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d'impact du Canada

Impact Assessment
Agency of Canada

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August 1, 2023

Sent by E-mail

Greg Janes
Manager - Environment, Health and Safety
Exploration & Production, East Coast Canada
Suncor Energy
Email: gjanes@suncor.com

SUBJECT: Tilt Cove Exploration Drilling Project – Round 1 Information Requirements

Dear Greg Janes:

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

The Agency has determined that additional information is required, as per the Round 1 Information Requirements (IRs) and clarifications attached.

With the issuance of these IRs, the federal timeline within which the Minister of Environment and Climate Change must make a decision is paused as of August 1, 2023. Once Suncor Energy submits responses to all the IRs, 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 Environmental Assessment Registry (CEAR) Internet site: <https://iaac-aeic.gc.ca/050/evaluations/proj/80177>.

As per the extension to the three-year legislated time limited, granted to Suncor on August 22, 2022, the deadline to submit the required information or studies described in the Final Environmental Impact Statement Guidelines is August 31, 2024. This includes responses to these IRs and any follow-up IRs that may be issued following the review of your responses. If the information or studies are not provided within the extension of the time limit that has been granted, the environmental assessment for the Project under CEEA 2012 will be terminated in accordance with subsection 181(3) of the IAA.

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

Sincerely,

A handwritten signature in blue ink, appearing to read 'Trevor Ford', is positioned above the typed name.

Trevor Ford

A/Project Manager, Impact Assessment Agency

Atlantic Region

Cc: Francine Wight – Suncor Energy
Ian Murphy – Newfoundland and Labrador Offshore Petroleum Board
Melissa Moss - Newfoundland and Labrador Offshore Petroleum Board
Elizabeth Young - Newfoundland and Labrador Offshore Petroleum Board
Carla Stevens - Major Projects Management Office
Anne Cheverie - Fisheries and Oceans Canada
Jerry Pulchan - Environment and Climate Change Canada
J r mie Allain- Health Canada
Peter Unger - Natural Resources Canada
Anna Kessler – Indigenous Services Canada
Julia Gregory - Indigenous Services Canada
Jason Flanagan – Transport Canada

Attachments:

Attachment 1 – Round 1 Information Requirements for the Tilt Cove Exploration Drilling Project

Attachment 2 – Clarifications for the Tilt Cove Exploration Drilling Project

ATTACHMENT 1
Tilt Cove Exploration Drilling Project
Round 1 Information Requirements
Issued August 1, 2023

INTRODUCTION

The Impact Assessment Agency of Canada (the Agency) has completed its technical review of the Environmental Impact Statement (EIS) for the proposed Tilt Cove Exploration Drilling Project. The Agency also received submissions from federal authorities and Indigenous groups. The Agency has analyzed federal authority, Indigenous groups and public comments and determined that additional information is required. In addition to IRs, a list of clarifications (CLs) that are required to ensure correct interpretation of project information and effects analysis can be found in Attachment 2.

ACRONYMS AND SHORT FORMS

Agency	Impact Assessment Agency of Canada
CIS	Canadian Ice Service
C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board
CWS	Canadian Wildlife Service
DFO	Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
EL	Exploration Licence
EIS	Environmental Impact Statement
ISC	Indigenous Services Canada
GHG	Greenhouse Gas
KMKNO	Kwilmu'kw Maw-klusuaqn Negotiation Office
MFN	Miawpukek First Nation
MODU	Mobile Offshore Drilling Unit
MTI	Mi'gmawe'l Tplu'taqnn Incorporated
NCC	NunatuKavut Community Council
NG	Nunatsiavut Government
NRCan	Natural Resources Canada
VSP	Vertical Seismic Profiling
WNNB	Wolastoqey Nation in New Brunswick

