

**JOINT REVIEW PANEL HEARING ORDER OH-4-2011 RESPECTING  
THE ENBRIDGE NORTHERN GATEWAY PROJECT  
FILE NO: OF-FAC-OIL-N304-2010-01 01**

**Federal Government Participants'  
Response to Information Request No. 1  
from Living Oceans Society, Raincoast Conservation Foundation  
and ForestEthics**

**1.1 Whale Studies**

**Reference:**

- i. Department of Justice, Volume 2, Part 2 – Fisheries and Oceans Canada (Doc. No. A2K4S2), paragraph 112.
- ii. Email from Charlotte Haley (Biologist at Fisheries and Oceans Canada) to Tatiana Lee dated April 20, 2010, page A0391478\_1-000327, attached as Schedule A.

**Preamble:**

At Reference i), it is stated that:

Current knowledge of the seasonal distribution and abundance of whales in the CCAA is inadequate to assess the risk of serious injury or mortality to humpback whales and fin whales from ship strikes. The Proponent is engaged in a study that will better describe the spatial and seasonal occurrence and densities of marine mammals in the CCAA and PDA.

At Reference ii) it is stated that:

I have been reviewing information on Enbridge's shipping route in relation to TERMPOL. Enbridge's shipping routes pass ----- which I have been made aware is potential critical habitat for Humpback whales. I was wondering whether you could confirm where critical Humpback whale habitat is located - ----.

**Request:**

- a) Is Fisheries and Oceans Canada engaged in any studies to assess the spatial and seasonal occurrence and densities of marine mammals in the CCAA?
- b) If so, will the studies include an adequate assessment of the risk of serious injury or mortality to humpback and fin whales from ship strikes associated with the Northern Gateway project?
- c) Please explain why the critical habitat of Humpback whales described in Reference ii) was not the subject of a recommendation in the DFO submission.

**Response:**

- a) The Department of Fisheries and Oceans (DFO) conducts scientific studies to determine the distribution and seasonal occurrence, population structure and population abundance of Blue, Fin, Sei, North Pacific Right, and Humpback Whales in Canadian Pacific waters. DFO is also engaged in studies of life history, abundance, ecology and habitat use for Northern Resident, Southern Resident, Transient and Offshore Killer Whales. Research techniques include visual surveys, photo-identification, acoustic monitoring, genetics, and prey sampling. Field studies take place throughout BC coastal waters, including the Confined Channel Assessment Area (CCAA). As part of *Species at Risk Act* requirements, DFO's Science Branch has thus far provided advice regarding critical habitat for the Humpback Whale and for Northern Resident Killer Whales. Candidate areas that overlap the CCAA for both of these species have been identified. The region of Camaano Sound also appears to provide important habitat for Fin Whales and historically Fin Whales and Humpback Whales have occupied this area. [DFO]
- b) The objective of the studies referred to in our response to Sustainability Coalition Information Response 1.1 a is not to assess the risk of injury or mortality to whales from ship strikes associated with the Northern Gateway Project. A ship strike risk assessment would require a quantitative analysis of the seasonal and spatial densities of Whales in the Confined Channel Assessment Area (CCAA), based on data from intensive systematic line transect surveys. Such surveys have not been undertaken by Fisheries and Oceans Canada as it is Northern Gateway's responsibility to conduct any studies necessary to support the assessment of its project. Fisheries and Oceans Canada is prepared to review the results of such surveys if these are provided by Northern Gateway. [DFO]

- c) Please see Fisheries and Oceans Canada's response to the Panel Commission IR 1.2 filed June 7, 2012 for information on the status of the recovery strategy for Humpback Whales. [DFO]

## 1.2 SARA Species

### Reference:

- i. Department of Justice, Volume 2, Part 2 – Fisheries and Oceans Canada (Doc. No. A2K4S2), paragraph 117.

### Preamble:

Reference i) states that:

DFO may set limits to human-induced mortality or allowable harm that is subject to prohibitions in the case of SARA-listed species. The allowable harm for a species is used when considering the issuance of a section 73 permit. For species of special concern, the level of allowable harm is used to guide management decisions and may provide information for the consideration of permits under the Marine Mammal Regulations. Allowable harm has only been determined for Abalone, Sea Otters and Transient Killer Whales to date.

### Request:

- a) Can you please clarify why allowable harm has been determined for Abalone, Sea Otters and Transient Killer Whales?
- b) Will these species be affected by the Proponent? If so, please describe.
- c) Has DFO set limits to human-induced mortality to SARA-listed species in this case? If so, what species? Please describe.

### Response:

- a) Allowable harm (or, in the case of marine mammals, potential biological removal) is considered the amount of harm that a species can withstand (i.e., human-induced mortality) without jeopardizing survival or recovery. Since 2005, the Department of Fisheries and Oceans (DFO) has developed a Recovery Potential Assessment (RPA) for each species that is under

consideration for *Species at Risk Act* (SARA) listing as threatened or endangered. If sufficient data exists, an assessment of allowable harm will form part of the discussion and conclusions in the RPA. Allowable harm assessments (including for Abalone and Transient Killer Whales) can be used when considering whether an activity would be authorized, by way of a permit or an agreement, under section 73 of SARA. It should be noted that in 2009 Sea Otter was “down listed” and is currently listed as a species of special concern under SARA. As a result, an allowable harm assessment is no longer applicable. [DFO]

- b) The Department of Fisheries and Oceans (DFO) has provided written evidence on the potential for impacts to freshwater and marine species at risk (see DFO’s written submission at Sections 3.2.5 and 3.3.7) and an analysis of proposed mitigation measures for project related activities, including ship strikes (see Section 3.3.6). Northern Gateway has made commitments that may mitigate impacts (see e.g., the Government of Canada’s response to Coastal First Nations IR 3.15. l and 3.15. p). The Government of Canada will be relying on the evaluation of Northern Gateway’s commitments by the Joint Review Panel. [DFO]
- c) Allowable harm is the limit of human-induced mortality that the species could tolerate before survival or recovery is jeopardized. Allowable harm (i.e., limits on human-induced mortality) has been defined for Northern Abalone and Transient Killer Whales. It should be noted that in 2009 Sea Otter was “down listed” and is currently listed as a species of special concern under the *Species at Risk Act*. As a result, an allowable harm assessment is no longer applicable. [DFO]

### 1.3 Risk Management Framework

#### Reference:

- i. Department of Justice, Volume 2, Part 2 – Fisheries and Oceans Canada (Doc. No. A2K4S2), paragraph 140. 3

#### Preamble:

Reference i) states that “[t]he Proponent has also taken a risk management approach, similar to DFO’s Habitat Risk Management Framework”.

**Request:**

- a) Are proponents required to use the DFO's Habitat Risk Management Framework?
- b) If not, please explain.

