration) (1994), 176 N.R. 4; Shah v. Minister of Employment and Immigration (1994), 170 N.R. 238; not followed: Tylo v. Minister of Employment and Immigration (1995), 90 F.T.R. 157; Gheorlan v. Canada (Secretary of State) (1995), 26 Imm. L.R. (2d) 170; Chan v. Canada (Minister of Citizenship and Immigration) (1994), 87 F.T.R. 62; Marques v. Canada (Minister of Citizenship and Immigration) (No. 1) (1995), 116 F.T.R. 241; Northwestern Utilities Ltd. v. City of Edmonton, [1979] 1 S.C.R. 684; Supermarchés Jean Labrecque Inc. v. Flamand, [1987] 2 S.C.R. 219; Public Service Board of New South Wales v. Osmond (1986), 159 C.L.R. 656; Williams v. Canada (Minister of Citizenship and Immigration), [1997] 2 F.C. 646; referred to: Ramoutar v. Canada (Minister of Employment and Immigration), [1993] 3 F.C. 370; Minister of Employment and Immigration v. Jiminez-Perez, [1984] 2 S.C.R. 565; Cardinal v. Director of Kent Institution, [1985] 2 S.C.R. 643; Sobrie v. Canada (Minister of Employment and Immigration) (1987), 3 Imm. L.R. (2d) 81; Said v. Canada (Minister of Employment and Immigration) (1992), 6 Admin. L.R. (2d) 23; Knight v. Indian Head School Division No. 19, [1990] 1 S.C.R. 653; Old St. Boniface Residents Assn. Inc. v. Winnipeg (City), [1990] 3 S.C.R. 1170; Russell v. Duke of Norfolk, [1949] 1 All E.R. 109; Syndicat des employés de production du Québec et de l'Acadie v. Canada (Canadian Human Rights Commission), [1989] 2 S.C.R. 879; Kane v. Board of Governors of the University of British Columbia, [1980] 1 S.C.R. 1105; R. v. Higher Education Funding Council, ex parte Institute of Dental Surgery, [1994] 1 All

(2) Legitimate Expectations

29 I turn now to an application of these principles to the circumstances of this case to determine whether the procedures followed respected the duty of procedural fairness. I will first determine whether the duty of procedural fairness that would otherwise be applicable is affected, as the appellant argues, by the existence of a legitimate expectation based upon the text of the articles of the Convention and the fact that Canada has ratified it. In my view, however, the articles of the Convention and their wording did not give rise to a legitimate expectation on the part of Ms. Baker that when the decision on her H & C application was made, specific procedural rights above what would normally be required under the duty of fairness would be accorded, a positive finding would be made, or particular criteria would be applied. This Convention is not, in my view, the equivalent of a government representation about how H & C applications will be decided, nor does it suggest that any rights beyond the participatory rights discussed below will be accorded. Therefore, in this case there is no legitimate expectation affecting the content of the duty of fairness, and the fourth factor outlined above therefore does not affect the analysis. It is unnecessary to decide whether an international instrument ratified by Canada could, in other circumstances, give rise to a legitimate expectation.

(3) Participatory Rights

30 The next issue is whether, taking into account the other factors related to the determination of the content of the duty of fairness, the failure to accord an oral hearing and give notice to Ms. Baker or her children was inconsistent with the participatory rights required by the duty of fairness in these circumstances. At the heart of this analysis is whether, considering all the circumstances, those whose interests were affected had a meaningful opportunity to present their case fully and fairly. The procedure in this case consisted of a written application with supporting documentation, which was summarized by the junior officer (Lorenz), with a recommendation being made by that officer. The summary, recommendation, and material was then considered by the senior officer (Caden), who made the decision.

31 Several of the factors described above enter into the determination of the type of participatory rights the duty of procedural fairness requires in the circumstances. First, an H & C decision is very different from a judicial decision, since it involves the exercise of considerable discretion and requires the consideration of multiple factors. Second, its role is also, within the statutory scheme, as an exception to the general principles of Canadian immigration law. These factors militate in favour of more relaxed requirements under the duty of fairness. On the other hand, there is no appeal procedure, although judicial review may be applied for with leave of the Federal Court -- Trial Division. In addition, considering the third factor, this is a decision that in practice has exceptional importance to the lives of those with an interest in its result -- the claimant and his or her close family members -- and this leads to the content of the duty of fairness being more extensive. Finally, applying the fifth factor described above, the statute accords considerable flexibility to the Minister to decide on the proper procedure, and immigration officers, as a matter of

practice, do not conduct interviews in all cases. The institutional practices and choices made by the Minister are significant, though of course not determinative factors to be considered in the analysis. Thus, it can be seen that although some of the factors suggest stricter requirements under the duty of fairness, others suggest more relaxed requirements further from the judicial model.

