Impact Assessment Agency of Canada | Agence d'évaluation d'impact du Canada

Newfoundland and Labrador Satellite Office
301-10 Barter's Hill
St. John's NL A1C 6M1

Bureau satellite de Terre-Neuve-et-Labrador
301-10 Barter's Hill
St. John's T. -N. -L. A1C 6M1

March 30, 2020

Sent by E-mail

Terry Forkheim
Senior Environmental and Regulatory Advisor
Equinor Canada Ltd.
3600, 308 4th Avenue SW, Calgary, Alberta T2P 0H7
Tel: (587) 233-0560
Email: tefor@equinor.com

Dear Mr. Forkheim,

SUBJECT: Central Ridge Exploration Drilling Project – Information Requirements

The Impact Assessment Agency of Canada (Agency) has completed its technical review of the 2020 Abridged Environmental Impact Statement (EIS) and associated EIS Summary for the proposed Central Ridge Exploration Drilling Project. The Agency determined that information is required, as per the information requirements (IRs) attached.

With the issuance of these IRs, the federal timeline within which the Minister of Environment and Climate Change's decision must be made is paused as of March 31, 2020. Once you have submitted responses, the Agency will determine if the information provided is complete and the timeline for the environmental assessment will resume. For further information, please consult the Agency document on Information Requests and Timelines: https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/information-requests-timelines.html.

The responses to IRs may be in a format of your choice; however, the format must be such that the responses to individual IRs can be easily identified. You may wish to discuss certain IRs with the Agency or other government experts, as necessary, to obtain clarification or additional information, prior to submission of the responses. Working directly with government experts in this manner will help to ensure that IRs are responded to satisfactorily. The Agency can assist in arranging meetings with government experts, at your request.

The IRs and your responses will be made public on the Canadian Impact Assessment Registry Internet site: https://iaac-aeic.gc.ca/050/evaluations/proj/80175.

Please confirm receipt of this message and contact me if you require further information.

Sincerely,

Leslie Kieley
Project Manager – Newfoundland and Labrador Satellite Office
Impact Assessment Agency of Canada

Cc: Elizabeth Young, Canada – Newfoundland Labrador Offshore Petroleum Board
Melissa Moss, Canada – Newfoundland Labrador Offshore Petroleum Board
Ian Murphy, Canada – Newfoundland Labrador Offshore Petroleum Board
Darren Hicks, Canada – Newfoundland Labrador Offshore Petroleum Board
Michael Hingston, Environment and Climate Change Canada
Kimberley Keats, Fisheries and Oceans Canada
Clare Bustin, Indigenous Services Canada
Carla Stevens, Major Projects Management Office
Maximilien Genest, Natural Resources Canada
Lauren Knowles, Natural Resources Canada
Carol Lee Giffin, National Defence
Vanessa Rodrigues, Parks Canada
Jason Flanagan, Transport Canada
Sara Rumbolt, Health Canada

Attachment:

Attachment 1 - Information Requirements for the Central Ridge Exploration Drilling Project.

Table of Contents

Central Ridge Exploration Drilling Project
Information Requirements from Abridged Environmental Impact Statement Review:
March 30, 2020

INTRODUCTION

The Impact Assessment Agency (Agency) has completed its technical review of the Central Ridge Abridged Environmental Impact Statement (EIS) and associated EIS Summary for the proposed Central Ridge Exploration Drilling Project.

The Central Ridge Exploration Drilling Project is in the same area as the Flemish Pass Exploration Drilling Project and the Eastern Newfoundland Exploration Drilling Project, for which Environmental Assessment Decision Statements were issued by the Minister of Environment and Climate Change on April 17, 2019. The Agency therefore permitted the proponent to submit an Abridged EIS for the Central Ridge Drilling Exploration Project that provides detailed analysis of the effects that are specific to the Project, and a rationale for the applicability of the analysis and conclusions of the Flemish Pass EIS, where appropriate. The Agency proactively considered the general areas of concern raised by the public, Indigenous groups and federal experts on previous offshore exploration drilling projects in relation to the Central Ridge Exploration Drilling Project, and focused the technical review on new information and information specific to the Project.

The Agency determined the following information requirements (IRs) below.

