



**Government of Canada Coordinated Comments on the Draft Terms of Reference
for the Imperial Oil Resources Venture Limited Beaufort Sea Exploration Joint Venture Drilling Program Environmental Assessment
(EIRB File 09-1301)**

April 29, 2014

Department	Reference	Comment	Recommendation
Environment Canada EC-1	Page 2 - Scope of the Development	The first paragraph in this section states that “The Development involves drilling one or more well with Exploration License (EL) 476 or 477...” then in the second paragraph states that “The preferred or baseline case set out by the Developer would have the first well drilled with EL 477 commencing in the 2020 open water season, before the expiry of EL 477 (on 30 September 2020).”	EC recommends that clarification is made within this section regarding the Developer’s intent regarding schedule and locations for drilling.
EC-2	Page 2 - Scope of the Development	EC notes the statement at the end of this section indicating that the Scope of the Development section in this draft is considered preliminary and will likely change following the submission of the requested additional project details.	EC would like to know when the additional information is expected from the Developer by the Environmental Impact Review Board (EIRB).
EC-3	Page 4 - Environmental Impact Assessment	The mismanagement of waste can attract predators of migratory birds to site operations. These predators can have significant negative effects on the local bird populations.	The requirement for waste management plans is referenced in this section. EC recommends that these plans include mitigation measures to deter the potential attraction of wildlife to operations.
EC-4	Page 5 - Environmental Impact Assessment, Information Required Regarding Methodology	The last bullet on Page 5 requires that the proponent provide a justification and rational for how all assessment boundaries are determined. However, no such explanation is required to justify the selection of the thresholds used to determine if an impact is considered significant or not (i.e. for a given VEC it is unclear if the proponent must explain and justify why they used the loss of X% of the population as the threshold for a significant impact).	EC recommends that the TOR require the proponent to explain and justify the thresholds selected for use in determining the significance of impacts to VECs.
EC-5	Page 5 - Information regarding methodology Page 8 - Biological and biophysical environment baseline information	EC notes that Species at Risk are mentioned in multiple sections and on Page 8 the Terms of Reference requests “The identification and description of any federal, provincial and/or	EC recommends that, as a matter of best practice, similar consideration be given to species on all Schedules of the <i>Species at Risk Act</i> (SARA) and species under consideration for listing under the



	and, Page 10 - Details on the effects of the biologic and biophysical environment	territorial listed species at risk in the study area...” Subsection 79 (2) of the <i>Species at Risk Act</i> (SARA), states that during an assessment of effects of a project, the adverse effects of the project on listed wildlife species and its critical habitat must be identified, that measures are taken to avoid or lessen those effects, and that the effects need to be monitored. This section applies to all species listed on Schedule 1 of SARA. However, as a matter of best practice, EC suggests that species on other Schedules of SARA and under consideration for listing on SARA, including those designated as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), be considered during an environmental assessment in a similar manner.	SARA including those designated as “at risk” by the COSEWIC. The Terms of Reference mentions territorial listed species at risk, and all species listed under the <i>Species at Risk (NWT) Act</i> should also be included. EC also recommends that the requirement for discussing any potential adverse impacts, providing mitigation measures, and the proposed monitoring of mitigation measures be mentioned within the section Biological and physical environment baseline information to provide clear direction to the Developer.
EC-6	Page 6 - Environmental Impact Assessment; major bullet #2	With respect to expanding the spatial boundaries of the project to incorporate the potential effects related to an accident or unauthorized release of oil or other hydrocarbons, the criteria of “potential accident or malfunction” is vague and leaves it open to proponent discretion.	Replace the word “potential” with “worst-possible-case”; after “malfunction” add “scenario”. [Note: alternative wording to “worst-possible-case” would be “credible worst-case” depending on the extent of the potentially-impacted area the EIRB would like the Environmental Impact Statement (EIS) to address].
EC-7	Page 7 - Information required regarding baseline data Page 9 - Information required regarding the Impact Assessment including cumulative effects	No specific comment.	EC recommends that the <i>Canadian Environmental Protection Act, 1999</i> (Page 7) and the <i>Species at Risk Act</i> (Page 10) be italicized when listed in full.
EC-8	Page 7 - Environmental Impact Assessment; Information required regarding baseline data; major Bullet #2	The proactive categorization and mapping of sensitive shorelines in strategic areas that may be at risk of shoreline oiling as a result of a potential accident or malfunction would be very beneficial to informing time sensitive spill response measures at the time of a spill incident.	Add a sub-bullet to the end of major Bullet #2 (Physical environment baseline information) stating: Shoreline characterization and mapping of sensitive shorelines in all areas that may be at risk of shoreline oiling as a result of a potential accident or malfunction arising from project activities. Note that EC’s established characterization criteria contained within the Arctic SCAT (Shoreline Clean-up

