



Canadian Environmental
Assessment Agency

Agence canadienne
d'évaluation environnementale

Suite 200 Bureau 200
1801 Hollis Street 1801 rue Hollis
Halifax NS B3J 3N4 Halifax, NE B3J 3N4

August 27, 2018

Sent by E-mail

Stephen Edwards
SSHE and External Affairs Manager
ExxonMobil Canada Ltd.
Suite 1000, 100 New Gower Street
St. John's, NL A1C 6K3
stephen.c.edwards@exxonmobil.com

Dear Mr. Edwards,

SUBJECT: Eastern Newfoundland Offshore Exploration Drilling Project – Round II Information Requirements

On March 13, 2018 and April 24, 2018, the Canadian Environmental Assessment Agency (the Agency) sent Information Requirements (IRs) and clarifications (packaged as Information Requirements Part I and II, respectively) to ExxonMobil based on technical review by the Agency, other federal government experts, Indigenous groups and the public. ExxonMobil's responses were received in two submissions as follows:

- May 15, 2018 submission consisting of responses to Part I IRs [IR-01 to IR-65 and clarifications CL-1 to CL-20 (common with Flemish Pass Offshore Exploration Drilling Project) and IR-66 to IR-70 and CL-21 (specific to Eastern Newfoundland Offshore Exploration Drilling Project)]. Responses to IR-08 and IR-16 responses were not included in this submission.
- July 5, 2018 submission which included Part II IRs (IR 16A, IR-78 to IR-89 and clarifications CL-24 and CL-25), as well as all outstanding Part I IRs (IR-08, IR-16 and the seven revised responses resulting from the Agency's conformity review of Part I IR responses).

The Agency has completed technical review of the proponent's responses, has reviewed comments from federal departments, and has identified 21 follow-up IRs and 2 follow-up clarifications (Attachment 1). The requests and clarifications are denoted as follow-up by the addition of the number '-2' to the original IR number (e.g. IR-11-2).



The Agency has not yet received comments from all participating Indigenous groups and may submit additional IRs once the comments are received and reviewed.

The Agency requires acceptable responses to the IRs in order to complete its review of the EIS and to proceed with the preparation of its Environmental Assessment Report. Once you have submitted complete responses to all IRs, the Agency will take a period of up to 15 days without the timeline resuming to form an opinion on whether the required information has been provided. If the Agency determines the responses to be complete, it will commence a technical review of the additional information and the timeline for the environmental assessment will resume the following day. If the responses are determined to be incomplete, you will be notified at that time. If the Agency has not come to a conclusion after 15 days, the timelines will resume the next day. For further information, please consult the Agency document *Information Requests and Timelines*.

The responses 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://www.ceaa-acee.gc.ca/050/evaluations/proj/80132?culture=en-CA>

The Agency would be available to further discuss the information requirements. Please contact me at 902-426-9460 or via email at CEAA.ExxonMobil.ACEE@canada.ca.

Sincerely,
<Original Signed By>

Shauna O'Brien
Project Manager
Canadian Environmental Assessment Agency

Attachment (1) – Round II Information Requirements – Eastern Newfoundland Offshore Exploration Drilling Project

Cc: Elizabeth Young, Canada - Newfoundland Labrador Offshore Petroleum Board
Dave Burley, Canada - Newfoundland Labrador Offshore Petroleum Board
Kimberley Keats, Fisheries and Oceans Canada
Glenn Troke, Environment and Climate Change Canada
Allison Denning, Health Canada
Jason Flanagan, Transport Canada
Veronica Mossop, Natural Resources Canada
Carla Stevens, Major Projects Management Office

Attachment 1
Eastern Newfoundland Offshore Exploration Drilling Project
Round II Information Requirements (IR)

TABLE OF CONTENTS

| | |
|--|----|
| INFORMATION REQUIREMENT - IR-5-2 | 2 |
| INFORMATION REQUIREMENT - IR-7-2 | 2 |
| INFORMATION REQUIREMENT - IR-12-2 | 2 |
| INFORMATION REQUIREMENT - IR-16/16a-2..... | 3 |
| INFORMATION REQUIREMENT - IR-20-2 | 3 |
| INFORMATION REQUIREMENT - IR-23-2 | 4 |
| INFORMATION REQUIREMENT - IR-25-2 | 5 |
| INFORMATION REQUIREMENT - IR-30-2 | 5 |
| INFORMATION REQUIREMENT - IR-39-2 | 6 |
| INFORMATION REQUIREMENT - IR-40-2 | 6 |
| INFORMATION REQUIREMENT - IR-41-2 | 7 |
| INFORMATION REQUIREMENT - IR-47-2 | 8 |
| INFORMATION REQUIREMENT - IR-48-2 | 9 |
| INFORMATION REQUIREMENT - IR-58-2 | 9 |
| INFORMATION REQUIREMENT - IR-68-2 | 10 |
| INFORMATION REQUIREMENT - IR-78-2 | 10 |
| INFORMATION REQUIREMENT - IR-82-2 | 11 |
| INFORMATION REQUIREMENT - IR-84-2 | 11 |
| INFORMATION REQUIREMENT - IR-86-2 | 12 |
| INFORMATION REQUIREMENT - IR-87-2 | 12 |
| INFORMATION REQUIREMENT - IR-89-2 | 13 |
| REQUIRED CLARIFICATION - CL-08-2..... | 13 |
| REQUIRED CLARIFICATION - CL-20-2..... | 14 |