ACRONYMS AND SHORT FORMS

Agency	Impact Assessment Agency of Canada
C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board
CO_2	Carbon dioxide
DFO	Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
EIS	Environmental Impact Statement
EL	Exploration Licence
IR	Information requirement

ATTACHMENT 1: INFORMATION REQUIREMENTS FOR THE CENTRAL RIDGE EXPLORATION DRILLING PROJECT

Information Requirements

ID	Reference to EIS guidelines	Reference to Abridged EIS	Context and Rationale	Specific Question/ Request for Information
Physical Environment				
ECCC-03 DFO-1	Part 2 – 7.1.2 Marine Environment	Section 2.3 Project Location and Designated Project Area Section 5.2 Bathymetry	The EIS Guidelines state that the EIS will include a description of available bathymetric information (e.g., maximum and mean water depths) for the site. Bathymetric information is inconsistent in the Abridged EIS. Section 2.3 (page 40) states that "water depths in EL 1159 range from approximately 90 m to 930 m, and EL 1160 ranges from approximately 40 m to 1,020 m." However, Section 5.2 (page 125) states that "water depths in the two ELS range from 100 to 900 m."	Clarify the water depth ranges for EL 1159 and 1160.
Accidents and Malfunctions Oil Spill Modelling				
DFO-24	Part 2 – Section 7.6.1 Effects of Potential Accidents or Malfunctions	Section 15.4 Fate and Behaviour of Potential Spills Section 15.4.1 Applicability of EL 1135 (shallow-water) and EL 1134 (deep-water) Modelling for	The EIS Guidelines require an assessment of the effects of potential accidents or malfunctions. Section 15.4 (page 472) of the Abridged EIS states that "all modelled unmitigated subsurface blowouts and batch spills resulted in the same predictions (i.e., surface oil would move eastward due to prevailing westerly winds), and therefore modelling specific to ELs 1159 and 1160 has not been carried out." This is contradicted by the following statement on page 474, "Given the general trend indicated by previous models for oil to move in a southward direction…..a spill from EL 1159 or EL 1160 is expected to follow the same general trajectory (predominately north to the Gulf Stream)."	Clarify the anticipated oil spill trajectory for the Central Ridge Exploration Drilling Project. Include figures that clearly illustrate the predictions. Update the effects assessment accordingly.

ID	Reference to EIS guidelines	Reference to Abridged EIS	Context and Rationale	Specific Question/ Request for Information
		Illustrative Purposes		
DFO-25	Part 1 – Section 3. Scope of the Environmental Assessment Part 2 – Section 7.6.1 Effects of Potential Accidents or Malfunctions	Section 15.4 Fate and Behaviour of Potential Spills	The EIS Guidelines state that the "The abridged EIS should... provide a rationale for the applicability of the analysis and conclusions of the Flemish Pass EIS." The Abridged EIS states that 15 of the previously modelled unmitigated oil spill scenarios are applicable to ELs 1159 and 1160 based on water depth and spill rates (page 472). The Abridged EIS does not provide rationale of how the modelling is applicable in terms of oceanographic conditions or fluid characteristics anticipated in ELs 1159 and 1160. Model inputs other than depth and spill rate will influence the spill trajectory which should be discussed and rationale provided.	Discuss the applicability of oceanographic conditions and fluid characteristics in previously modelled unmitigated oil spill scenarios to ELs 1159 and 1160.
C-NLOPB-10	Part 2 – Section 7.6.1 Effects of Potential Accidents or Malfunctions	Section 15.4 Fate and Behaviour of Potential Spills	The Abridged EIS uses modeling results from the Flemish Pass and Eastern Newfoundland EISs. The spill rate and total volume data provided in Table 15.6 of the Abridged EIS for EL 1134 (deep-water well) are not the exact numerical values as used in Table 7.1 of the ExxonMobil, 2018 – Eastern Newfoundland Offshore Exploration Drilling Project (2018-2029) - Environmental Impact Statement Addendum: Addition of EL 1134, which include the following: • Numerical data for EL 1134; Subsurface Blowout - Southern Flemish Pass EL 1134 a hypothetical release of 6,010 m^3/day (37,800 bbl/day) of Ben Nevis crude oil for 30 and 113 days for a total of 180,292 m^3 (1,134,000 bbl) and 679,098 m^3 (4,271,400 bbl), respectively. • The numerical data in Table 15.6 of the Central Ridge Abridged EIS are for a hypothetical release of 6,010 m^3/d of (37,800 bbl/day) crude oil for 30 and 113 days for a total 180,300 m^3 (1,134,053 bbl) and 679,130m^3 (4,271,599 bbl).	Explain the discrepancy between the values reported in the Abridged EIS and the Eastern Newfoundland Offshore Exploration Drilling Project EIS. Update the effects assessment accordingly.