32 Balancing these factors, I disagree with the holding of the Federal Court of Appeal in Shah, supra, at p. 239, that the duty of fairness owed in these circumstances is simply "minimal". Rather, the circumstances require a full and fair consideration of the issues, and the claimant and others whose important interests are affected by the decision in a fundamental way must have a meaningful opportunity to present the various types of evidence relevant to their case and have it fully and fairly considered.

33 However, it also cannot be said that an oral hearing is always necessary to ensure a fair hearing and consideration of the issues involved. The flexible nature of the duty of fairness recognizes that meaningful participation can occur in different ways in different situations. The Federal Court has held that procedural fairness does not require an oral hearing in these circumstances: see, for example, Said, supra, at p. 30.

34 I agree that an oral hearing is not a general requirement for H & C decisions. An interview is not essential for the information relevant to an H & C application to be put before an immigration officer, so that the humanitarian and compassionate considerations presented may be considered in their entirety and in a fair manner. In this case, the appellant had the opportunity to put forward, in written form through her lawyer, information about her situation, her children and their emotional dependence on her, and documentation in support of her application from a social worker at the Children's Aid Society and from her psychiatrist. These documents were before the decision-makers, and they contained the information relevant to making this decision. Taking all the factors relevant to determining the content of the duty of fairness into account, the lack of an oral hearing or notice of such a hearing did not, in my opinion, constitute a violation of the requirements of procedural fairness to which Ms. Baker was entitled in the circumstances, particularly given the fact that several of the factors point toward a more relaxed standard. The opportunity, which was accorded, for the appellant or her children to produce full and complete written documentation in relation to all aspects of her application satisfied the requirements of the participatory rights required by the duty of fairness in this case.

(4) The Provision of Reasons

35 The appellant also submits that the duty of fairness, in these circumstances, requires that reasons be given by the decision-maker. She argues either that the notes of Officer Lorenz should be considered the reasons for the decision, or that it should be held that the failure of Officer Caden to give written reasons for his decision or a subsequent affidavit explaining them should be taken to be a breach of the principles of fairness.

36 This issue has been addressed in several cases of judicial review of humanitarian and

Indexed as:

Pitt Polder Preservation Society v. Pitt Meadows (District)

Between
The Pitt Polder Preservation Society, petitioner (appellant), and
The District of Pitt Meadows, respondent (respondent)

[2000] B.C.J. No. 1305

2000 BCCA 415

189 D.L.R. (4th) 219

139 B.C.A.C. 247

77 B.C.L.R. (3d) 54

12 M.P.L.R. (3d) 1

97 A.C.W.S. (3d) 780

Vancouver Registry No. CA026306

British Columbia Court of Appeal
Vancouver, British Columbia

Cumming, Hollinrake and Rowles JJ.A.

Heard: May 30, 2000.
Judgment: June 29, 2000.

(68 paras.)

Municipal law -- Bylaws -- Quashing bylaws, grounds for judicial interference -- Unfairness -- Land use control -- Land use control, zoning bylaws -- Enforcement and interpretation -- Validity of zoning bylaw, public hearing.

Appeal by the Pitt Polder Preservation Society from dismissal of its request for an order to quash

certain bylaws of the District of Pitt Meadows. In May 1999, following a public hearing, the District had adopted bylaws rezoning land owned by Swaneset to permit a mixed-use commercial and residential development. The Society claimed the District failed to disclose all relevant documents in advance of the public hearing, allegedly preventing persons who believed that their interest in the property would be affected from being afforded a reasonable opportunity to be heard. The first issue on appeal was whether a duty of procedural fairness required local government to make available to the public reports and other documents relevant to a proposed land use or zoning bylaw in advance of a public hearing, when, by statute, a public hearing was to be held before the local government made a decision as to whether to adopt the proposed bylaw. The second issue was whether the absence of evidence of prejudice would defeat a complaint of procedural unfairness, where the complaint was based on a failure to make relevant reports and documents available to the public prior to the public hearing.