INFORMATION REQUIREMENT - IR-5-2

To clarify a statement in EIS regarding use of multiple streamers for wellsite surveys, the Agency required the proponents' to identify any components or activities that have been included in Section 2 of the EIS but that would not form part of the designated project under CEAA2012 (e.g. 3D high resolution survey).

In response, the proponents' stated that no 3D seismic surveys are proposed. The Canada-Newfoundland Offshore Petroleum Board noted that 3D seismic was included as one example of the types of activities requiring clarification. To ensure clarity on required authorizations and associated environmental assessment responsibilities, confirmation is required that the designated projects would not include surveys for the broader delineation of resources (including conventional 2D and 3D seismic), as set out in section 3.1 of the EIS Guidelines.

Specific Follow-up Question/Information Requirement:

Given the reference to multiple streamers in the original EIS and that 3D high resolution surveys were only provided as an example, confirm that multiple streamer geophysical surveys, including but not necessarily limited to conventional 2D and 3D seismic surveys, would not be included in the designated projects for Equinor and ExxonMobil, respectively.

INFORMATION REQUIREMENT - IR-7-2

The Agency required further information on the alternatives examined for waste management. In their response, the proponents indicated that the selection of cuttings disposal options (at sea, on shore, or re-injection) will be finalized during the Operations Authorization application process, with the preferred management option depending on drilling fluid selected. This contradicts Section 2.10.1.3 of the EIS, where disposal at sea was identified as the preferred option; on shore disposal and offshore reinjection were not carried through the effects assessment in the EIS.

Specific Follow-Up Question/Information Requirement:

Clarify whether on shore disposal and offshore re-injection are still potential options for disposal of drill cuttings. If so, provide effects analysis, conclusions, mitigation and follow-up for potential effects of these alternatives on relevant valued components.

INFORMATION REQUIREMENT - IR-12-2

The Agency required further information on what volume of produced water would constitute the "large amount" referred to in the EIS. The proponents' responded that depending on volume, produced water may be flared, treated and discharged to sea or shipped to shore for treatment, and in all cases treatment would be in accordance with the Offshore Waste Treatment Guidelines. A "large amount" was not defined; rather, the proponents' indicated that the volume of produced water generated is

influenced by the reservoir properties, and stated: “Flaring of a large volume of produced water cannot occur as it would cause the flare not to function properly, which has the potential to release hydrocarbons to the environment.”

Specific Follow-up Question/Information Requirement:

Explain what is considered to be a “large volume” of produced water from formation flow testing, and how the potential for flare malfunction (and release of hydrocarbons) is identified and avoided. Indicate under what circumstances produced water would be treated, shipped to shore, or flared. Describe the potential effects of flaring produced water.

INFORMATION REQUIREMENT - IR-16/16a-2

IRs 16 and 16a required an updated analysis of effects of the projects on Atlantic salmon, including a discussion of the need for follow-up related to project-specific or cumulative effects on Atlantic salmon. In their response, the proponents’ indicated that although significant effects to Atlantic salmon are not anticipated as a result of project activities, there are data gaps regarding migratory routes of Atlantic salmon. The proponents’ stated they may consider supporting research to address these data gaps, potentially in collaboration with research partners, Indigenous groups, or within the context of regional initiatives. The Agency understands that potential collaborations continue to be explored and additional information may now be available on future initiatives.

Specific Follow-up Question/Information Requirement:

Provide an update on research collaborations that have been identified, and agreements that are in place, if any to improve understanding of Atlantic salmon in the marine environment and their potential interaction with oil and gas activity in the of Newfoundland. Elaborate on the research areas that are being studied, by whom, how this data will/may improve certainty with respect to impact predictions, for the current and future projects, and how Indigenous groups may be engaged in developing research plans. Indicate how data will be disseminated, including whether results of research initiatives will be shared with other operators in Eastern Newfoundland offshore, Indigenous communities, and the public.

INFORMATION REQUIREMENT - IR-20-2

The Agency required the proponents to identify the likely distance between wells, both exploration and delineation, assumed when stating that there was no potential overlap of effects of drilling muds and cuttings. The proponents’ responded that delineation and appraisal wells are typically completed within a radius of approximately 20 km from the exploration well. Although this distance between wells makes overlapping effects of water-based mud cuttings deposition unlikely, the model predicted dispersion of synthetic-based mud cuttings up to 32 km or more from the wellsite, depending on location and season modelled. Overlap of synthetic-based mud cuttings deposition within exploration licences for each Project was not addressed in the EIS.