ID	Reference to EIS guidelines	Reference to Abridged EIS	Context and Rationale	Specific Question/ Request for Information
DFO-26	Part 2 – Section 7.6.1 Effects of Potential Accidents or Malfunctions	Section 15.4.3 Deterministic Results	Section 15.4.3 (page 483) of the Abridged EIS states that "this is due to the highly volatile and soluble content of the crude oil and diesel product leading to large percentages predicted to evaporate (36% to 39% for EL 1135 and 30% at EL 1134) and dissolve and degrade (25% to 35% at EL 1135 and 39% at EL 1134). Entrainment into the water column ranged between 8% to 47% at EL 1135 and 3% at EL 1134." It is not clear if the percentages of oil presented refer to Bay du Nord crude or diesel or both. It is also not clear why ranges are provided for EL 1135 but not for EL 1134.	Provide clarification on the deterministic scenarios presented, including a clear description of the type of crude or diesel described in the model results. Provide a range of percentages for EL 1134 or explain why a range was not provided.
ECCC-22	Part 2 – Section 7.6.1 Effects of Potential Accidents of Malfunctions	Section 15.0 Accidental Events	Section 15 (page 490) of the Abridged EIS states that "batch spills, if any, resulting from the Project would cause a temporary (likely less than 24 hours) decrease in water quality (and thus habitat quality) around the spill site." Environment and Climate Change Canada noted that the most recent spills that occurred in offshore Newfoundland had surface oil that persisted well beyond 24 hours. Environment and Climate Change Canada requests more recent information to clarify the persistence of oil following a spill based on recent spills in offshore Newfoundland.	Provide information related to the persistence of oil following the most recent spills in offshore Newfoundland and Labrador. Considering the most recent spills in offshore Newfoundland and Labrador, discuss the applicability of this information to potential spills during the Project. Update the effects assessment accordingly.
IR-3	Part 2 – Section 7.6.1. Effects of Potential Accidents or Malfunctions	Section 15.4.2 Stochastic Modelling Results	The EIS Guidelines require the proponent to provide information on oil spill fate and behaviour modelling. The potential for shoreline oiling is not clear from the Abridged EIS. Section 15.4.2 describes the results of stochastic modelling at sites in EL 1134 and EL 1135. With respect to potential shoreline contact, page 474 notes a probability of less than 10% in the vicinity of the southern coast of the Avalon Peninsula for a spill originating in EL 1135. However, the probability for shoreline contact for modelling for EL 1134 is not discussed. In Figure 15-6, the probability of shoreline contact for EL 1134 is in the 10-25% range in some areas. Page 482 states the "probability of shoreline exposure is very low as less than 1% of the annual scenarios reach the shoreline."	Clarify the potential for shoreline oiling for EL 1134, and ensure the effects analysis considers the worst-case potential for shoreline oiling (which would appear to be that reported for a spill originating in EL 1134).

ID	Reference to EIS guidelines	Reference to Abridged EIS	Context and Rationale	Specific Question/ Request for Information
C-NLOPB-6 IR-4	Part 2 – Section 7.6.1. Effects of Potential Accidents or Malfunctions	Section 15.5 Environmental Effects Assessment	The EIS Guidelines require the proponent to consider spill fate and behaviour modelling results in the analysis of environmental effects. The modelling results in Section 15.4.2 of the Abridged EIS are for spills originating in EL 1134 and EL 1135, selected as the most representative of the fate and behaviour of spills originating in EL 1159 and EL 1160. However, the analysis in Section 15.5 cites the results of spill modelling for spills originating at the Northern Flemish Pass and Eastern Flemish Pass sites, located in EL 1140 and EL 1142. It does not appear that modelling results for ELs 1134 and 1135 are considered when determining potential effects to valued components in Sections 15.5.1 – 15.5.6. As indicated by the C- NLOPB during conformity review, the outcomes of the EL 1134 deep water model are different as to shoreline oiling, predicated concentration, thickness and mass balances and should also be considered within the effects assessment. Areas affected in Section 15.5 of the Abridged EIS are as follows: • General references throughout to “Eastern Flemish Pass” and “Northern Flemish Pass” sites are not relevant to modelling results provided in the earlier part of the chapter. • Time to reach shoreline is reported as “at least 29 days” in the introduction of Section 15.5 (page 488). The minimum time to reach shoreline as reported earlier in the chapter was 8 days (Table 15.8, page 481). • Section 15.5.2 sites shoreline contact probability of 1-2% (page 490); the probability of shoreline contact for a spill originating in EL 1134 was as high as 15-25% (Table 15-7, page 481). • Section 15.5.3 states that oil is “extremely unlikely” to reach shorelines, based on Eastern and Northern Flemish Pass site results (page 491). This characterization is not consistent with worst-case results presented earlier in the chapter. • Section 15.5.4 identifies special areas that could overlap with areas exceeding socioeconomic thresholds for oiling from batch spills and subsurface blowouts, both in the offshore and in predicted shoreline contact areas (page 492-493). The areas identified are identical to those identified in the Flemish Pass Exploration Drilling Project EIS, which relied on the model results for EL 1140 and EL 1142.	Include the outcomes of models conducted for ELs 1134 and 1135 in the effects assessment for the various valued components and within the effects assessment of accidental events. Provide effects analysis and significance determinations based on the representative spill modelling results for EL 1134 and EL 1135. Ensure all references to model results clearly reference the EL in which the modelled spill originated, and that the worst-case model results are considered in the effects analysis. The text should include an updated list of potentially affected special areas, both offshore and at potentially affected shorelines.