ATTACHMENT 1: ROUND 1 INFORMATION REQUIREMENTS FOR THE TILT COVE EXPLORATION DRILLING PROJECT

IR Number	Reviewer ID	Reference to EIS Guidelines	Reference to EIS	Context and Rationale	Specific Question/ Information Requirement
Project Description					
IR-01	C-NLOPB-13 MTI-07	Section 3.1 Project components	Section 2.4.4	<p>The EIS Guidelines require the EIS to describe suspension or abandonment in locations and water depths under consideration.</p> <p>The EIS contains little information on the circumstances in which a well would be suspended vs abandoned (and cut below the seabed). Given the depth of the water, and likelihood for fishing activity in the area, there is the potential for long-term interactions with a suspended well compared to an abandoned well.</p> <p>This information is required in order to fully assess the effects of suspension and abandonment of wells.</p>	Describe the process that will be used to determine whether a well will be abandoned or suspended following drilling. Update the effects assessment as applicable.
Consultation and Engagement					
IR-02	IAAC FNIHB-02 FNIHB-03 MTI WNNB	Section 5 Engagement with Indigenous groups and concerns raised	Section 3	<p>The EIS Guidelines require the Proponent to engage with Indigenous groups, and to document engagement activities and plans for future engagement. The Proponent is also required to make reasonable efforts to integrate Indigenous knowledge into the assessment of environmental effects.</p> <p>The Agency, Indigenous groups and the First Nations and Inuit Health Branch of Indigenous Services Canada noted information gaps with respect to the Proponent’s engagement activities with potentially impacted Indigenous groups leading up to the submission of the EIS, and future engagement activities. For example:</p> <ul style="list-style-type: none"> The EIS states that “none of the Indigenous organizations that hold the licences have confirmed current fishing activity in the area” but does not specify which organizations are referenced. Note that a non-response is not indicative of lack of use. Table 3.5 states that Membertou First Nation was previously engaged under KMKNO, but does not specify whether the Nation has been engaged directly. Tables 3.2 to 3.6 indicates the majority of Indigenous groups were notified about the “restart of the EIS” on June 27, 2022. The EIS indicated that this is the most recent correspondence for most groups, and it is not documented whether the Proponent notified the Indigenous groups about the EIS submission date. Section 3.4 states the Proponent will continue to engage with Indigenous groups during the EA and throughout the operation phase of the project with a Fisheries Communication Plan developed in consultation with Indigenous groups. This is very little information about plans for continued engagement. <p>Indigenous groups commented there is a lack of information in the EIS on:</p> <ul style="list-style-type: none"> specific issues and concerns raised by each community through engagement, and how they were and/or will be considered and addressed; and how Indigenous Knowledge was collected, considered and incorporated into the EIS. <p>Indigenous groups raised concerns about impacts of the project on culturally significant marine mammals, fish and bird species. MTI noted it has compiled a comprehensive list of species of cultural significance likely to be present in the project area that should be considered in effects assessment and project planning.</p> <p>Indigenous groups wish to be engaged on follow-up programs; and requested to be consulted on the development and implementation of the Fisheries Communication Plan.</p> <p>This information is required to inform the assessment of potential adverse effects on Indigenous current use and resources for traditional purposes, health and socio-economic conditions.</p>	<p>a) Describe engagement activities undertaken prior to the submission of the EIS, including:</p> <ol style="list-style-type: none"> updated information on the Indigenous groups, Indigenous organizations and public stakeholders engaged (including dates and type of engagement), and how the engagement influenced the development of the EIS; any opportunities provided to Indigenous groups to validate information, review and comment on EIS and other key draft documents prior to submission to the Agency. If no opportunity was provided, explain why; how information on current use of lands and resources for traditional purposes (including species of cultural importance), food, social and ceremonial and commercial communal fishing licenses, and Indigenous Knowledge was collected and incorporated into the effects assessment and planned mitigation measures and follow up plans. <p>b) Provide details on future engagement activities and how the results will be incorporated into future project planning, including:</p> <ol style="list-style-type: none"> how new information will be collected and/or provided by Indigenous groups; how issues and concerns raised by Indigenous groups will be documented and addressed; the development and implementation of a Fisheries Communication Plan, Spill Response Plan and other relevant monitoring and follow up plans for culturally significant marine mammals, birds and fish species.
Existing Physical Environment					