**Response:**

- a) Proponents are not required to use Fisheries and Oceans Canada's Risk Management Framework. [DFO]
- b) Fisheries and Oceans Canada's Risk Management Framework is intended to provide a structured approach to decision-making that takes into account the concepts of risk, uncertainty and precaution. Fisheries and Oceans Canada's Habitat Management practitioners can use this approach to:
  - analyze development proposals and apply mitigation to minimize residual effects;
  - assess residual effects and characterize the risk they pose to fish and fish habitat;
  - use the risk characterization process to support management decisions; and
  - communicate the rationale for their decisions.

The framework provides a foundation for discussions with proponents and partners. [DFO]

## **1.4 Spill Behavior, Fate and Effects**

**Reference:**

- i) Department of Justice, Volume 2, Part 2 – Fisheries and Oceans Canada (Doc. No. A2K4S2), paragraphs 124 and 126.

**Preamble:**

Paragraph 124 states:

In DFO's view the Proponent has conducted a reasonable risk assessment and provided useful information on the risks that an oil spill would pose to fisheries resources in freshwater and marine environments

Paragraph 126 states:

The analysis of the accuracy of the spill likelihoods, spill trajectories, or fate and behavior of chemicals of potential concern present in oil lies outside of DFO's expertise and mandate. It is unclear how these two statements combine.

**Request:**

- a) If the analysis of oil spills lies outside of DFO's expertise, please clarify how DFO concludes the Proponent's spill assessment is reasonable.

**Response:**

- a) Fisheries and Oceans Canada's assessment was limited to consideration of potential impacts to fish and fish habitat and did not consider potential impacts on water quality and toxicology as this is outside of the Department's regulatory expertise. Fisheries and Oceans Canada's opinion is based on a consideration of Northern Gateway's information and Fisheries and Oceans Canada's Habitat Risk Management Framework. A description of the departmental approach to risk management is located in section 1.3.2 of Fisheries and Oceans Canada's written evidence. [DFO]

## 1.5 VECs

**Reference:**

- i. Email from Ivan Stefanov (Department of Fisheries and Oceans) to Alasdair Beattie dated January 6, 2010, page A0390805\_1-000005, attached as Schedule B.
- ii. Email from Alasdair Beattie to Ivan Stefanov dated January 7, 2010, page A0391730\_1-000087, attached as Schedule C.
- iii. Email from Ivan Stefanov to Alasdair Beattie dated January 7, 2010, page A0391730\_1-000087 - 000088, attached as Schedule D.

## **Preamble:**

Reference i) states:

Generally I think that this is a very weak document that would need major re-working. I am not saying that I disagree with some of the VECs that they have selected, although I have some reservations. I think that we should be very confident that we can justify our position regarding the VECs (I am reluctant to accept their use of the “key indicators”, nested in the VEC concept) in the face of public scrutiny, and for our own comfort in view of our mandate.

Reference ii) states:

I've only just skimmed it myself, and I have to admit that the proponent has been playing with many of these little word changes, they claim it is because of the need to try to create a single operating language between the two areas (bc vs alberta).

Reference iii) states:

Basically they have put two ways to identify elements that we call VECs (as described in the CEAA documentation on top of each other, or as I have said it before nested (Valued Environmental Components encompassing the Key Indicators). At the same time they changed slightly the wording, so it does not reflect the wording in CEAA and/or previous environmental assessments (VECs being Valued Environmental Components in this document vs. Valued Ecosystem Components in the CEAA documentation; and KIs – Key Indicators, vs KIRs – Key Indicator Resources; the latter term being used instead of VECs in some EAs in Alberta). If you add to that some slightly modified definitions and very generalized examples it would be very easy to make the readers to believe that they are in familiar concept territory, while they are not. I do not want to wade too deeply into the semantics morass, just raising some little red flags that pop into my head when I see such discreet discrepancies coming from companies that are very experienced in the art and science of EAs...Speaking of tables, you are absolutely right that some rather important VECs are missing. Others have been lumped together (terrestrial and aquatic), entire tables are missing, etc. etc. Yet another question is why we are reviewing this document at this stage – is it just that CEM, or the proponent can say that they have been approved by us?

**Request:**

- a) Given that VECs were raised as an area of concern in DFO internal correspondence, please clarify why VECs are not addressed in the DFO submissions.

**Response:**

- a) The discussions identified in the preamble to this request were preliminary in nature and part of what is typically an iterative process in reviewing and analyzing information provided by a proponent. Fisheries and Oceans Canada's (DFO) final views on the Valued Ecosystem Components (VECs) was informed by these discussions as well as guidance material from the Canadian Environmental Assessment Agency (see section 5.1 of the "Scope of the Factors - Northern Gateway Pipeline Project, August, 2009") and the National Energy Board Filing Manual. Fisheries and Oceans Canada is prepared to provide its advice to the Joint Review Panel; however, determination of the acceptability or completeness of Northern Gateway's application falls within the purview of Joint Review Panel. [DFO]

## 1.6 Alternative Routes

**Reference:**

- i. Email from Patty Menning (Habitat Management Biologist, Department of Fisheries and Oceans) to Alasdair Beattie dated January 20, 2010, page A0391447\_1-000079, attached as Schedule E.
- ii. Email from Tim Slaney to Patty Menning dated August 24, 2009, page A0391447\_2-000080, attached as Schedule F.
- iii. Email from Patty Menning to Tim Slaney dated August 21, 2009, page A0391447\_2-000080, attached as Schedule F.
- iv. Letter from Tom Pendray (Senior Habitat Biologist, Department of Fisheries and Oceans) dated July 2009, pages A0391447\_2-000083 to 000086, attached as Schedule G.
- v. Email from Charlotte Haley (Department of Fisheries and Oceans) dated March 12, 2010 attaching meeting notes from internal DFO meeting, page A0391447\_2-000147-000148, attached as Schedule H.

**Preamble:**

Reference i) states:

Tom Pendray put together a document suggesting an alternative route around the Morice/Gosnell Watershed to reduce potential impacts to fisheries resources. This alternative was circulated to the working group and Enbridge folks prior to the pipeline meeting in Prince George last summer. Ministry of Environment, Troy Ladden supported the alternative.

Reference ii) states:

The DFO and MOE suggestion of a route north of the Morice River was heard and the project is investigating it. However, a re-route of that magnitude raises issues from many disciplines. In addition, the concept surfaced after our field programs for this season were fully committed. So it may be a while before we can complete an assessment and get back to you.

Reference iii) states:

You will recall that both DFO and MOE suggested in that meeting, that a preferred route, avoiding the higher valued fish streams on the south side of Morice River, is preferred. There was a commitment to explore a route to the north of the Morice.

Reference iv) states:

The Morice River corridor has been recognized by government agencies and First Nations as having unique and extremely valuable fisheries resources. Department of Fisheries and Oceans (and First Nations) are concerned that cumulative impact of pipeline construction and operation, as well as risks involved in the event of accidents or malfunctions could have significant negative effects on Morice River fish stocks.

Reference v) states:

AB – There has been some movement because of marine clays etc. Enbridge has considered fish values (Tom Pendray's original concern), engineering and First Nations. Re-routing considers these things. Sometimes the proponent is pushing for the cheapest option. We (DFO) have tried to do, want to see how Enbridge is going to analyze the RMF.