			Assessment Technique) Manual 1 is a useful guide for this. Environment Canada, Emergency Prevention, Preparedness and Response – A Program of the Arctic Council, The Arctic SCAT Manual – A Field Guide to the Documentation of Oiled Shorelines in Arctic Regions, 2004.
EC-9	Page 7 - Environmental Impact Assessment, Information Required Regarding Baseline Data	The TOR require the proponent to indicate “If the baseline data have been extrapolated or otherwise manipulated to depict environmental conditions in the study areas, modelling methods and equations should be described, and should include calculations of margins of error and other relevant statistical information, such as confidence intervals and possible sources of error.” However the TOR do not appear to require that the proponent explain the need or justify manipulating the data.	EC recommends that the TOR require that the proponent explain and justify the need to manipulate the data.
EC-10	Page 8 - <i>Environmental and Impact Assessment</i> <ul style="list-style-type: none"> ▪ Biologic and biophysical environment baseline information 	EC recommends that wording in this section be revised for clarity and correctness.	Subheading revised to: “Biological and biophysical environment baseline information: Subheading revised from: “A description of any marine birds and migratory birds, including a description of suitable habitat” to: “ A description of marine and migratory bird species presence, including population status, life cycle, sensitive periods, habitat requirements for each life stage, abundance (local and regional), distribution and use of habitat type including important bird areas and key migratory bird sites, the seasonal range, migration patterns, and sensitivity to disturbance. ”
EC-11	Page 8 - <i>Environmental and</i>	EC recommends that wording in this section is	The subheading should be revised to include

¹ Environment Canada, Emergency Prevention, Preparedness and Response – A Program of the Arctic Council, The Arctic SCAT Manual – A Field Guide to the Documentation of Oiled Shorelines in Arctic Regions, 2004



	<i>Impact Assessment</i> Biologic and biophysical environment baseline information	added to adequately capture all significant factors.	additional terms (in bold): “Detailed description of factors of the unique Arctic environment where the proposed Development would occur with particular attention to wildlife concentrations , wildlife harvesting, cultural identity, ice permafrost, extreme seasonal variations.”
EC-12	Page 9 - Information required regarding the Impact Assessment including cumulative effects	EC notes that in this section the subsection Details on the effect on the biologic and physical environment includes subheadings to address fish and marine mammals.	EC recommends that a subheading is included to address impacts to migratory birds, including cumulative effects. This section should include the potential effects of spills, increased vessel traffic, chronic discharges, disturbance and disruption of activities, collision with structures, and attraction to operations.
EC-13	Page 9 - Environment and Impact Assessment, Information required regarding the Impact Assessment including cumulative effects	The last bullet on Page 9 lists some risks from marine traffic and while it is not an exhaustive list, discharges from vessels are notably absent. A discussion of routine discharges is included in the project description. The discussion includes a brief overview of the applicable legislation but the TOR does not require that the proponent provide a description of the quality and quantity of discharges expected from project related vessels.	EC recommends that the TOR require that the proponent describe the quality and quantity of expected routine ship discharges.
EC-14	Page 10 - Information required regarding the Impact Assessment including cumulative effects	EC recommends that wording in this section is added to adequately capture potential concerns.	The subheading should be revised to include additional terms (in bold): Particular attention should be focused on sensitive components of the environment that could be affected in the event of an accident or malfunction, and that could potentially make the consequences worse (e.g., proximity to communities, natural sites of particular value, concentrations of wildlife).
EC-15	Page 10 - Environment and Impact Assessment, Information required regarding the Impact Assessment including cumulative effects:	The last bullet on Page 10 requires that the proponent consider assessing the probability of an occurrence in areas “where potentially significant impacts could occur as a result of an accident or malfunction and the necessary data are available” The current wording does not require action by	EC recommends the TOR require the proponent to assess the probability of occurrences in areas where potentially significant impacts could occur. Further EC recommends that the TOR should not limit the requirement for these assessments to areas where the data are available.