IR Number	Reviewer ID	Reference to EIS Guidelines	Reference to EIS	Context and Rationale	Specific Question/ Information Requirement
IR-03	ECCC-05	Section 7.1.2 Marine environment	Section 5.4.1	<p>The EIS Guidelines require baseline information on ice climate in the regional study area, including ice formation and thickness, ridging, breakup and movement; and ice conditions and fast-ice characteristics along marine transportation routes. The Proponent is required to use best available information and methods.</p> <p>The EIS acknowledge that “A new (30 year, 1991-2020) CIS sea ice atlas is expected in 2022; at the next opportunity that information could be included in any project assessment.”</p> <p>ECCC noted that this new sea ice climatology has been accomplished by the Canadian Ice Services (CIS) and has been available since the summer of 2022.</p> <p>Incorporation of the information from the 2022 CIS sea ice atlas into the EIS is required in order to assess the baseline conditions of sea ice located in the project area.</p>	Update the baseline data for sea ice to include the new 30-year CIS Sea Ice Climatic Atlas climatology, which covers the 1991-2020 climate reference period. Update the effects assessment as applicable.
Atmospheric Environment					
IR-04	IAAC ECCC-02 ECCC-09 NG-02 NCC-02 MTI-13	Section 7.3.8.1 Air quality and greenhouse gas emissions	Section 8.2 Section 8.4	<p>The EIS Guidelines require the EIS to contain an estimate of direct greenhouse gas (GHG) emissions as well as any mitigation measures proposed.</p> <p>As noted in the Draft guidance for best-in-class GHG emissions performance by oil and gas projects (Draft Best-In-Class Guidance), this may be considered for an oil and gas project undergoing a CEAA 2012 environmental assessment. The EIS does not contain any information related to best-in-class GHG emissions performance.</p> <p>The EIS states that based on CEAA 2012 guidance, where GHG emissions are considered to be either “medium” or “high”, a GHG Management Plan must be prepared.</p> <p>Sections 8.5 to 8.7 of the EIS concludes that GHGs are considered medium in magnitude. However, the conclusion of section 8.7 of the EIS indicates that no specific follow-up or monitoring related to the atmospheric environment is considered for the Project. Indigenous groups noted the lack of specific monitoring or follow-up and indicated that emissions, both routine and non-routine, such as methane and fugitive emissions should be captured in a monitoring and follow-up program.</p> <p>The EIS provides a brief discussion of climate change and indicates that “given that the temporal scope of the exploration drilling program on EL 1161 extends to 2029, it is unlikely that the physical environment in the Project Area will experience substantial climate change impacts beyond what are presently found in recent trends and interannual variability”. ECCC noted that for short-term projects the recent historical record (if up-to-date and properly characterized) may suffice to characterize the range of likely climate variability for the project area over its lifetime. The Proponent is referred to the “Draft technical guide related to the Strategic Assessment of Climate Change: Assessing climate change resilience” for additional guidance (Draft SACC Technical Guide).</p> <p>This information is required to determine the effects of the project on the atmospheric environment.</p> <p><u>References:</u> Draft technical guide related to the Strategic Assessment of Climate Change: Assessing climate change resilience. 2021. https://www.canada.ca/en/environment-climate-change/corporate/transparency/consultations/draft-technical-guide-strategic-assessment-climate-change.html#toc59</p>	<p>Update the effects assessment for the atmospheric environment to include:</p> <ol style="list-style-type: none"> A discussion on how project planning will consider the Draft guidance for best-in-class GHG emissions performance by oil and gas projects. Mitigation, follow-up and monitoring for the atmospheric environment (e.g., a GHG Management Plan), taking into account both routine and non-routine emissions. Indicate how relevant federal authorities (i.e., ECCC) will be consulted in its development. A discussion on how project planning will consider the Draft technical guide related to the Strategic Assessment of Climate Change: Assessing climate change resilience.