**Request:**

- a) Given that alternative routes around the Morice Watershed were raised as an area of concern in DFO internal correspondence, please clarify why this was not addressed in the DFO submissions.

**Response:**

- a) The discussions identified in the preamble to this request were preliminary in nature and part of what is typically an iterative process in reviewing and analyzing information provided by a proponent. In the Department of Fisheries and Oceans' (DFO) written submission to the Panel, DFO provided its approach to the review of the project. In particular, in Section 1.3.2 DFO described its risk management framework, and how it guides our analysis. Section 3.2 described residual risk and uncertainties remaining. DFO has also made certain recommendations to the Joint Review Panel and Northern Gateway regarding how to further reduce or eliminate the residual risk (for a summary, see Section 3.2.8). Northern Gateway has identified its criteria for route selection and described some reasons for route revisions (Table 11.3, Vol. 6A). Fisheries and Oceans Canada is prepared to provide its advice to the Joint Review Panel. Determinations of adequacy of information provided or the nature and extent of potential environmental impacts of the proposal lie within the purview of the Joint Review Panel. [DFO]

## 1.7 Pacific Lamprey

**Reference:**

- i. Email from Tom Pendray (Habitat Biologist, Department of Fisheries and Oceans) cc: David Peacock, Melanie Anthony and Patty Menning dated August 1, 2010, page A0391120\_2-001719, attached as Schedule I.
- ii. Email to Tom Pendray dated August 10, 2010, page A0391120\_2-001719 – 001720, attached as Schedule I.

**Preamble:**

Reference i) states:

DFO's Science Branch conducted some extensive work on Skeena lamprey in the 1970's. I would be surprised if we had anything more than anecdotal information from recent years, however. In the bit of reading I have done, the

Pacific Lamprey seems to have declined all along the coast – but that does not reduce concerns that we have regarding Skeena populations. I have not been able to find any specific information on impacts of oil on lamprey ammocetes, but I would think that they would be quite vulnerable, as they rear in sandy/silty areas where oil would be likely to collect. If I find any further information, I will pass it along.

Reference ii) states:

Also, If [sic] as in the Michigan Pipeline spill, what is the effect/affect to the growth, life cycle, habitat (Silt Mudflats), and migration of this species in our area should something like the Kalamazoo incident happen. I only ask because this was a food source for Wet'suwet'en peoples, and their decline is troublesome.

**Request:**

- a) Given that there were concerns raised regarding the habitat of the Pacific Lamprey in DFO internal correspondence, please clarify why this was not addressed in the DFO submissions.

**Response:**

- a) With the exception of species listed under the *Species at Risk Act* (SARA), Fisheries and Oceans Canada (DFO) has taken a broad, risk management approach, rather than a species specific approach, to the review of the project. In its written submission to the Panel, DFO provided its approach to the review of the project. In particular, in section 1.3.2, DFO described its risk management framework and how this guides DFO's analysis. Section 3.2 noted key areas where, after the application of Northern Gateway's proposed mitigation, risk and uncertainties remain. Fisheries and Oceans Canada has also made recommendations to the Joint Review Panel and Northern Gateway regarding how to further reduce or eliminate the residual risk (for a summary, see Section 3.2.8). [DFO]

## 1.8 De-staffing of MCTS centres

**Reference:**

- i. Department of Justice, Volume 3, Part 2 – Transport Canada (Doc. No. A2K4S4), page 12.

- ii. Department of Justice, Volume 2, Part 2 – Fisheries and Oceans Canada (Doc. No. A2K4S2), page 60.
- iii. Coast Guard's planned cuts slammed by union. Comox Valley Record. December 29, 2011. Accessed online: <http://www.comoxvalleyrecord.com/news/136403383.html>, attached as Schedule J.

**Preamble:**

Reference i) states:

The Canadian Coast Guard's Marine Communications and Traffic Services (MCTS) monitor coastal vessel traffic. All vessels of 500 tons gross tonnage or more must report their identity, destination, route, information on pollutants on board, and any defects 24 hours before entering the vessel traffic services (VTS) zone that extend along Canada's coastal waters. This information helps promote safe and efficient navigation and environmental protection and allows any safety or environmental concerns to be addressed before the vessel enters Canadian waters.

Reference ii) states:

"[t]he proposal does not involve a significant workload increase for marine communications and vessel traffic services."

**Request:**

- a) Please confirm if MCTS centres in the Pacific Region will see a reduction in officers on watch for most of the year.
- b) If yes, when will the reductions come into effect?
- c) If yes, were these reductions taken into account when assessing the workload increase of marine communications and vessel traffic services associated with the Northern Gateway proposal?

**Response:**

- a) Marine Communication and Traffic Services Centres in the Pacific Region will continue to be staffed with highly trained officers capable of meeting demands for Marine Communication and Traffic Services. The number of officers on watch at any given time is determined in accordance with

established workload standards which are detailed in Canadian Coast Guard Annex II. [CCG]

- b) Please see response to Sustainability Coalition information request 1.8 (a). [CCG]
- c) Please see response to Sustainability Coalition information request 1.8 (a). [CCG]

## **1.9 Port State Control**

### **Reference:**

- i) Department of Justice, Volume 3, Part 2 – Transport Canada (Doc. No. A2K4S4), page 12

### **Preamble:**

Reference i) paragraph 23 states:

Port State Control (PSC) is a vessel inspection program whereby foreign vessels entering a sovereign state's waters are boarded and inspected to ensure compliance with various major international maritime conventions.

Reference i) paragraph 24 further states:

The objective of PSC is to detect and inspect substandard vessels and help eliminate the threat that they pose to life, property and the marine environment.

### **Request:**

- a) Please clarify whether PSC inspectors enter the cargo tanks of oil tankers to conduct inspections.

### **Response:**

- a) Port State Officers on a routine inspection normally do not enter cargo tanks of oil tankers. However, they may do so if there is clear evidence of a safety issue with the structural integrity. An internal examination of the cargo tanks

can be arranged after ensuring the tanks are gas free and ventilated for entry. [TC]

## 1.10 Lack of AIS Coverage

### Reference:

- i. Department of Justice, Volume 3, Part 2 – Transport Canada (Doc. No. A2K4S4), page 19.
- ii. Marine Communication and Traffic Services. Improved Radar Coverage in Northern BC (Pacific). October 28, 2009. Accessed online: <http://www.ccg-gcc.gc.ca/e0006676#RADAR>, attached as Schedule K.

### Preamble:

Reference i) states:

Ships of 300 tons gross tonnage or more (other than fishing vessels) engaged on an international voyage and domestic ships of 500 tons gross tonnage or more (other than fishing vessels) must be fitted with an automatic identification system (AIS). AIS automatically provides information, including the ship's identity, type, position, course, speed, navigational status and other safety-related information, to AIS-equipped shore stations, other vessels and aircraft. These ships can automatically receive such information from similarly fitted vessels, as well. This improves a ship's situational awareness and the ability of shore VTS if equipped to receive AIS, to monitor marine traffic. All five MCTS centres on the westcoast are equipped with AIS.