ID	Reference to EIS guidelines	Reference to Abridged EIS	Context and Rationale	Specific Question/ Request for Information
			• Section 15.5.5 indicates a 2% probability for shoreline oiling (page 494). This is not consistent with modelling results presented earlier in the chapter.	
IR-5	Part 2 – Section 7.6.1 Effects of Potential Accidents or Malfunctions Part 2 – Section 7.4 Mitigation Measures	Section 15.1 Spill Prevention and Response	The EIS Guidelines require the proponent to provide information on contingency and emergency response procedures that would be put in place for the Project. Section 15.1 (page 465-466) of the Abridged EIS notes that spill trajectory modelling assumed the longest capping duration of 36 days. The Agency understands that this was the case for modelling for spills within EL 1140 and EL 1142, associated with the Flemish Pass Exploration Drilling Project (Flemish Pass EIS Appendix E, page 14). However, for the modelling referred to in the Abridged EIS, at EL 1134 and EL 1135, associated with the Exxon Mobile Eastern Newfoundland Exploration Drilling Project (Eastern Newfoundland Exploration Drilling Project EIS, page 1200), the duration assumed for capping was 30 days.	Confirm the capping duration for potential spills for the Central Ridge Exploration Drilling Project. Update the effects assessment accordingly.
Accidents and Malfunctions - Drill Cuttings Modelling				
DFO-05 CNLOPB-3 C-NLOPB-5	Part 1 – Section 3 Scope of the Environmental Assessment Part 2 – Section 3.1 Project Components	Section 4.5.1 Cuttings Modelling, Table 2.6 and throughout EIS	The EIS Guidelines state that the "The abridged EIS should… provide a rationale for the applicability of the analysis and conclusions of the Flemish Pass EIS." Furthermore, the EIS Guidelines state that a description should be provided on the nature, composition and fate of drilling wastes using dispersion modelling. The Abridged EIS states that "Modelling results from ELs 1134, 1135, 1137, and 1142 are suitable to apply to ELs 1159 and 1160, and therefore re-modelling will not be carried out" (page 123). However, there is no rationale provided on how the Flemish Pass modelling is specifically applicable to ELs 1159 and 1160. A description of how model inputs used for the Flemish Pass EIS (e.g. oceanographic conditions, grain size, etc.) are applicable to EL 1159 and 1160 is required to ensure that prediction of effects on benthic habitat and species fall within the range predicted in the Flemish Pass EIS.	Provide details on model inputs (e.g. oceanographic conditions, grain size, etc.) and results to support the rationale for how cuttings modelling for the Flemish Pass EIS is applicable to ELs 1159 and EL 1160. Update text for effects assessment accordingly. Provide a figure with all modelling locations labelled.