IR Number	Reviewer ID	Reference to EIS Guidelines	Reference to EIS	Context and Rationale	Specific Question/ Information Requirement
				Draft guidance for the submission of information demonstrating best-in-class GHG emissions performance by oil and gas projects undergoing a federal impact assessment. 2022. https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/oil-gas-emissions-cap/best-class-draft-guidance.html	
Fish and Fish Habitat					
IR-05	IAAC C-NLOPB-15 DFO-1 DFO-6 DFO-7 DFO-CL-47 DFO-CL-48 MTI-06 MTI-11	Section 7.1.3 Fish and fish habitat Section 7.3.1 Fish and fish habitat	Section 2.4.2.2 Section 6.1.2 Section 9.3.1.2 Section 12.1.6 Section 12.4.1.2 Section 12.4.1.3	<p>The EIS Guidelines require the EIS to describe fish and fish habitat that could be affected by routine project operations or by accidents and malfunctions.</p> <p>It is noted that only one trawl recovered large gorgonians within EL 1161, but in Figure 6-6, there were at least 13 locations noted for large gorgonians.</p> <p>As well, it is noted that 14 trawls recovered soft corals, even though they appear to be found almost everywhere sampled within the Project Area (Figure 6-7). Specifying that they were recovered from 14 trawls doesn't provide a clear picture of their distribution.</p> <p>The EIS also refers to "Figure 6.56" to depict two small significant benthic areas that occur within EL 1161, however Figure 6.56 does not exist in the EIS.</p> <p>The Proponent noted that it will be conducting a pre-drilling, ROV imagery-based seabed survey at proposed drilling locations to confirm the presence/ absence of sensitive environmental features such as habitat-forming corals, sponges. There is no mention of how the survey will be designed, specifically if recommendations from the <i>Regional Guidance on Measures to Protect Corals and Sponges during Exploration Drilling</i> will be employed.</p> <p>DFO noted that scientific understanding of dispersal and natural recruitment processes across local and regional scales for cold-water corals and sponges (i.e., large/small gorgonian significant benthic areas) is extremely limited.</p> <p>The EIS noted that the recovery rate of corals from drill cutting sedimentation would be slow, while recovery begins relatively quickly after drilling stops and benthic habitats are expected to recover in one to two years. DFO advised that effects on mobile species may be considered reversible, but effects on habitat and sessile fauna (e.g., corals and sponges) will be long lasting and recovery to pre-disturbance conditions could take decades. DFO also noted that functional-group recovery rates vary (e.g., sea pens compared to large and small gorgonians) (see Sherwood and Edinger 2009).</p> <p>This information is required to assess the potential effects on fish and fish habitat.</p> <p><u>References</u> <i>Regional Guidance on Measures to Protect Corals and Sponges during Exploration Drilling. 2022.</i></p>	<p>a) Clarify the inconsistencies in the text versus figures 6-6 and 6-7 related to the distribution of large gorgonian and soft coral distribution and provide a reference for identifying the two small benthic areas that occur within EL 1161.</p> <p>b) Confirm that ROV imagery-based seabed surveys will use the recommendations described in the <i>Regional Guidance on Measures to Protect Corals and Sponges during Exploration Drilling</i>.</p> <p>c) Provide a discussion of uncertainty resulting from limited knowledge of cold-water corals, including special areas, and update the effects assessment, including mitigation and follow-up, as applicable.</p> <p>d) Provide a discussion of the differences in recovery rates for habitat and sessile fauna (e.g., corals and sponges) from drill cuttings sedimentation and update the effects assessment as applicable.</p>
IR-06	IAAC Ekuanitshit-01 DFO-CL-37 WNNB-02	Section 7.1.3 Fish and fish habitat Section 7.3.1 Fish and fish habitat	Section 6.1.3.6.2	<p>The EIS Guidelines require the EIS to describe fish and fish habitat that could be affected by routine project operations or by accidents and malfunctions.</p> <p>Section 6.1.3.6.2 of the EIS describes Atlantic Salmon and their respective designatable units. While the Labrador and Nunavik populations are identified in Table 6.7, no further information is provided in relation to their potential for effects from the Project. NunatuKavut Community Council noted that while uncertainty exists, existing information about salmon migration patterns indicates that young salmon leave natal rivers on the coast of southern Labrador. This is an important part of NunatuKavut traditional territory. They stated salmon often follow the flow of currents heading south and may pass through offshore development areas near the Flemish Pass.</p>	Provide a discussion on the Labrador and Nunavik designatable units of Atlantic Salmon, as well as the South Newfoundland population. Additionally, include any available new information from the ESRF Atlantic Salmon research study. Update the effects assessment, as applicable.

IR Number	Reviewer ID	Reference to EIS Guidelines	Reference to EIS	Context and Rationale	Specific Question/ Information Requirement
				<p>Multiple Indigenous groups noted that research has commenced through the ESRF for Atlantic Salmon, however, there is no mention of this in the EIS, nor use of any data collected from this research for the effects assessment.</p> <p>DFO noted that the South Newfoundland population should be considered in the “Inner St. Lawrence, Quebec Western North Shore, Quebec Eastern North Shore, Anticosti Island, Gaspé-Southern Gulf of St. Lawrence DUs” subheading.</p> <p>This information is required to assess the potential effects on fish and fish habitat.</p>	
IR-07	MTI-15 MTI-App-120	Section 7.1.3 Fish and fish habitat Section 7.3.1 Fish and fish habitat	Section 9.3.1.3	<p>The EIS Guidelines require the Proponent to provide information on underwater noise and vibration emissions from project activities and related effects to affect fish health and behaviour.</p> <p>The EIS predicts that sound emissions from the MODU exceed the threshold for mortality of the most sensitive fish species (i.e., those that use their swim bladder for hearing) up to 134 metres from the sound source. The EIS also states that for VSP surveys, the radius exceeding the mortality threshold for these sensitive fish is 63 metres. MTI stated it was unclear why the zone of influence for fish mortality was predicted to be higher for the MODU than for VSP surveys.</p> <p>This information is required to assess the potential effects on fish and fish habitat.</p>	Provide additional information on the modelled zones of influence for MODU, VSP and supply vessel sound emissions, with consideration of differences depending on the sound source. Update the effects assessment as applicable.
Migratory Birds					
IR-08	CWS-01 CWS-13 MTI-App-163 MTI-App-167	Section 7.3.5 Migratory birds	Section 2.10.2.5 Section 10.3.1.3.1 Section 10.3.1.3.4 Section 10.3.2.3.1	<p>The EIS Guidelines require the Proponent to assess the potential adverse effects of nighttime illumination from lights and flaring on migratory birds.</p> <p>ECCC noted that the EIS predicted low magnitude of effects on marine and migratory birds for MODU presence and operation, citing overall low mortality because most stranded birds are found alive and released successfully. The EIS further states that the assumed 15-16 kilometre zone of influence around the MODU would represent a small portion of feeding, breeding and migration areas available to bird species, limiting the potential for birds to be displaced from key habitats.</p> <p>ECCC and MTI noted disagreement with the Proponent’s conclusion that the overall magnitude of the effect of the presence and operation of a drilling installation on marine and migratory birds is anticipated to be low. ECCC stated that in the absence of systematic searches and documentation of stranded birds (live and dead) to quantify the level of attraction and effect of strandings, and a discussion of mitigation measures to reduce the amount of artificial lighting, the Proponent cannot state with certainty that the effect of the presence of the MODU will be low in magnitude.</p> <p>ECCC noted that considerable uncertainty remains as to the actual zone of influence of light on migratory birds, as well as to how far away from a light source a migratory bird must be before light affects its behaviour. It advised that this uncertainty be reflected in the level of confidence in assessment conclusions.</p> <p>ECCC further noted that Leach’s Storm-petrels breed on Baccalieu Island, the largest colony in the world that hosts four million breeding individuals. Leach’s Storm-petrels travel across and forage in the proposed Project area (deep waters, specifically) during the breeding season, and are known to be attracted to sources of artificial lighting. Therefore, effects on breeding birds, specifically Leach’s Storm-petrel, could be high, in ECCC’s opinion.</p> <p>This information is required to inform the assessment of adverse effects on migratory birds.</p> <p><u>Reference:</u></p>	Update effects assessment for presence and operation of the MODU or provide an expanded rationale for the conclusion that the magnitude of the effect of the presence and operation of a drilling installation on marine and migratory birds will be low, giving consideration to potential impacts/effects on Leach’s Storm-petrel and the uncertainty that remains related to the effect and zone of influence of artificial lighting on marine and migratory birds.