Reference ii) states:

### CLIENT COMMENTS

There was frequent comment regarding the lack of radar coverage in northern BC. During the Prince Rupert LMAC meeting, clients recognize that large deep sea vessel traffic is increasing significantly in both Prince Rupert and the Kitimat area and that it is unacceptable that there is no radar coverage in the area (PACMAR, North Coast LAMC). (Pacific, follow-up report).

### RESPONSE

The Canadian Coast Guard is implementing a national AIS network to be commissioned in the Spring of 2010. This new system is intended to enhance

safety of life at sea and improve the safety and efficiency of navigation. In addition, this system will be used as a Vessel Traffic Services tool improving the quality of the information available to the MCTS Officers for traffic management. CCG will review the requirement for Vessel Traffic Services radar coverage after AIS is functioning for a 12 month period in the Prince Rupert region.

**Request:**

- a) Please confirm whether the national AIS network has been commissioned and completed.
- b) Please provide a map of current AIS and radar coverage in northern BC.

**Response:**

- a) The Canadian Coast Guard confirms that the national AIS system is fully operational. [CCG]
- b) The map attached as Canadian Coast Guard Annex I indicates preliminary AIS coverage for vessels transiting the Kitimat zone without loss of signal contact. The map was developed using actual AIS system performance data recorded by two tugs. Large tankers are expected to have better AIS reception than tugs given they are equipped with higher antennas.

The colours on the map indicate the following coverage:

- Red (at least 1 position report every minute)
  - Yellow (at least 1 position report every 30 seconds)
  - Green (at least 1 position report every 10 seconds)
- [CCG]

## **1.11 Insurance for Condensate Tankers**

**Reference:**

- i) Department of Justice, Volume 3, Part 2 – Transport Canada (Doc. No. A2K4S4), page 41

**Preamble:**

Reference i) states:

Oil spills not covered by these two international conventions are governed by Division 2 of Part 6 of the MLA. This includes non-persistent oils such as refined oil, gasoline, jet fuel, kerosene, etc. Some forms of condensate would fall under this category of oil, as well. While section 77 of the MLA makes the shipowner strictly liable for the pollution damages from such a spill, there are currently no compulsory insurance requirements. The shipowners' liability would also be limited in accordance with the limits set out in Part 3 of the MLA.

**Please note** that the IMO adopted the *Protocol of 2010 to the International Convention on Liability and Compensation for Damage in connection with the Carriage of Hazardous and Noxious Substances by Sea, 1996* (2010 HNS Protocol) in April 2010. This protocol would put in place a liability and compensation regime for spills of HNS, including non-persistent oils currently covered by Division 2 of Part 6 of the MLA. This includes strict liability for the shipowner, compulsory insurance, higher limits of liability and access to a new international compensation fund. Canada was a leader in developing the 2010 HNS Protocol at the IMO and showed its support for its eventual coming into force when it signed the Protocol, subject to ratification on October 25, 2011.

**Request:**

- a) Which forms of condensate would fall under the category of non-persistent oils defined in Division 2 of Part 6 of the MLA?
- b) Please clarify whether Transport Canada has adopted the 2010 HNS Protocol.
- c) If Transport Canada has not adopted the 2010 HNS Protocol, please clarify whether non-insured ships carrying non-persistent oil (as defined by Division 2 of Part 6 of the MLA) can enter Canadian waters, given that they have no compulsory insurance requirement.

**Response:**

- a) The definition of "oil" in this Division of Part 6 is found in section 75 of the *Marine Liability Act*. Oil is defined as "oil of any kind or in any form and includes petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes but

does not include dredge spoil". Should the condensate, which is a liquid hydrocarbon used to dilute the bitumen, be considered "oil of any kind or in any form", this Division of the Act would then apply. [TC]

- b) Canada has not adopted the 2010 HNS Protocol. On October 25, 2011, Canada signed the Protocol, subject to ratification. Signature does not mean ratification but is rather an expression of intent. Legislation and regulations must be passed and adopted that implement the 2010 HNS Protocol prior to Canada being able to proceed to ratification. [TC]
- c) It should be noted that 95% of the world's tankers are insured for third party liabilities by the 13 main Protection and Indemnity Associations (P&I Clubs). There are currently two compulsory insurance obligations in Canada: for tankers carrying persistent oil in accordance with the 1992 Civil Liability Convention and for all other ships over 1000 gross registered tonnes in accordance with the 2001 Bunkers Convention. While there currently is no compulsory insurance requirement for ships carrying non-persistent oil in Canada, shipowners remain liable for damages in accordance with the *Marine Liability Act*, and the Ship-Source Oil Pollution Fund is also available to provide an additional tier of compensation. [TC]

## 1.12 Modelling

### Reference:

- i. Department of Justice, Volume 7, Part 2 – Environment Canada (Doc. No. A2K4U1), paragraph 64.
- ii. Mark Lee, Canadian Centre for Policy Alternatives, "Enbridge Pipe Dreams and Nightmares: The Economic Costs and Benefits of the Proposed Northern Gateway Pipeline" (March 2012), page 22, attached as Schedule L.

### Preamble:

Reference i) states that with respect to the Proponent's planning model, evaporation model and emulsion formation model "*that there continue to be significant uncertainties that are not addressed by the [Proponent's] submissions*".

Reference ii) states that “*the remoteness of the region may mean that in the event that spills or pipeline breaks do occur, they go undetected for lengthy periods of time, resulting in proportionately greater environmental damage*”.

**Request:**

- a) Will Environment Canada require a different response planning model, evaporation model, and emulsion formation model from the Proponent?
- b) Has Environment Canada considered the effect of remoteness of the region on the emergency response models?

**Response:**

- a) Paragraph 64 of the Government of Canada Written Evidence, Volume 7 – Part 2 ([A2K4U1](#)), referenced in the Preamble to this IR, provides the rationale (along with paragraphs 65 and 66) for Recommendation #2-3 (paragraph 67). That recommendation for a research program is intended to address uncertainties such as sinking oil or oil-suspended particulate matter interaction, evaporation rates, and emulsion formation as identified in paragraph 64.

[EC]

- b) Environment Canada noted concern regarding the remoteness of the region in the Government of Canada Information Request No. 1 to Northern Gateway ([A2C4I8](#)), IR 107: “*Travel times and set-up times on station should be noted from proposed equipment cache locations for each scenario presented*”. The response from Northern Gateway notes, in part, that: “*The time required for spill response will be included in the operational Oil Spill Response Plans, which are to be completed at least six months prior to commencement of operations*” (Northern Gateway Response to Federal Government Information Request No. 1 ([A2E8J0](#)), Page 223). Northern Gateway further indicated that response times would be guaranteed to be within a twelve hour window in the both the Confined Channel Assessment Area and the Open Water Area. A further enclosure by Northern Gateway provides a map of their estimated response times for the proposed marine traffic areas (Attachment Federal Government IR 107, ([A2E8K2](#))). [EC]

### 1.13 Approach to Spill Modelling

**Reference:**

- i. Department of Justice, Volume 7, Part 2 - Environment Canada (Doc. No. A2K4U1), paragraph 83.