ID	Reference to EIS guidelines	Reference to Abridged EIS	Context and Rationale	Specific Question/ Request for Information
	Part 2 – Section 7.1.2 Marine Environment		In Table 2.6 and throughout Abridged EIS, Equinor provides information on the typical drill mud and cuttings discharge volumes for modelling locations in the Flemish Pass EIS. It is not clear, based on information provided in Figures in the Abridged EIS where the 'Eastern Project Area Modelling Location', 'Jeanne d'Arc Basin Modelling Location' and 'Flemish Pass South Modelling Location' are located, as referenced in Table 2.6. Additionally, these areas are referenced throughout the Abridged EIS but they are not clearly identified.	
Marine Mammals and Sea Turtles				
DFO-04 IR-2	Part 1 – Section 3.2.3 Spatial and Temporal Boundaries Part 2 – Section 7.3 Predicted Effects on Valued Components	Section 4.3.1 Environmental Assessment Study Areas and Effects Evaluation Criteria Section 10.0 Marine Mammals and Sea Turtles: Environmental Effects Assessment	The EIS Guidelines require a detailed analysis of the significance of residual environmental effects with consideration of a number of factors, including the geographic extent of potential effects. The Abridged EIS includes a Local Study Area for each valued component to characterize the geographic extent of residual environmental effects. In the Abridged EIS, the definition of the Local Study Area is different than that in the Flemish Pass EIS. Section 4.3.1 (page 116) of the Abridged EIS defines the Local Study Area for all valued components as "the Project Area plus the transit route" (page 116). The Flemish Pass EIS (page 884) defines the Local Study Area for marine mammals and sea turtles as follows: "the offshore Project Area and an appropriately 150 km around it, as well as an approximately 10 km area around the associated vessel and aircraft traffic routes to the ELs". The Local Study Area for marine mammals and sea turtles in the Flemish Pass EIS effects assessment was larger than that of other valued components to encompass the potential zone of influence of sound emissions. The Abridged EIS has not discussed or considered this change in approach in the analysis. Also, the difference in the potential zone of influence for sound emissions for effects on marine mammals is not clear.	Confirm whether the Local Study Area for the marine mammals and sea turtles effects assessment for the Central Ridge Exploration Drilling Project is the same as in the Flemish Pass EIS. If not, provide a rationale for the change in the definition of Local Study Area from that used in the Flemish Pass EIS. Indicate how this change may affect the environmental effects analysis and significance conclusions for the Central Ridge Exploration Drilling Project for marine mammals and sea turtles, and any other valued components, as applicable. Update the effects analysis, as applicable. Provide a discussion of whether the Local Study Area is intended to encompass the potential zone of influence of environmental effects on marine species. Update

ID	Reference to EIS guidelines	Reference to Abridged EIS	Context and Rationale	Specific Question/ Request for Information
				the effects analysis, as applicable. Clearly depict the Local Study Area in a figure (e.g. Figure 4-1).
Air Quality				
IR-1	Part 2 – Section 6.3.8.1 Air Quality and Greenhouse Gas Emissions	Section 2.9.1 Air Emissions	The numbers for greenhouse gas emissions in the final paragraph of Section 2.9.1 (page 54) of the Abridged EIS are from Flemish Pass IR-08, but there was additional informal clarification with the proponent on these numbers after the IR phase. The Flemish Pass Environmental Assessment Report states that the Flemish Pass Exploration Drilling Project could emit a total of 141,615 to 207,036 tonnes of CO_2 equivalent per year. Additional information is provided in Table 3 of the Flemish Pass Environmental Assessment Report.	Confirm whether the numbers used in the Flemish Pass Environmental Assessment Report are applicable to the Central Ridge Project. If these numbers are not valid, provide updated numbers along with an explanation of how they were calculated.
Cumulative Effects				
IR-6	Part 2 – Section 7.6.3 Cumulative Effects Assessment	Section 14.3 Marine and Migratory Birds (including Species at Risk)	Section 14.3 (page 458) of the Abridged EIS states that the White Rose production facility is approximately 2 kilometres from the closest edge of EL 1160. While the Abridged EIS does state that there are safety zones for the production facility and the South White Rose Extension, it is unclear as to what Project activities may occur within the safety zones and what the effects of these activities could be.	Describe what Project activities can have potential effects within the safety zones that overlap ELs 1159 and 1160. Update the cumulative effects assessment taking into account the potential of overlap for the zone of influence for lighting, sound and marine discharges between the White Rose and White Rose Extension and the Project. Provide a discussion on the distance of the White Rose safety zone from this Project's ELs and its effectiveness on reducing cumulative effects for each potential source (underwater sound, light emissions, marine discharges, and direct interaction with the benthic environment) for fish and fish habitat, birds, marine mammals and sea turtles.

ID	Reference to EIS guidelines	Reference to Abridged EIS	Context and Rationale	Specific Question/ Request for Information
Effects of the Environment on the Project				
ECCC-02	Part 2 – Section 7.1.2 Marine Environment Part 2 – Section 7.6.2 Effects of the Environment on the Project	Section 15.2 Potential Accidental Event Scenarios	Section 15.2 of the Abridged EIS provides some information on hurricanes and includes mention of bathymetric effects on rogue wave potential. Environment and Climate Change Canada indicated that the possibility of extreme/rogue waves in the region should be considered due to highly varying bathymetry and the ELs being located in a region where post-tropical storms can produce trapped-fetch wave growth.	Provide information on the following: A) Extratropically-transitioning hurricanes, and climatology of 'dynamic fetch' waves associated with these unique but dangerous storms. B) Types of extreme wave phenomenon (dynamic fetch, rogue). C) Measures that will be taken to minimize the potential environmental effects of the environment on the Project.