IR Number	Reviewer ID	Reference to EIS Guidelines	Reference to EIS	Context and Rationale	Specific Question/ Information Requirement
				Pollet, I.L., Bond, A.L., Hedd, A., Huntington, C.E., Butler, R.G., and Mauck, R. (2019). Leach's Storm-Petrel (<i>Oceanodroma leucorhoa</i>), version 2.0. In <i>The Birds of North America</i> (P.G. Rodewald, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bna.llcspet.02	
IR-09	ECCC-01	Section 7.3.5 Migratory birds	Section 6.2.3.3	<p>The EIS Guidelines require baseline information on migratory and non-migratory birds and their habitat at the Project site and within areas that could be affected by routine project operations or accidents and malfunctions. The Proponent should use the best available information and methods in undertaking the environmental effects assessment.</p> <p>The EIS states that “Nocturnally migrating species are often attracted to artificial lighting on vessels, especially when fog or rain sets in after the night’s nocturnal migration has begun (Gauthreaux and Belser 2006).”</p> <p>ECCC noted that new research (i.e., Gjerdrum et al. 2021) has been published which details how, in addition to nocturnal seabirds, many landbird species have been reported stranded at coastal and offshore sites in Atlantic Canada during stranded bird surveys.</p> <p>The Proponent should update their analysis to include landbird species that may have overlapping ranges with the Project Area to improve the effects assessment of potential impacts on landbirds.</p> <p>This information is required to assess the potential effects of the Project to migratory birds.</p> <p><u>References</u></p> <p>Gjerdrum, C., R.A. Ronconi, K.L Turner, and T.E. Hamer. (2021). Bird strandings and bright lights at coastal and offshore industrial sites in Atlantic Canada. <i>Avian Conservation & Ecology</i>. 16(1): 22. https://doi.org/10.5751/ACE-01860-160122</p>	Provide an analysis of potential effects of the Project on landbirds taking into consideration the Gierdrum et al. 2021 research and how landbirds may be encountered during project activities. Update the effects assessment and conclusions for migratory birds, as applicable.
IR-10	CWS-04 CWS-07 CWS-08	Section 7.1.4 Section 7.3.5 Migratory birds	Section 6.2.2 Table 6.9	<p>The EIS Guidelines require baseline information on migratory and non-migratory birds and their habitat in Project area and within areas that could be affected by routine project operations or accidents and malfunctions.</p> <p>Table 6.9 of the EIS lists 15 major marine bird colonies, but ECCC notes that this list is not comprehensive and misses a number of colonies that are important for migratory birds, such as Little Fogo Islands. Additionally, there are colonies that are included that ECCC does not consider to be “major” as a part of this analysis, such as Northern Groais Island.</p> <p>This information is required to assess the potential effects of the Project to migratory birds.</p>	In consultation with ECCC, provide an updated table 6.9 and discuss the rationale as to why the 15 major marine bird colonies were selected.
Marine Mammals and Sea Turtles					
IR-11	MTI-19 MTI-App-176 NG-04	Section 7.3.3 Marine mammals	Section 2.2.3 Section 7.0	<p>The EIS Guidelines require the EIS to describe the standard mitigation practices, policies and commitments that constitute technically and economically feasible mitigation measures and that will be applied as part of standard practice.</p> <p>The Nunatsiavut Government noted that in the effects assessment of marine mammals, the EIS cites the 2007 DFO document <i>Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment</i>. The EIS, however, does not cite <i>the Review of the Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment, Science Advisory Report 2020/005</i> as completed by the Canadian Science Advisory Secretariat. This report identified knowledge gaps and recommended several modifications and new mitigation measures.</p>	Update the effects assessment of marine mammals taking into consideration the <i>Review of the Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment, Science Advisory Report</i> .