**Preamble:**

Reference i) states:

Environment Canada has also begun a more detailed technical review of the Proponent's approach to spill modelling, and will make the findings of this review available to the Proponent and the Panel upon request.

**Request:**

- a) Please provide the detailed technical review of the Proponent's approach to spill modelling.

**Response:**

- a) The Department's technical review of the Proponent's approach to spill modelling is ongoing as part of the environmental assessment and associated information exchanges. However, in advance of the final hearings, Environment Canada plans to make the completed review available to the Panel for its information.

### 1.14 Spill Behaviour, Fate and Effects

**Reference:**

- i. Department of Justice, Volume 7, Part 2 - Environment Canada (Doc. No. A2K4U1), page 19, paragraph 64.
- iii. Coastal Response Research Center. 2008. Investigation of Physical and Chemical Causes of Heavy Oil Submergence – Project Bulletin. Accessed March 2012 from:  
[http://www.crrc.unh.edu/progress\\_reports/hollebone/hollebone\\_projectsummary.pdf](http://www.crrc.unh.edu/progress_reports/hollebone/hollebone_projectsummary.pdf), attached as Schedule M.

**Preamble:**

Reference i) states:

The Proponent's response planning model does not account for sinking oil or for oil-suspended particulate matter (oil-SPM) interactions. The ecological risk assessment model does include some consideration of sinking, using a conservative model. For oils with densities close to that of water, like both the diluted bitumen and synthetic crude products, even small amounts of sediment can cause sinking. Environment Canada is concerned that oil sinking and oil sediment interactions have been underestimated in the provided scenarios. In the cases of both the Enbridge-Kalamazoo and the Kinder Morgan-Burnaby spills, significant oil-sediment interactions occurred.

Based on reference ii), it is Living Oceans Society's understanding that Bruce Hollebhone of the Environmental Science and Technology Centre is conducting research to "*examine the cause and effects of density changes in heavy petroleum oils that prompt just-buoyant oils to become over washed and sink and the physical and chemical causes for their refloatation* (Reference ii, page 1)." The analysis appears to include cold lake bitumen as a test oil. This analysis could provide additional insight into the submergence potential of cold lake bitumen in relation to the Northern Gateway project.

**Request:**

- a) Please advise on the status of the Investigation of Physical and Chemical Causes of Heavy Oil Submergence research.
- b) If the research is complete, please submit a copy of the final report.

**Response:**

- a) The project "Investigation of Physical and Chemical Causes of Heavy Oil Submergence" is a one-year project funded by the US National Oceanic and Atmospheric Administration through the Coastal Response Research Center at the University of New Hampshire. The experimental work is complete and the draft report is currently in preparation for peer review.

[EC]

- b) The report is not yet publically available. When peer-reviewed and accepted, it will be published on the Coastal Response Research Center website at: [www.crrc.unh.edu](http://www.crrc.unh.edu).

[EC]

## 1.15 Product Behaviour Model

### Reference:

- i. Department of Justice, Volume 7, Part 2 – Environment Canada (Doc. No. A2K4U1), paragraph 65.

### Preamble:

Reference i) states:

Because of these continuing, important uncertainties with respect to product behaviours in the marine environment, Environment Canada considers the response scenario results to be of limited value in use for spill response planning and risk assessment. Significant knowledge gaps remain for predicting what these relatively-unstudied products will do in a British Columbia northwest coast marine environment.

### Request:

- a) Will Environment Canada require the Proponent to provide a product behavior model or other method for predicting these products?

### Response:

- a) See response to IR 1.12(a).

[EC]

## 1.16 Federal Recovery Strategies

### Reference:

- i. Department of Justice, Volume 7, Part 2 – Environment Canada (Doc. No. A2K4U1), paragraphs 139-141.

### Preamble:

Reference i) describes the potential for federal recovery strategies with respect to certain species.

### Request:

- a) Can you please clarify what process the Proponent must follow if federal recovery strategies are not in place for the species discussed in paragraphs 139-141?

### Response:

- a) If final recovery strategies are not in place, in accordance with guidance offered in Environment Canada's document *Addressing Species at Risk Act Considerations Under the Canadian Environmental Assessment Act for Species Under the Responsibility of the Minister responsible for Environment Canada and Parks Canada* (2010, reference provided below), it is recommended that Northern Gateway make use of best available information (e.g. draft recovery strategies, Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessment reports, advice from recovery teams) to inform appropriate mitigation and monitoring measures.

### Reference:

SARA-CEAA Guidance Working Group (Canada). 2010. *Addressing Species at Risk Act considerations under the Canadian Environmental Assessment Act for species under the responsibility of the Minister Responsible for Environment Canada and Parks Canada* [electronic resource]: a federal guide. Available online at:  
<http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=0EA3B9D2-731B-4DC8-8BCF-30F9F8C203ED>

[EC]

## 1.17 Final Recovery Strategies

### Reference:

- i. Department of Justice, Volume 7, Part 2 – Environment Canada (Doc. No. A2K4U1), paragraph 151.

### Preamble:

Paragraph 151 states that:

While critical habitat for boreal caribou has not yet (as of December 2011) been identified in a final SARA recovery strategy, it will be identified to the extent possible in a final recovery strategy within a timeline that would overlap with that for the approval and early construction of the Project, i.e. within the 2012 calendar year.

### Request:

- a) Can you please confirm that a final recovery strategy will be in effect by the early construction phase of the Project?

### Response:

- a) The paragraph reference of 151 in this IR Reference and Preamble is incorrect; the referenced paragraph is 156. Environment Canada is working to appropriately consider and incorporate the large number of public comments received during the extended comment period on the proposed Boreal Caribou Recovery Strategy. Environment Canada is making best efforts to complete the Boreal Caribou Recovery Strategy, and currently anticipates that it will be finalized well prior to the early construction phase of the project.

[EC]

## 1.18 Final Recovery Strategies

### Reference:

- i. Department of Justice, Volume 7, Part 2 – Environment Canada (Doc. No. [A2K4U1](#)), paragraph 161.

### Preamble:

Reference i) states that “[a] recovery strategy for SMC has not yet been completed, but is expected to be completed in 2012-2013”.

### Request:

- a) If a final recovery strategy is not completed in 2012-2013, what are Environment Canada’s recommendations?

### Response:

- a) Environment Canada’s recommendations are provided within paragraph 176 (part of Recommendation #3-4) in the Government of Canada Written Evidence, Volume 7 – Part 2 ([A2K4U1](#)). Should new information arise as part of the recovery planning process prior to the final argument stage of the Joint Review Panel process, Environment Canada would give this information due consideration in any final arguments made to the Joint Review Panel.

[EC]

## 1.19 Monitoring

### Reference:

- i. Department of Justice, Volume 7, Part 2 – Environment Canada (Doc. No. [A2K4U1](#)), paragraph 207

### Preamble:

At reference i), Environment Canada recommends that “[t]he appropriate period of time for monitoring is five years; however, three years of monitoring would be considered acceptable”.