HELD: Appeal allowed. The land use and zoning bylaws were set aside. The District's failure to disclose the impact reports and other relevant documents in advance of the public hearing amounted to a breach of procedural fairness. The right to be heard before Council made a decision on proposed land use or zoning bylaws encompassed more than an opportunity to express approval or disapproval of the proposed bylaws. The impact reports were technical in nature and their contents and conclusions could not have been readily assessed without the assistance of those with relevant expertise. Therefore, no one could have been expected to mount an informed response at the public meeting without reasonable prior access to the reports. In the circumstances it was unreasonable to assume that members of the public had adequate time for preparation.

Statutes, Regulations and Rules Cited:

District of Pitt Meadows Pitt Polder Official Community Plan Amendment Bylaw No. 1942, 1999.

District of Pitt Meadows Zoning Amendment Bylaw No. 1943, 1999.

Municipal Act, s. 890.

[Quicklaw note: A Corrigendum was released by the Court July 20, 2000. The correction has been made to the text and the Corrigendum is appended to this document.]

Counsel:

J. Hills, for the appellant.
W. Buholzer and R. Harding, for the respondent.
P.D. MacDonald, for Swaneset Bay Resort Ltd.

concluding that the District's failure to make the impact reports and other relevant documents available to the public prior to the public hearing amounted to a breach of the duty of procedural fairness.

61 The second contentious aspect of the judge's decision was her conclusion that members of the public had a reasonable opportunity to make themselves familiar with the impact reports during the course of the hearing and to make submissions on them to the Council if they wished. For ease of reference I will repeat the conclusion with which the appellant takes issue:

> Although the reports could not be removed from the hearing room (and I presume could not be copied), there was time for representatives of the petitioner to read the reports while the public hearing was in progress and prepare a response over the ensuing days.

[Emphasis added.]

62 With deference to the learned chambers judge, I am of the view that in the circumstances of the present case, the fact that the impact reports were available after the public hearing had begun did not meet the requirements of procedural fairness.

63 The right to be heard before Council makes a decision on proposed land use or zoning bylaws must encompass more than an opportunity to express approval or disapproval of the proposed bylaws. If the participatory process that is mandated by the statute is intended to provide Council with a meaningful examination and discussion of the issues material to Council's decision, it appears to me to have been essential for members of the public to have been given access to impact reports and other relevant documents in sufficient time to prepare reasoned presentations.

64 In the present case, the impact reports were technical in nature and their contents and conclusions could not readily be assessed without the assistance of those with expertise in the area. Mr. Justice Esson's observation in Eddington v. Surrey (District), supra, is apposite: "No-one could be expected to mount an intelligent response at the public meeting without reasonable prior access to the reports...".

65 I note as well that the decision of Council in this case had the potential to affect many members of the public who lived in Pitt Meadows. In that regard I refer to such things as the potential impact of future taxation on the infrastructure costs of urbanization in a predominately agricultural community and the general effect of urban development on agriculture.

65a The chambers judge observed that the timing of the receipt and disclosure of the impact reports seemed "somewhat contrived" but said she could find "no evidence of bad faith on the part of the District". With deference, the requirements of procedural fairness are not met by a finding

that there was no evidence of bad faith. [The Court had numbered this paragraph "43". Quicklaw has assigned the number 65a.]

66 Finally, the District argues that the appellant has not provided any evidence that it or any member of the public was prejudiced in any way by the non-disclosure in their right to be heard or in their ability to make effective representations and that the chambers judge did not err in concluding that evidence of prejudice was required. In the District's submission, the decisions in Harrison v. Richmond, supra, at 272; Surfside R.V. Resort Ltd. v. Parksville, supra, at 307; Wild Salmon Coalition v. North Vancouver (1996), 34 M.P.L.R. (2d) 122 at 130-31; and Jones v. Delta, supra, at 27-30, support its position in that regard.

67 With deference, the cases to which the District has referred do not assist in determining whether the absence of evidence of prejudice is fatal to the appellant's complaint. In my respectful view, the appellant was not required to marshal evidence of what its members or other members of the public might have done had the impact reports and other relevant documents been made available in advance of the public hearing. Such self-serving evidence would not promote an objective analysis of the requirements of procedural fairness. In my opinion, the question that ought to have been asked was whether the timing of the disclosure of the impact reports was adequate to permit members of the public to prepare an intelligent or reasoned response. In view of the far-reaching nature of the decision being made about land use in this case and the technical nature of the impact reports, I would think it unreasonable to assume that members of the public had adequate time for preparation.