IR Number	Reviewer ID	Reference to EIS Guidelines	Reference to EIS	Context and Rationale	Specific Question/ Information Requirement
				<p>This information is required to assess the potential effects on marine mammals.</p> <p>References</p> <p><i>Review of the Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment, Science Advisory Report</i> https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_005-eng.html</p>	
Accidents and Malfunctions					
IR-12	DFO-10 MTI-23 NRCan-1 NRCan-2 NRCan-3 NRCan-4	Section 7.6.1 Effects of potential accidents or malfunctions	Section 16.3.4.2	<p>The EIS Guidelines require the EIS to identify the form and characteristics of the contaminants and other materials likely to be released into the environment during accident and malfunction events.</p> <p>NRCan commented that the crude oil used in the spill modelling (Nova Terra) may not behave and biodegrade as described. Specifically, the rate of oil biodegradation is not expected to be faster than evaporation, so it is unclear as to why in the model depicts biodegradation appearing as faster than evaporation, and why its proportion increases after the proportion of evaporation plateaus.</p> <p>NRCan also noted that compounds larger than C15 will biodegrade much slower and not completely, leaving oxidized by-products to become entrained in the water column, some of which can become a part of marine snow and sink.</p> <p>NRCan also advised that the Nova Terra composition would be too waxy for mitigation measures described in the EIS, and that the only mitigation techniques that could be effective for waxy oil in cold water would be in situ burning, and possibly subsea dispersant application.</p> <p>DFO commented that the modelling showed for unmitigated blowouts that less than 0.01% of oil would settle on sediments. No information is provided as to what volume this percentage refers to or over what period of time, and this information is not taken into consideration in Table 16.24 for potential for oil to contact coral and sponges.</p> <p>This information is required in order to assess the potential effects of accidents or malfunctions.</p>	<p>a) Update the spill modelling taking into account the waxy composition of the Nova Terra crude used in the spill assessment, or provide a rationale as to why the spill modeling is sufficient.</p> <p>b) Provide additional information on the volume that would be represented by 0.01% of oil settling on sediments, over what period of time this would occur. Explain why the majority of oil is not expected to settle on the seafloor and, if relevant, a description of the model parameters that led to this conclusion.</p> <p>c) Provide an analysis of potential for oil to contact coral and sponges, and assess the significance of those adverse effects.</p>
IR-13	IAAC DFO-12 MTI-24	Section 7.6.1 Effects of potential accidents or malfunctions	Section 16.6.1.3.4	<p>The EIS Guidelines require the EIS to assess the fate and behaviour modelling, and hydrologic trajectory modelling for worst-case large-scale spill scenarios that may occur.</p> <p>The synthetic based muds (SBM) spill modelling was not conducted specifically for the Project, and the Proponent used the SBM spill modelling from the CNOOC Flemish Pass Exploration Drilling Project.</p> <p>The parameters used in this SBM spill modelling vary significantly from site conditions with EL1161. The SBM spill modelling uses a depth of 378 metres compared to a depth within EL 1161 is stated as 61 to 87 metres and no rationale is provided as to why this is appropriate. The EIS also identifies that the currents are “slightly higher” in EL 1161 than those used in the SBM spill modelling, but provides no additional information as to what the differences are. The EIS does not provide any information as to how these differences may result in site specific changes compared to the results provided in the SBM spill modelling.</p> <p>This information is required in order to assess the potential effects of accidents or malfunctions.</p>	Provide rationale on the applicability of SBM spill modelling from CNOOC Flemish Pass Exploration Drilling Project to EL 1161. Include a discussion of how differences in current at EL 1161 may affect model predictions.
IR-14	IAAC C-NLOPB-11 MFN-02	Section 7.6.1 Effects of potential accidents or malfunctions	Section 16.5.3	<p>The EIS Guidelines require information on the use, availability (including nearest location), timing (testing and mobilizing) and feasibility of a capping stack to stop a blowout and resultant spills.</p>	<p>a) Provide information related to the technical limitations of capping stacks for depths less than 100 metres of water and plans on addressing these limitations and any uncertainties associated.</p>