**Request:**

- a) Can you please provide reasons why the appropriate time, which is five years, is not the only option being recommended?

**Response:**

- a) In Recommendation #3-10 (paragraph 207 of the Government of Canada Written Evidence, Volume 7 – Part 2 ([A2K4U1](#)), Environment Canada indicated that: “*the appropriate time period for monitoring is five years; however, three years of monitoring would be considered acceptable provided that compensation is based on residual wetland function effects present at the end of the third year*” (emphasis added). Under a five year monitoring plan, compensation would be based on the residual wetland function effects present at the end of the fifth year. Residual effects are expected to decrease over time. If, in following this recommendation, Northern Gateway completes only three years of monitoring and compensates based on residual effects at the end of that time period, the expectation is that the level of residual effects, and therefore amount of compensation that would be required, would be higher than if they were to compensate based on the effects at the end of five years.

[EC]

## 1.20 Spill Probability

**Reference:**

- i. Department of Justice, Volume 7, Part 2 - Environment Canada (Doc. No. A2K4U1), paragraph 81.

**Preamble:**

Reference i) states:

It must be noted that Environment Canada’s expertise lies in understanding and predicting the behaviour, fate and effects of spills; the Department does not have the mandate or expertise to assess the probability that a spill may occur. A discussion of probability of a spill in the marine environment along

the proposed shipping route may be found in the Proponent's Marine Shipping Quantitative Risk Analysis Technical Data Report (Exhibit A1Z6L8).

**Request:**

- a) Which government department has the mandate or expertise to assess the probability that a spill may occur?
- b) Given the profound impact a spill could have on the Canadian environment, is the federal government intending to conduct or contract a spill probability analysis?
- c) If the federal government is not intending to conduct or contract a spill probability analysis, please clarify the reasoning for this decision.

**Response:**

- a)-c) Canada's National Oil Spill Preparedness and Response Regime is in place to ensure that potential polluters take measures to prevent, mitigate and respond to oil spill incidents. Under the Regime, departments work together within their respective mandates to reduce the likelihood of marine incidents.

Transport Canada is the lead regulatory agency responsible for administering the National Oil Spill Preparedness and Response Regime. Transport Canada ensures that the appropriate level of preparedness is available to respond to marine oil pollution incidents in Canada.

The Canadian Coast Guard is the lead federal agency to ensure an appropriate response to shipsource and mystery-source spills in Canada's marine environment, by acting as the Federal Monitoring Officer, On-Scene Commander, or as a Resource Agency, providing support to other departments and agencies in responding to pollution incidents under their mandates.

Weather conditions are one of the many factors that are considered in a quantitative risk assessment for marine shipping. In that regard, Environment Canada has expertise to review meteorological data and wave height conditions that are inputs to the risk assessment.

With respect to emergencies preparedness, response and recovery, Environment Canada's Environmental Emergencies Science and Technology Section provides specialized scientific and technical advice on oil properties, behaviour, fate, and incident countermeasures, as well as spill trajectory modeling.

Northern Gateway commissioned the consultant Det Norske Veritas, a marine classification society that is internationally recognized for its expertise in marine risk assessment, to prepare a Marine Shipping Quantitative Risk Analysis for the Termopol review. The study included an assessment of the unmitigated frequency at which different types of incidents (which could result in oil spills) may occur during passage along the shipping route to and from the marine terminal. Please consult section 3.1 of the TERMOPOL report [\[A2Q4A7\]](#). [TC, CCG, EC]

Transport Canada notes that the Economic Action Plan 2012 provides funding for strengthening oil spill preparedness through the following measures:

- Appropriate legislative and regulatory frameworks related to oil spills, and emergency preparedness and response.
- Research to improve our scientific knowledge and understanding of marine pollution risks, and to manage the impacts on marine resources, habitats and users in the event of a marine pollution incident.

Other measures outlined in the Economic Action Plan 2012 will enhance safety and spill prevention:

- New regulations which will enhance the existing tanker inspection regime by strengthening vessel inspection requirements.
- A review of handling processes for oil products by an independent international panel of tanker safety experts.
- Improved navigational products, such as updated charts for shipping routes.

Transport Canada, as per the recommendations of the Commissioner of the Environment's 2010 report, is developing the process for the assessment of risks of oil spills on an on-going basis. Transport Canada has recently completed the scoping stage of the project and will consult with its federal partners in the coming months. Subsequent to these consultations, a risk assessment of ship-source oil spills will be coordinated interdepartmentally. This will include risk identification, risk analysis and risk evaluation. [TC]

## 1.21 Failure to Provide the Construction Environmental Protection and Management Plan Prior to Approval

### Reference:

- ii. Department of Justice, Volume 7, Part 2 – Environment Canada (Doc. No. A2K4U1).
- iii. Attachment to e-mail from Christi Horne (Canadian Wildlife Service, Edmonton) to Phil Wong (Environment Canada, Pacific and Yukon Region) dated April 1, 2011, pages 000698-000702, attached as Schedule N.

### Preamble:

In reference ii), referring to the Proponent's application, Ms. Horne, Canadian Wildlife Service, stated:

FOR PYR: There is a recurring theme which is problematic in answering the majority of the questions posed by PNR, in the GoC Procedural Direction Submission. As Section 7.3(vi), page 23 of the Proponent's response to GoC Procedural Direction Submission States [sic]:

*The detailed Construction Environmental Protection and Management Plan (EPMP) will be prepared by Northern Gateway and filed at least 60 days before construction starts and will include information on RoW activities such as vegetation clearing in wetlands. The mitigation measures to be applied at specific sites will be identified at that time and incorporated into Environmental Alignment Sheets.*

As such, the majority of information we have requested (wetlands, habitat, mitigation) will only become available after the project has been approved. How do the PYR experts plan to address this? PNR will follow PYR's lead, but would like to know so that EC's comments remain consistent. Of the original 10 questions posed by PNR, 8 have been deferred by the proponent to wait until after the project has been approved for answers. If EC is planning on challenging the proponent on this, then PNR will be resubmitting our 8 unanswered questions.

Reference i) makes no reference to this concern and does not require the Proponent to submit the Construction Environmental Protection and Management Plan prior to project approval. Therefore, it is not clear how Environment Canada can determine the adequacy of the Proponent's proposed mitigation plans in the absence of the Construction Environmental Protection and Management Plan.

**Request:**

- a) How will Environment Canada assess the Proponent's plans for mitigation of pipeline route impacts in the absence of a Construction Environmental Protection and Management Plan at the environmental assessment stage?

**Response:**

- a) Subsequent to the email identified above, and during the Information Request stages of the Joint Review Panel process, Environment Canada requested a Construction and Environmental Management Plan or a framework for such a plan, coupled with worst case scenarios, from Northern Gateway (see Government of Canada Information Request No. 1 to Northern Gateway ([A2C418](#)) IR No. 70, and Government of Canada Information Request No. 2 to Northern Gateway ([A2H1Y3](#)) IR No. 64). Northern Gateway has since provided further information and indicated that the Construction and Environmental Management Plan would be finalized in consultation with provincial and federal regulatory agencies during the detailed engineering and detailed routing phase and following the completion of centreline surveys. Should the Project proceed, Environment Canada anticipates being involved in these consultations.