Conclusion

68 For the reasons stated, I am of the view that the District's failure to provide the impact reports and other relevant documents in advance of the public hearing amounted to a breach of procedural fairness in this case. I would therefore allow the appeal and set aside the land use and zoning bylaws in question.

ROWLES J.A.

68a CUMMING J.A.:-- I agree.

68b HOLLINRAKE J.A.:-- I agree.

[The Court did not number these paragraphs. Quicklaw has assigned the numbers 68a and 68b.]

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CORRIGENDUM

Released: July 20, 2000

PRINCIPLES OF ADMINISTRATIVE LAW

Fifth Edition

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Once adequate notice is provided, then the hearing may proceed as scheduled with or without the notified party in attendance.[57] As in most areas of procedural fairness, the test is whether the alleged lack of notice is so unfair that the proceedings in question should be set aside by the courts.

(c) Knowing the Case to be Met – Disclosure

The courts have consistently held that a fair hearing can only be had if the parties affected by the tribunal's decision know the case to be made against them. Only in this circumstance can they rebut evidence prejudicial to their case and bring evidence to prove their position. But knowing the case that must be met is not enough, of course; the opportunity to present the other side of the matter must also be allowed.

The level of disclosure required in administrative proceedings has been the subject of debate. The issue of whether and how much of the tribunal's file is available to the party affected is a source of difficulty for many tribunals. There is often a tendency to refuse to disclose the file to the parties involved. However, fairness generally requires that all information relied upon by the tribunal when making its decision be disclosed to the individual. Failure to do so deprives the tribunal of jurisdiction and renders the decision void.[58] The information to be disclosed includes reports prepared by the tribunal's staff[59] or any other report which the tribunal has relied on in making its decision. The contents of the file should be provided to the party in adequate time before the hearing so that the party can prepare its case.[60] This principle of procedural fairness has been approved by the courts.[61]

Nevertheless, as an element of procedural fairness, the extent of disclosure is context specific, having regard to the factors enunciated in *Baker*.[62] The

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57 *Fischer v. Canadian Kennel Club* (1995), 31 Alta. L.R. (3d) 271 (Alta. Q.B.). Further, once notice has been provided, the decision-maker need not serve notice of subsequent adjournments. See *Stuart v. Assiniboine Park-Fort Garry Community Committee of Winnipeg (City)* (1992), 4 Admin. L.R. (2d) 3 (Man. C.A.) dealing with an application for zoning variance.

58 *Volkswagen Northern Ltd. v. Alberta (Industrial Relations Board)* (1964), 49 W.W.R. 574 (Alta. T.D.); *Anadarko Petroleum of Canada Ltd. v. Syd Johns Farms Ltd.*, [1975] 6 W.W.R. 350 (B.C. S.C.). But see *Harris v. Nova Scotia Barristers' Society*, 2004 NSCA 143 (N.S. C.A.), in which the court distinguished between the investigative stage and the adjudicative stage of a disciplinary hearing and *H. (M.E.) v. Law Society (Alberta)*, 2005 ABCA 269 (Alta. C.A.), leave to appeal refused (2006), 412 A.R. 392 (note) (S.C.C.).

59 *Budge v. Alberta (Worker's' Compensation Board)* (1985), 42 Alta. L.R. (2d) 26 (Alta. C.A.), where the court also found that it would be unsafe to allow the board to retroactively claim that it had not relied on the report when making its decision. See also *Tottrup v. Alberta* (1977), 79 D.L.R. (3d) 533 (Alta. T.D.), affirmed (1979), 17 A.R. 563 (Alta. C.A.), leave to appeal refused (1979), 19 A.R. 188n (S.C.C.); *Madison Development Corp. v. Alberta (Rent Regulation Appeal Board)* (1977), 7 A.R. 360 (Alta. T.D.).

60 The file might also reveal any irrelevant considerations or other matters such as bias.

61 *1185740 Ontario Ltd. v. Minister of National Revenue* (1999), 247 N.R. 287 (Fed. C.A.) – a party has the right to receive prior production of whatever documents will be placed before the tribunal; *Pitt Polder Preservation Society v. Pitt Meadows (District)* (2000), 189 D.L.R. (4th) 219 (B.C. C.A.) – where a public hearing is required, prior disclosure of all reports considered by the tribunal must be disclosed in order to make the hearing meaningful.

62 (1999), 14 Admin. L.R. (3d) 173 (S.C.C.).