		the proponent and it seems to relieve the proponent of the responsibility of gathering data in vulnerable areas where the data is not currently available.	
EC-16	Page 10 - Environmental Impact Assessment; Information required regarding the Impact Assessment including cumulative effects; major bullet #2 from top	This is a good place to mention the development of a risk assessment.	After "...taking into account weather or external events that present contributing..." add "or complicating"; After "...the Developer will assess the potential for minor and major accidental releases of oil or other hydrocarbons" add "and will develop a Relative Risk Assessment".
EC-17	Page 11 - Information required regarding the Impact Assessment including cumulative effects	In this section the TOR references valued ecosystem components, although earlier in the ToR, it states that "If the valued ecosystem component (VEC) or valued socio-cultural component (VSC) approach is used, the VECs or VSCs (referred to as valued component) for which effects are predicted must be described and justified."	EC recommends that as the valued component approach may not be used by the Developer, details in this section be provided for the requirement to specifically address the potential impacts on migratory birds (e.g., spill, increased vessel traffic, attraction to offshore platforms/light, collisions with tall structures, etc.).
EC-18	Page 11 - Environmental Impact Assessment; Information required regarding the Impact Assessment including cumulative effects; minor Bullet #3 from top	Need to provide better clarification.	For the portion of the sentence "...including a description of the dispersion models used for spills on land or at sea..." replace "dispersion" with "trajectory"
EC-19	Page 11 - Environmental Impact Assessment; Information required regarding the Impact Assessment including cumulative effects; between minor Bullets #3 and #4 from top	Requirements for proactive hydrologic trajectory modelling and fate and behaviour research for petroleum products having a spill potential are lacking.	After minor Bullet #3 from top, add another minor bullet stating: "Hydrologic trajectory models of oil spills to water shall be conducted across all seasons of active operations, including shoulder seasons when interactions with ice will need to be factored-in. All hydrologic trajectory models should be informed by the fate and behaviour characteristics for each of the petroleum products that have a potential for a spill to water as a result of an accident or malfunction."
EC-20	Page 11 - Environmental Impact Assessment; Information required regarding the Impact Assessment including cumulative effects; minor Bullet #4 from top	Please add text.	For the portion of the sentence "... (e.g. vessel collisions..." add "or groundings"



EC-21	Page 12 - Prevention (how to drill and work safely while protecting the environment); Factors; Bullet #2 from top	Please add text.	After "Hazard identification" add "risk assessment"
EC-22	Page 13 - Preparedness and Response (responding effectively when things go wrong)	Marine birds are vulnerable to oil spills and to pollution of their feeding areas and although this section includes "Contingency plans and communication plan(s)", it does not state the requirement for specific information on how to mitigate impacts to migratory birds in the event of a spill. The section does request "Description of any capping and containment equipment and personnel that would be deployed to reduce or minimize the amount of released hydrocarbons and the effects of such releases to the environment, wildlife and traditional and cultural activities of the Inuvialuit" but does not request the description of mitigation measures specific to the protection of wildlife including migratory birds.	EC recommends that the Developer consider what steps would be taken to protect wildlife (including marine birds) in the event of a spill and under what criteria will they be implemented. This information could be incorporated into an existing emergency response and/or spill response plan. This could include specific measures to keep wildlife out of a contaminated area, equipment available to do this, what measures would be taken if animals do come in contact with the spill, and when such procedures should be used. Having this information outlined not only benefits wildlife, but also gives clear direction to the field crew on what to do in a spill situation if wildlife is nearby.
EC-23	Page 13 - Prevention (how to drill and work safely while protecting the environment); Information required; Bullet #3 from top	Please add text.	After "Description of developer's ..." add "capacities"
EC-24	Page 13 - Prevention (how to drill and work safely while protecting the environment); Information required; Bullet #7 from top	A question with regards to the text and intent.	Is the term "darkness" relevant here?
EC-25	Page 13 - Preparedness and Response (responding effectively when things go wrong); Factors; Bullet #3	Please add text.	After "worst-case" add "accident"; after "scenario" add "and alternative accident scenarios"
EC-26	Page 14 - Preparedness and Response (responding effectively when things go wrong); Information required; bullet #1 from top	Please add text.	After "...worst case scenario" add "as well as descriptions of credible alternative accident scenarios"
EC-27	Page 14 - Preparedness and	Please add text.	Before "Communication plans" add "Community"