As demonstrated by the IRs referenced above, although additional information would be preferred during the environmental assessment phase, discussions with Northern Gateway indicated that detailed engineering and route planning would need to be completed before detailed mitigation plans could be provided. Environment Canada understands and that flexibility is needed in the final route plan in order to accommodate detailed engineering and to allow for route adjustments based on evidence presented to the Joint Review Panel by participants. Environment Canada further understands that it is for these reasons that the environmental assessment is based on a 1km wide route corridor.

In the Environmental Assessment Application, and in responses to IRs (both Environment Canada's and others), Northern Gateway has provided an indication of the types of mitigation measures that would be implemented. This provides Environment Canada with some level of confidence that Northern Gateway would consider appropriate measures in the detailed planning and construction stages of the Project. With respect to wildlife that falls under Environment Canada's mandate where there are particular concerns regarding potential Project impacts, Environment Canada has made recommendations within the Departmental Written Evidence to help ensure that any impacts to these species are appropriately addressed.

[EC]

## 1.22 Mitigation of Wetland Impacts

### Reference:

- i. Department of Justice, Volume 7, Part 2 – Environment Canada (Doc. No. A2K4U1), pages 62-63.

### Preamble:

Recommendation 3-7 in reference i) states:

Environment Canada recommends that, prior to commencement of Project activities, a detailed assessment of wetland functions be completed for wetlands that would be impacted by the Project as committed to by the Proponent under Northern Gateway Response to Federal Government IR No. 2, Question 54 (Exhibit A2I9C9). This assessment should include surveys to identify the presence and distribution of migratory birds and species at risk in relation to potentially impacted wetlands and associated riparian areas. In addition, this would include an assessment of other potentially impacted functions (hydrology, biochemical cycling, habitat, climate). The assessment in the form of a report should be completed to the satisfaction of Environment Canada and other relevant agencies at least 180 days prior to commencement of construction activities.

Paragraph 196 of reference i) indicates that the detailed wetland assessment is required to establish a baseline from which to assess the success of wetland restoration subsequent to Project construction completion.

While the detailed wetland assessment may provide a baseline against which to evaluate the success of wetland restoration subsequent to the completion of the Project construction, it fails to address proactively the likelihood of successful wetland restoration and mitigation. Similar to the issue in Information Request 1.21 above, it is not clear how Environment Canada can assess the likelihood of successful wetland restoration or mitigation when the detailed wetland assessment will not be completed until after project approval.

### Request:

- a) Will Environment Canada require the Proponent to prepare the detailed wetland assessment during the environmental assessment phase in order to evaluate the likelihood of successful wetland restoration or mitigation?
- b) If the detailed wetland assessment indicates wetland areas like are unlikely to be successfully restored or mitigated, what steps will Environment Canada take to prevent the destruction of such wetland areas?

**Response:**

- a) As indicated in the Preamble to the Information Request, as part of Recommendation #3-7 (paragraph 197) of the Government of Canada Written Evidence, Volume 7 – Part 2 ([A2K4U1](#)), Environment Canada has recommended that a detailed assessment of wetland functions that would be impacted by the Project be completed prior to commencement of Project activities.

[EC]

- b) Generally, with respect to wetlands for which the no net loss of wetland function goal of the Federal Policy on Wetland Conservation applies, Environment Canada will continue to recommend, in accordance with Recommendation #3-6 (paragraphs 191-192 of the Government of Canada Written Evidence, Volume 7 – Part 2 ([A2K4U1](#))), that Northern Gateway implement the mitigation hierarchy of avoidance, minimization and compensation to achieve this goal. Should monitoring demonstrate that restoration or mitigation from construction is unsuccessful and that there are residual effects (i.e. effects persisting after five years), Environment Canada recommends that compensation be provided (see Recommendation #3-9, paragraphs 202 to 205). In cases where the assessment makes it clear that restoration and mitigation efforts are unlikely to be successful, Environment Canada will evaluate the situation on a case-by-case basis, and may recommend that further measures to avoid impacts are warranted or recommend that Northern Gateway implement compensation right from the outset of the Project.

As indicated in paragraph 204 of Recommendation #3-9 of the Government of Canada Written Evidence, Volume 7 – Part 2 ([A2K4U1](#)), Environment Canada recommends that the mitigation hierarchy be applied broadly to the Project for wetlands and associated riparian areas that support species listed under the *Species at Risk Act*, and/or support important breeding populations of migratory birds. Finally, as indicated in paragraph 205 of Recommendation #3-9, in other areas where the Wetland Policy goal of no net loss does not explicitly apply, Environment Canada recommends that Northern Gateway take all feasible measures to reduce impacts to wetland functions through avoidance and minimization.

[EC]

## 1.23 Monitoring Period for Wetland Restoration

### Reference:

- i. Department of Justice, Volume 7, Part 2 – Environment Canada (Doc. No. A2K4U1), page 65.
- ii. Government of Canada Information Request No. 1 (Doc. No. A2C4I8), page 69.
- iii. Attachment to e-mail from Christi Home (Canadian Wildlife Service, Edmonton) to Phil Wong (Environment Canada, Pacific and Yukon Region) dated April 1, 2011, pages 000698-000702, attached as Schedule N.

### Preamble:

In reference ii), the Government of Canada stated that the Proponent's Wetland and Riparian Monitoring Framework should cover:

A minimum five year post-construction wetland monitoring program to ensure that no net loss predictions (where applicable) are validated.

Similarly, in reference iii), Environment Canada recommended a minimum five year post construction wetland monitoring program to ensure that the no net loss predictions are validated.

Yet, in reference i), Environment Canada stated:

The appropriate period of time for monitoring is five years; however, three years of monitoring would be considered acceptable, provided that compensation is based on residual wetland function effects present at the end of the third year of monitoring.

### Request:

- a) Please explain how Environment Canada determined that a three year monitoring period would be acceptable when Environment Canada's internal review and information request indicated that a five-year minimum monitoring period was required.

### Response:

- a) See response to IR 1.19(a).

[EC]

## 1.24 Discrepancy in Northern Goshawk Survey

### Reference:

- i. Department of Justice, Volume 7, Part 2 – Environment Canada (Doc. No. A2K4U1), page 40.
- ii. E-mail from Wendy Easton (Canadian Wildlife Service, Pacific and Yukon Region) to Andrew Robinson (Canadian Wildlife Service, Pacific and Yukon Region) and Ailish Murphy (Canadian Wildlife Service, Pacific and Yukon Region) dated September 1, 2010, page 000185, attached as Schedule O.
- iii. Government of Canada Information Request No. 2 (Doc. No. A2H1Y2), pages 60-61.

