

**ATTACHMENT 2**

**Information Requirements on the Environmental Impact Statement Addendum for the  
Addition of Exploration Licence EL 1134 to the Eastern Newfoundland Offshore Exploration Drilling Project**

ID	Project Effects Link to CEEA 2012	Reference to EIS guidelines	Reference to EIS	Context and Rationale	Specific Question/ Request for Information
<b>INFORMATION REQUIREMENTS</b>					
<b>ACCIDENTS AND MALFUNCTIONS</b>					
IR-92	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(ii) Aquatic Species	Part 2, Section 6.6.1. Effects of potential accidents or malfunctions	Page 180, Section 7.1.1 Modelling Approach, Table 7.1  Page 181, Section 7.1.2 Model results	The description of modelling approach in the EIS Addendum and related appendix did not address the following: <ul style="list-style-type: none"> <li>• Trajectory modelling was developed for an unmitigated spill using Ben Nevis crude oil as a surrogate; however, in the original EIS, Bay du Nord crude oil was used for spill trajectory modelling in adjacent EL 1135. There is no rationale / supporting information provided for use of Ben Nevis crude oil for spill trajectory modelling in EL 1134.</li> <li>• The release rate used for modelled spill scenarios is 37,000 barrels per day for EL 1134. However, the release rate in the modelled scenario for EL 1135 in the original EIS is 156,000 barrels per day. There is no supporting information provided for use of a release rate of approximately four times less than that used in the original EIS. It is noted that this may relate to the different properties of the surrogate oil used, or the difference in water depth; however, no specific supporting information was</li> </ul>	Provide rationale and supporting information for <ul style="list-style-type: none"> <li>• the use of Ben Nevis crude oil in spill trajectory modelling given that Bay du Nord was used in the original EIS in adjacent EL 1135;</li> <li>• the selection of a significantly lower release rate for spill modelling for EL 1134, as compared to the release rate used for adjacent EL 1135. Include a discussion of water depth and its effect on blow-out rate and spill trajectory modelling assumptions, as required by the EIS Guidelines; and</li> <li>• the selection of deterministic modelling scenarios based solely on shoreline oiling stochastic results.</li> </ul>

				<p>provided.</p> <ul style="list-style-type: none"> <li>Section 7.1.2 indicates that the representative deterministic scenarios (30 and 113 days) were selected based only upon the length of shoreline contacted with oil above threshold. It is unclear why deterministic scenarios were also not selected for surface oiling and water column contamination, as was done for previous modelling at release sites in EL 1135 and EL 1137. In that modelling, the deterministic worst case scenarios were selected based on the "...95th percentile runs for surface oil footprint, shoreline oil length, and water column contamination..." (page 1229 of EIS).</li> </ul>	
IR-93	<p>5(1)(a)(i) Fish and Fish Habitat  5(1)(a)(ii) Aquatic Species  5(1)(a)(iii) Migratory Birds.  5(2)(b)(i) Health and Socio-economic Conditions</p>	<p>Part 2, Section 6.6.1.  Effects of potential accidents or malfunctions</p>	<p>Page 184,  Section 7.1.2.1  and subsequent effects analysis</p>	<p>The discussion of spill trajectory modelling results and associated effects analysis provided in the EIS Addendum does not fully address the following:</p> <ul style="list-style-type: none"> <li><i>Shoreline contact at Sable Island, Eastern Nova Scotia, and associated implications for oil in critical habitat for species at risk:</i></li> </ul> <p>The EIS Addendum states that the probability of making contact with the shoreline above the stated threshold for the 113 day release was up to 25 percent on the Avalon Peninsula and primarily less than 10 percent on the northern and southern coasts of Newfoundland. Potential shoreline contact with</p>	<p>Provide an updated discussion of spill trajectory modelling results, with additional information on:</p> <ul style="list-style-type: none"> <li>potential for shoreline oiling to reach Sable Island and Eastern Nova Scotia;</li> <li>anticipated hydrocarbon concentrations in the area affected by a spill; and</li> <li>percentage of oil predicted to reach shore 8 - 27 days following blowout, and how much of that oil will be highly weathered; and</li> <li>the implications of shorter time to reach shorelines (as compared to previous</li> </ul>