	Response (responding effectively when things go wrong); Information required; bullet #4 from top		
EC-28	Page 14 - Preparedness and Response (responding effectively when things go wrong); Information required; Bullet #9, minor Bullets #1 and #4	Please add text.	Before “track” add “detect and”
EC-29	Page 14 - Preparedness and Response (responding effectively when things go wrong); Information required; Bullet #9, minor Bullet #5	Need to provide better clarification.	For the portion of the sentence that states “...when agents would be applied” replace “would” with “might”
EC-30	Page 14 - Preparedness and Response (responding effectively when things go wrong); Information required; Bullet #9, minor Bullet #6	Please add text.	After “...select appropriate spill countermeasures” add “and their endpoints”
EC-31	Page 15 - Preparedness and Response (responding effectively when things go wrong); Information required; minor Bullet #1	Please add text.	After “...or international organizations” add “including details of any mutual aid agreements”
EC-32	Page 15 - Preparedness and Response (responding effectively when things go wrong); Information required; in-between major Bullets #2 and #3	Required details with respect to incident reporting are lacking.	Add a new bullet: “Description of incident reporting requirements to government regulators and response agencies”
Fisheries and Oceans Canada DFO-1	General		DFO recommends having a section, where the proponent will provide background information on the proposed drilling program.
DFO-2	General		DFO recommends having a section, where the proponent will explain the Environmental Assessments they need to undergo under the <i>Canadian Environmental Assessment Act, 2012</i> and



			the <i>Inuvialuit Final Agreement</i> and the link between the two environmental assessments.
DFO-3	General		DFO recommends having a section, where the proponent will provide information regarding any regulatory compliance (i.e. any regulatory review the drilling program will need to undergo and how many approvals are anticipated).
DFO-4	Section Purpose and Alternatives (p.3), first bullet.		DFO recommends changing the sentence to the following: Purpose and need of the proposed Development. Adding the word “need” will help party understand why this program should move forward.
DFO-5	In the section Environment and Impact Assessment – Factors (p.4), fourth bullet.		DFO recommends adding “ecologically and biologically significant areas (EBSA)” to the sentence. The new sentence will read as follow: Environmentally significant, sensitive areas and ecologically and biologically significant areas (EBSA).
DFO-6	In the Environmental and Impact assessment, under the Information required regarding methodology (p. 5).		DFO recommends replacing the word “status” with “concern” in the following sentence under the first bullet. The new sentence will read as follow: Species harvested by Inuvialuit, species at risk and species of special concerns.
DFO-7	In the Environmental and Impact assessment, under the Information required regarding methodology (p. 6).		DFO recommends adding ballast water in the fifth bullet regarding the extent of potential effects. The new sentence will read as follow: The extent of potential effects arising from noise, atmospheric emissions and ballast water.
DFO-8	In the Environmental and Impact assessment, under Biologic and Biophysical environment baseline information (p. 7).		DFO recommends having baseline studies on the impact of ballast water in the Beaufort Sea and the introduction of potential new species.
DFO-9	Under the Details on the effects on the biologic and biophysical environment (p.9), sub-bullet three.		DFO recommends updating the following sentence to reflect the new <i>Fisheries Act</i> : The identification of any potential harmful alteration... in terms of surface areas... The new sentence will read as follow: The identification of any work, undertaking or activity that results in serious harm to fish that



			are part of commercial, recreational or Aboriginal fishery, or to fish that support such a fishery. This will need to include the calculations of any offsetting measures that would need to be done (e.g. spawning grounds, fry-rearing areas, feeding).
DFO-10	Under the Details on the effects on the biologic and biophysical environment (p.9), sub-bullet six.		DFO recommends adding ship strikes to the list of potential effects of the marine traffic on marine mammal individuals or populations.
Natural Resources Canada NRCan-1	Physical environment baseline information -Possible natural hazards (pg. 7)	Natural seabed release of hydrocarbons and porewaters under geo-pressure with effects on hosting sediments have recently been discovered or their nature and distribution further defined. Some occur in the general vicinity of the hydrocarbon exploration. Though not unique in hydrocarbon generating basins, uncertainties remain on the fluid origin, multiple migration paths, flux and change in flux and the style and magnitude of related sediment mobility. This has implications for recognition of “natural” versus possible engineering operations-related release of hydrocarbons, formation and ground waters. This might be construed as a factor under provisions for the developer to “provide an analysis of the potential environmental effects of such releases on the marine and terrestrial environment” (pg.11) and also “how any released oil or chemicals would be tracked” (pg.14), and even “long-term adverse environmental effects of Arctic spills” (pg. 15	It is NRCan’s understanding that the technology and monitoring can address this issue during the course of the environmental assessment.
NRCan-2	Physical environment baseline information -Sediment regime (pg. 7)	“Sediment regime” appears to potentially address “erosion” and “accumulation” zones. Such zones are recognized, at least along the outermost shelf and upper slope, yet poorly constrained. Sediment flux, process, and their magnitudes indicated in the draft terms of reference are the subject of possible investigations by the Geological Survey of Canada. Does this apply to the drill site region	NRCan would like to have further clarity or a bullet can be added to the draft ToR to this effect.