### Preamble:

In reference ii), on internal review of the Proponent's breeding bird surveys, Wendy Easton, Canadian Wildlife Service, noted that the Proponent's surveys had identified only three Northern Goshawk breeding territories over 1000 kilometres of pipeline route, while a more intensive independent survey had located 15 breeding territories over 100 kilometres of pipeline route.

In Recommendation 3-2 in reference i), Environment Canada recommends additional breeding bird surveys but makes no mention of the discrepancy identified by Ms. Easton.

In reference iii), Environment Canada notes that the Proponent commits to conducting additional centreline surveys post-project approval and prior to project construction. However, Environment Canada states that a full assessment of the impacts, mitigation and monitoring measures should be included in the Assessment Report for consideration by the Panel.

### Request:

- a) What steps will Environment Canada take or require the Proponent to take to address the discrepancy identified by Ms. Easton and to provide a full assessment of the potential impacts on Northern Goshawk breeding territories for the Panel's consideration?

### Response:

- a) For clarification, reference (iii) refers to surveys for Cryptic Paw, Horned Grebe and Band-tailed Pigeon, not Northern Goshawk.

With respect to the survey discrepancy, while Environment Canada has attempted to be as thorough as possible in the Departmental written evidence, it was not feasible or possible to include details of all technical review comments on surveys within the evidence. Should the Project proceed, during further stages of the Project planning process, including discussions with Northern Gateway regarding centreline surveys and further development and finalization of the Construction and Environmental Management Plan, survey discrepancies, such as the one outlined in Ms. Easton's email would continue to be raised by Environment Canada. Recommendations to address this and other discrepancies would be made by Environment Canada to the Proponent.

[EC]

## 1.25 Light and Marine Bird Collisions

### Reference:

- i. Department of Justice, Volume 7, Part 2 – Environment Canada (Doc. No. A2K4U1).
- ii. Attachment to e-mail from Ken Morgan (Department of Fisheries and Oceans) to Ailish Murphy (Canadian Wildlife Service, Pacific and Northern Region) dated August 29, 2010 at pages 000172-000178, attached as Schedule P.

### Preamble:

In reference ii), Mr. Morgan refers to the Proponent's conclusion that there is "*little to suggest that the attraction or disorientation caused by nearshore artificial light is common in marine birds, it is concluded...that the likelihood of an effect is very low*". In response, Mr. Morgan states:

*Comment: contrary to what the author said, several local species (Fork-tailed and Leach's Storm-Petrels, Cassin's Auklets and Ancient Murrelets and probably others as well) are attracted to ship's lights at night, especially during fog. At such times it could be expected that a number of birds will collide with the vessels.*

Reference i) makes no mention of the attraction of marine birds to ships' lights and the likelihood of collisions.

**Request:**

- a) Having been alerted to the issue of the attraction of marine birds to ships' lights and the likelihood of collisions, why is this issue not addressed in Environment Canada's written submission?
- b) Will Environment Canada require the Proponent to reconsider their conclusion with respect to ships' light and marine bird collisions and to conduct additional research consistent with the evidence provided by Mr. Morgan?

**Response:**

- a) Environment Canada has focused the Marine Bird section (section 3.2.2) of its Government of Canada Written Evidence, Volume 7 – Part 2 ([A2K4U1](#)), on potential impacts from the project where there are potential concerns regarding population level effects. The points made in Mr. Morgan's email refer to impacts to individuals. Further analysis involving Environment Canada biologists (including Mr. Morgan) and environmental assessment staff followed that email. Through this analysis, it was decided that due to the nature of the effects, and the low potential for influencing project outcomes (since ship lighting is needed for safety requirements), the issue of ship collisions due to lighting would not be a focal issue in Environment Canada's review of the Project. In particular, it is Environment Canada's view that the potential effects are not likely to cause population level impacts and that concern regarding this issue is much lower relative to the other issues raised in the Marine Bird section.

While this issue is not explicitly addressed in the Government of Canada Written Evidence, Volume 7 – Part 2 ([A2K4U1](#)), it should be noted that in general, Environment Canada recommends that Northern Gateway use best management practices to minimize impacts to migratory birds throughout the Project (Recommendation #3-1, paragraph 122).

[EC]

- b) See response to IR 1.25(a).

[EC]

## 1.26 Disturbance of Marine Birds

### Reference:

- i. Department of Justice, Volume 7, Part 2 – Environment Canada (Doc. No. A2K4U1), page 37.
- ii. Attachment to e-mail from Ken Morgan (Department of Fisheries and Oceans) to Ailish Murphy (Canadian Wildlife Service, Pacific and Northern Region) dated August 29, 2010, at pages 000172-000178, attached as Schedule P.

### Preamble:

In reference ii), with respect to the Proponent's conclusions with respect to the potential disturbance of marine birds by ship traffic, Mr. Morgan states:

Comment: the authors state that: *“Potential environmental effects include sensory disturbance and habitat avoidance from in-air acoustic emissions, the physical presence of vessels and, possibly, underwater noise.”* I feel that they have too quickly glossed over the probable impact of repeated/increased disturbance (flushing, diving, disruption of feeding or resting, etc.) by the vessels. I recommend that they need to investigate the current level of disturbances (different species, different locations at different times of the year) – monitoring the behavioural response at approaching vessels, the length of time and the energetic cost of avoidance and/or disruption of feeding, and then based upon the anticipated additional boat traffic, model the energetic costs to each bird. And this should be done for all species – not just the two “Key Indicator” species.

Reference i) makes only passing mention of sensory disturbance of migratory birds and makes no mention of the potential impacts of the disturbance of marine birds by ship traffic.

### Request:

- a) Having been alerted to the issue of the disturbance of marine birds by ship traffic, why is this issue not addressed in Environment Canada's written submission?
- b) Will Environment Canada require the Proponent to carry out the investigations recommended by Mr. Morgan?

**Response:**

- a) Environment Canada has focused the Marine Bird section (section 3.2.2) of its Government of Canada Written Evidence, Volume 7 – Part 2 ([A2K4U1](#)), on potential impacts from the project where there are concerns regarding population level effects. Further analysis involving Environment Canada biologists (including Mr. Morgan) and environmental assessment staff followed the email referenced above. Through this analysis, it was decided that due to the nature of the effects and the low potential for influencing project outcomes, the issue of disturbance of marine birds by ship traffic would not be a focal issue in Environment Canada's review of the Project. In particular, Environment Canada considers it doubtful that the potential effects would be at the level of the population and that concern regarding this issue is much lower relative to the other issues raised in the Marine Bird section.

While this issue is not explicitly addressed in Environment Canada's December 2011 written evidence, it should be noted that in general, Environment Canada recommends that Northern Gateway use best management practices to minimize impacts to migratory birds and ensure compliance with the *Migratory Birds Regulations* throughout the Project (Recommendation #3-1, paragraph 122). Furthermore, Environment Canada will give this issue due consideration in the advice it provides to Northern Gateway during the development of the Marine Environmental Effects Monitoring Program.

[EC]

- b) See response to IR 1.26(a).

[EC]