IR Number	Reviewer ID	Reference to EIS Guidelines	Reference to EIS	Context and Rationale	Specific Question/ Information Requirement
				<p>The EIS states that a capping stack will be used in case of a blowout and that capping stacks have been used up to a depth of up to 3,000 metres.</p> <p>C-NLOPB noted that capping stacks being installed in water depths of less than 100 m present various technical challenges which are not addressed in the EIS.</p> <p>While the EIS states that a capping stack will be used, it does not state from where the capping stack would be sourced, and time needed for its transport.</p> <p>This information is required in order to assess the feasibility of the use of capping stacks as a mitigation measure.</p>	<p>b) Provide information on the source location(s) for a capping stack and time needed for its transport.</p>
Other					
IR-15	DFO-18 DFO-20 DFO-22 DFO-24	Section 7.3.1 Fish and fish habitat	Drill Cuttings Dispersion Modelling (Appendix C)	<p>The EIS Guidelines require the EIS to describe nature, composition and fate of drilling wastes using dispersion modelling.</p> <p>DFO noted that in Appendix C it is stated that <i>“Slow settling velocities associated with the fine silts/clays and coarse silts, which make up the largest fractions of the cuttings drilled with WBM (water based mud) and SBM (synthetic based mud), allowed for greater dispersion before settling out”</i>. Appendix C also states that the simulations were only several days long. There is the potential that these fine silts and clays would require weeks to settle based on the settling velocities reported in Table 2-4 of Appendix C. DFO noted that the simulations run for the drill cuttings dispersal modelling were not long enough to state that these materials would settle or be dispersed.</p> <p>DFO commented that the authors focus the analysis of HYCOM (Hybrid Coordinate Ocean Model) currents on a 7-year period from 2006 to 2012 to conclude that 2012 is a representative year. However, it is DFO’s opinion that 7 years is not long enough to characterize the variability of the system which is known fluctuate on decadal time scales (see Han et al. 2014). There is a significant difference between the two scenarios modeled (Figures 3-1 and 3-2), which implies the need for more simulations of all possible scenarios.</p> <p>DFO also noted that as this report was written in 2019, it can be concluded that the information provided in this report is not based on the most recent information available. It is suggested that the quality of the risk assessment would have been improved by extending data analyses to 2019. HYCOM uses Mercator projections between 78°S and 47°N latitude and a bipolar patch for regions north of 47°N to avoid computational problems associated with the convergence of the meridians at the pole. Since the simulations provided by the Proponent are very close to 47°N, it should be considered whether this grid patching/merging has an effect on the quality of the current forcing at this latitude.</p> <p>DFO commented that there are few details provided with regards to the MUDMAP dispersion model. It is said to be based on integral plume theory but no reference and/or equations are provided. Page 10 of Appendix C states, <i>“The equations and solutions in MUDMAP are based on thirty years of research and the model is regularly updated as new scientific research is presented”</i>, but the references are mostly based on industrial reports rather than peer-reviewed literature. The authors do provide examples of validation of the model, but these are either from different environments (e.g., from mangroves; Burns et al. 1999) or from industrial reports (King and McAllister 1997, 1998).</p> <p>DFO also commented that sensitivity analysis of the different parameters used in the drill cuttings dispersion model (e.g., environmental forcing, discharge schedule, discharge solids characteristics, horizontal and vertical diffusivities, grid resolution, number of particles, etc.) should be performed. It was also noted that there was little information as to how these parameters were selected.</p>	<p>a) Provide a justification for the duration of simulations used in Appendix C.</p> <p>b) Provide additional information for the use of 2012 as a representative year.</p> <p>c) Provide new simulations of a longer time-series that includes data up to 2019 or a rationale as to why additional simulations are not required.</p> <p>d) Provide a description as to whether grid patching/ merging has an effect on the quality of the current forcing at the latitude of this Project.</p> <p>e) Provide references and/or equations regarding integral plume theory.</p> <p>f) Provide peer-reviewed literature related to MUDMAP, and provide examples of validation of the model for similar environments and from peer-reviewed literature.</p> <p>g) Provide additional information as to how model parameters were selected.</p> <p>h) Provide a sensitivity analysis on the different parameters used in the model (e.g. environmental forcing, discharge schedule, discharge solids characteristics, horizontal and vertical diffusivities, grid resolution, number of particles, etc.) or provide a rationale as to why this is not required.</p>

IR Number	Reviewer ID	Reference to EIS Guidelines	Reference to EIS	Context and Rationale	Specific Question/ Information Requirement
				<p data-bbox="907 258 2119 318">Additional context and rationale for DFO questions can be found in Technical Review of Project-Specific Drill Cutting Dispersion Modelling for Tilt Cove Exploration Drilling Project Environmental Impact Statement (dfo-mpo.gc.ca)</p> <p data-bbox="907 348 1790 374">This information is required to assess the potential effects of drill cuttings dispersion.</p>	