		(and what is the geographic scope) or is the scope mainly inshore?	
NRCan-3	Physical environment baseline information -Sediment regime (pg. 7)	Sediment regime refers “particularly” to possible dredge (presumably mainly harbour and approaches as noted in Table 14-2 of PD) and “open water” disposal. Some of the sediment requiring removal may be sited where earlier, project-unrelated post-dredge material (subsequent infill) now collects. Section 14.2.11.1.4 addresses potential geomorphological change appropriately.	There needs to be a baseline comparison of pre-dredge and post dredge material to screen for potential contaminants (natural or otherwise), can this be addressed under the “cumulative effect” (pg. 8)?
NRCan-4	An overview of the surface and seafloor geology for purposes of soil competence, ice scour and shallow gas (pg. 7)	This incorporates factors currently investigated by the Geological Survey of Canada (and others) on a regional basis in the Beaufort Sea and likely to see (pending) focus through GSC-directed field and laboratory investigations. Foundation conditions may be highly spatially variable.	Does this commitment relate to the offshore and wellsite only, or also to shelf and coastal transport corridors? Or to both? That is, at what geographic scope? Is it possible, for example, that a grounded (jack-up) drill site be located at the shelf break? This would change the scope of geotechnical unknowns.
NRCan-5	Management of Change (pg. 16)	Under “Management of Change” the pending Geological Survey of Canada activities, noted above, should contribute further to the geohazards and seabed process understanding in the interim (between EA and drilling operations). Guidelines or regulations may be affected but understanding will certainly increase.	This could be reflected in the environmental assessment of the proposed project.
Transport Canada TC-1	General	The proponent did not submit an updated project description after the TC preview team submitted comments in 2013.	Suggest that the proponent confirm it will adhere to the information in Transport Canada (TC)’s October 30, 2013 comment letter to the EIRB. TC provides the following updated information to that letter: -The <i>Navigation Protection Act</i> (NPA) came into force on April 1, 2014. Applications that would have been submitted for approval under the <i>Navigable Waters Protection Act</i> are now to be submitted under the NPA, if applicable. -TC does not conduct security assessments of vessels, but validates that the security assessment that the vessel operator completed for their vessel



			<p>(which should list the threats for a specific vessel) is valid, and then inspects the vessel to ensure that threats are mitigated appropriately in the vessel's security plan and are effective.</p> <p>-TC conducts the security assessment for marine facilities and the operator completes a security plan where TC again validates that the measures they put into place in fact mitigate the threats identified for their operations.</p>
TC-2	General		<p>Suggest that the TOR request the following:</p> <ul style="list-style-type: none"> - Concurrence table - Commitments table - Project schedule with phases for each component (construction, operation, and maintenance), including timeline for submission of approvals, permits, etc., including applications for approval under the <i>Navigation Protection Act</i> - Indirect effects of project components to navigation - Aboriginal consultation specifically related the effects of project components on navigation
TC-3	Table of contents and organization		<p>Suggest that the TOR have a Table of Contents</p> <p>Suggest organizing the TOR using numbered headings, for example as follows:</p> <ol style="list-style-type: none"> 1. Introduction <ul style="list-style-type: none"> - Overview - Referral to EA - Legal context 2. General requirements <ul style="list-style-type: none"> - Presentation of material (e.g. maximum file size, plain language requirements, etc) - Incorporation of traditional knowledge



			<ul style="list-style-type: none">- Public engagement, including Aboriginal consultation- Summary materials required (e.g. summaries in required languages), concordance table, commitments table- Developer (e.g. history, corporate policies, plans, and codes of practice as related to project) <p>3. Scope</p> <ul style="list-style-type: none">- Of development- Of assessment <p>4. Methodology (e.g. significance determination factors)</p> <p>5. Description of existing environment</p> <ul style="list-style-type: none">- Biophysical- Human <p>6. Development description (e.g. new and existing infrastructure, facilities, and management plans; phases and schedule)</p> <p>7. Assessment of environmental impacts and cumulative effects (e.g. impacts on valued components by project components)</p> <p>8. Impacts of environment on development</p> <p>9. Impacts on human environment</p> <p>10. Cumulative effects summary</p> <p>11. Accidents and malfunctions</p> <p>12. Closure and Reclamation</p> <p>13. Conclusion</p>
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