				<p>Eastern Nova Scotia and Sable Island, as shown in Figure 7.3 of the EIS Addendum, is not discussed. The potential for shoreline oiling in these areas is not consistently discussed in the effects analysis on valued components; while it is mentioned in the analysis for marine and migratory birds and Indigenous communities and activities, it is absent from the analysis for remaining valued components.</p> <p>It is noted that Section 4.2.3.5 of the EIS Addendum states that critical habitat has not been identified for marine mammals and sea turtles species at risk within or adjacent to EL 1134 or elsewhere in the project area. However, spill trajectory modelling results in Section 7.1.2 and Appendix B indicate a small possibility that oil could reach the Gully, Sable Island, Haldimand Canyon, and Shortland Canyon areas. Section 7 of the EIS Addendum does not mention marine mammals and their critical habitat in these areas that could be affected by accidents or malfunctions.</p> <ul style="list-style-type: none"> <li>• <i>Anticipated hydrocarbon exposure for fish</i></li> </ul> <p>The effects analysis does not contain a discussion of the predicted hydrocarbon concentrations that marine fish may be exposed to in the</p>	<p>modelling results for EL 1135 and EL 1137) for the applicability of previous effect analysis and predictions presented in the EIS.</p> <p>Update the effects analysis, mitigation and follow-up, as applicable, for effects of accidental events on all valued components, incorporating the above-noted considerations. In addition:</p> <ul style="list-style-type: none"> <li>• with respect to the marine mammal and sea turtles, a description of marine mammal species at risk and their critical habitat in the Gully Marine Protected Area, Sable Island, Haldimand Canyon and Shortland Canyon that could be impacted by an accidental event, and assess associated effects, as applicable.</li> <li>• With respect to fish and fish habitat, include analysis of effects of the predicted hydrocarbon concentrations to which marine fish may be exposed in the area affected by a spill.</li> </ul>
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				<p>area affected by a spill.</p> <ul style="list-style-type: none"> <li>• <i>Time for spills to reach shoreline and associated degree of weathering</i></li> </ul> <p>The EIS Addendum states that the minimum time predicted for the oil to reach shore could be 8 - 27 days and that the oil is expected to be highly weathered. Based on figure 7.6 on page 191, which shows the mass balance plots of representative worst case scenarios for 30 and 113 days subsurface blowouts, the percentage of oil degraded after 8 days appears to be less than five percent. It is not clear from the EIS Addendum what percentage of oil will reach shore in eight days and what percentage of that oil will be heavily weathered.</p> <p>The effects analysis for most valued components throughout Section 7.2 repeats the above statements regarding minimum of eight days to shoreline contact and the highly weathered state of oil by the time it potentially reaches the shoreline.</p>	
IR-94	All valued components	Part 2, Section 6.6.1. Effects of potential accidents or malfunctions	Page 190, Table 7.5	<p>In Table 7.5 summarizing mass balance information for the EL 1134 scenarios, it was noted that after the 45 day model run (release duration of 30 days, volume 1.134 million bbl), nearly 47% of oil remains on the surface. This is considerably higher than any other surface oil mass balance encountered in recent model results. For example:</p> <ul style="list-style-type: none"> <li>• A somewhat comparable volume release (release duration 30 days,</li> </ul>	Provide an expanded discussion of the EL 1134 spill trajectory model results, with consideration of how the model results differ from previous model runs in the vicinity of EL 1134 and what factors might contribute to the higher degree of surface oiling predicted for the EL 1134 release site.

				<p>volume 786,000 bbl) modelled for Exxon's EL 1137 had only 8.97% oil at surface at the end of the 45 day model run for the shoreline contact scenario.</p> <p>Comparison of 113 day release (160 day run) results for EL 1134 with other modelling results shows a similar pattern.</p> <ul style="list-style-type: none"> <li>• Exxon's EL 1135 has a lower percentage at surface (4.68%) than EL 1134 (10.43%) at the end of the 160 day run for the shoreline contact scenario, despite the volume of the EL 1135 spill being four times larger than the EL 1134 spill.</li> <li>• A twice-larger volume 113 day release at Equinor's EL 1142 predicted 0.55% of oil remaining at surface at the end of the 160 day run for the shoreline contact scenario, compared to 10.43% for EL 1134's smaller volume spill.</li> </ul> <p>Similarly, EL 1134 shows much larger areas of exceedance of several thresholds than for the EL1135, EL 1137, and EL 1142 releases of comparable duration but larger volumes.</p>	
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