ATTACHMENT 2: CLARIFICATIONS FOR THE TILT COVE EXPLORATION DRILLING PROJECT

CL Number	Reference to EIS	Context and Rationale	Clarification
CL-01	Throughout Chapter 12	Abbreviation of NHS isn't defined.	Provide a definition for "NHS".
CL-02	Section 6.1.2	There are inconsistencies in the data reported in Figures 6-5 to 6-9 and results presented in the text for corals and sponges observed in EL 1161. "Of the research trawls conducted within EL1161, there were no recorded recoveries of sea pens (Figure 6-5). There were nine trawls that recovered small gorgonians (Figure 6-7), one trawl that recovered large gorgonians (Figure 6-6), 14 trawls that recovered soft corals (Figure 6-8), and five trawls that recovered sponges (Figure 6-9)." The associated figures do not present these occurrences in EL 1161.	Provide revise figures and/or text to provide clarity on occurrences of corals and sponges in EL 1161.
CL-03	6.1.3.4.5	Figure 6-35 presents data on the distribution of Short-fin squid. The legend identifies data points as the presence of Atlantic cod.	Provide a revised figure to provide clarity on occurrences of Short-fin squid in the Project Area.
CL-04	Section 6.1.3.2	There are no references provided for this paragraph.	Provide references for this paragraph.
CL-05	Section 7.3 Figure 7-33	Figure legend states/identifies: "Metis (NunatuKavut Community Council) community" NCC do not identify as Metis. "Mi'kmaq First Nation community" It is unclear whether these four communities are 'Mi'kmaq' communities or specifically Qalipu First Nation communities/administrative community offices.	Provide an updated Figure 7-33: <ul style="list-style-type: none"> Corrected to read to "NunatuKavut Community Council communities" Clarify if "Mi'kmaq First Nation community" is a Qalipu First Nation community or administrative office.
CL-06	Section 6.1.3.6.2	"Thus, with respect to the Project Area (see Figure 6-35), the presence of inner Bay of Fundy salmon is not expected at any life history stage or season". Although unlikely, it cannot be said with certainty that the Inner Bay of Fundy population of Atlantic Salmon will not occur in the Project Area.	Clarify the presence of Inner Bay of Fundy salmon.
CL-07	Section 6.3.2 Table 6.15	Ringed Seals have a COSEWIC Designation of Special Concern	Provide updated Table 6.15 to include Ringed Seals COSEWIC designation.

CL Number	Reference to EIS	Context and Rationale	Clarification
CL-08	Section 6.4.2.1 Table 6.24 Figure 6-60 Section 6.4.2.3 Figure 6-62 Table 6.26	Text states that there are “a total of 37 EBSAs in the Newfoundland-Labrador Shelves and Scotian Shelf Bioregions are found within the RAA.” Table 6.24 and Figure 6-60 only explain/display 32 EBSAs. Text states that “four MPAs have been established in Newfoundland and Labrador (DFO 2019c), all of which occur within the RAA (Figure 6-62).” Figure 6-62 and Table 6.26 explain/display 6 MPAs.	Provide updated relevant text and figures to ensure information is accurate.
CL-09	Section 6.4.2.6	Text states “The RAA intersects with four areas of proposed critical habitat for northern wolffish and four areas of proposed critical habitat for spotted wolffish (Figure 6-62).” RAA actually intersects with five areas of proposed critical habitat for northern wolffish. Critical habitat for wolffish is no longer considered proposed.	Provide updated figure to reflect this information.
CL-10	Section 12.4.1.2	“Fishes and invertebrates remaining in the area will likely habituate to continuous sound such that avoidance and startle responses decrease over time during drilling activities.” No reference is provided for this statement.	Provide a citation for this information.
CL-11	Section 11.1.4.2	Proponent states “Suncor is planning to drill up to 12 exploration and delineation /appraisal wells over the term of EL 1161”. In Chapter 2, it is stated 12-16 wells may be drilled.	Clarify the number of wells to be drilled.
CL-12	Section 16.4.1.1	A reference is not provided for the first paragraph, which refers to data from the 1990s for Eastern Canada in general. Similarly, the second paragraph states very general information, and the reference provided (Moir et al. 2013) is not included in the reference list.	Provide the references used in this text.
CL-13	Section 2.2 Section 2.4.2.2 Section 16.3.3	In Section 16.3.3 a depth of 68-90 m is used for EL 1161, yet elsewhere (Section 2.2) it is stated as 61 to 87 metres and in Section 2.4.2.2 it is stated that the maximum depth is approximately 85 to 90 metres	Clarify the depth of EL 1161.