Specific Follow-up Questions/Information Requirement:

Quantify the potential area of overlap for zones of effects for synthetic-based mud cuttings deposition, taking into account the maximum number of wells proposed for each project. Update the effects assessment for relevant valued components, as well as potential mitigation and follow-up.

INFORMATION REQUIREMENT - IR-23-2

IR-23 required the proponents to provide information on pre-drill coral and sponge surveys, including how the protocols outlined in the *Monitoring of Drilling Activities in Areas with Presence of Cold Water Corals* (Norwegian Oil and Gas 2013) would be applied, clarification on what would be included as sensitive marine habitat, potential mitigation measures, subsea cutting transport systems, and the sharing of information collected.

In their response, the proponents' stated that coral and sponge surveys would be conducted at each well location, as well as 50 metres around each anchor pattern. Coral and Sponge Survey Plans, as well as resulting Coral and Sponge Survey Results and Risk Assessment Reports, would be provided to the C-NLOPB and the DFO for review and acceptance. The proponents' indicated that the Norwegian Guidelines would be modified, as necessary to take account of the local environment and needs.

IR-79 further required information on how proposed surveys using multi-beam echo sounders (MBES) and side scan sonar (SSS) would detect species such as sea pans, bamboo corals and various sponges, the feasibility of conducting a pre-drill survey with ROV around each wellsite prior to drilling to confirm predications made based on the results of the MBES and SSS surveys, and how coral and sponge aggregations would be defined for pre-drill surveys.

The proponents responded that MBES and SSS data may be used to map seabed characteristics and morphology, and identify areas where cold water corals may be located, and that these areas may be further inspected (ground-truthed) using equipment such as a remotely operated vehicle equipped with a high definition camera. The proponents indicated that because sponges cannot be detected with MBES/SSS, visual data would be collected in areas where seabed contact is likely, thereby ensuring detection of these species. The proponents provided a list of information to be included in coral and sponge survey plans and subsequent risk assessments, and indicated that DFO would be consulted on site-specific survey plans and risk assessments for each potential wellsite. No information was provided on how coral and sponge aggregations would be defined for risk assessment purposes.

The Agency understands that both ExxonMobil and Equinor plan to undertake baseline coral and sponge surveys in some areas of their respective ELs in the coming weeks.

Specific Follow-up Questions/Information Requirement:

Provide the Agency with the following information related to the proposed coral and sponge surveys and associated mitigation planning:

- confirm which technologies would be used and under what circumstances;

- when and where the surveys will be conducted;
- the distance from each wellsite and/or mooring to be surveyed and how the results of the drill cuttings dispersion modelling and water depth would be applied to determine the distance to be surveyed;
- the specifications and capabilities for the remotely operated vehicle and its range from the platform, given that the zone of impact around a platform can extend some distance;
- the number of transects to be surveyed at each wellsite and anchor point, including diagrams of the transect pattern;
- who will review the investigation results;
- who the seabed survey results, including video footage, would be communicated to and in what manner; and
- how the results will be used and interpreted to inform potential mitigation for Eastern Newfoundland Offshore Exploration Drilling Project/Flemish Pass Exploration Drilling Project. Discuss the proposed methodology for coral and sponge risk assessments, including an indication of how significant aggregations of corals or sponges will be defined, and a description of the type of analysis used to qualify and/or quantify risk.

INFORMATION REQUIREMENT - IR-25-2

The Agency required additional information on potential effects of vessel traffic on marine mammals. The proponents' response indicated that observations for marine mammals and sea turtles will be conducted during offshore activities and speed will be adjusted as necessary when marine mammals and/or sea turtles are observed in close proximity to the installation.

Specific Follow-up Question/Information Requirement:

Provide information on who will be responsible for the marine mammal observations, the training protocol for those responsible for observations, if observations will be conducted on both vessels and drilling installations, and the reporting of findings.

INFORMATION REQUIREMENT - IR-30-2

The Agency required the proponents to confirm whether a follow-up program would be undertaken with a systematic protocol to search for and document stranded birds on the drilling unit and supply vessels, and whether ECCC will be engaged in seabird observation training.

In their response, the proponents indicated that training will be provided under the Eastern Canada Seabirds at Sea (ECSAS) protocol. However, ECCC has pointed out that the ECSAS protocol is intended for conducting surveys of live birds at sea, not stranded birds on the platforms or vessels. In addition, the proponents did not indicate whether ECCC would be involved in seabird observation training.

The proponents' response referred to obtaining information on rates of stranding and mortalities through surveys completed under the Seabird Handling Permit from ECCC CWS. However, ECCC has

noted that the Seabird Handling Permit does not provide a survey protocol on how to conduct and report on systematic searches of the platform for stranded birds.

Specific Follow-up Question/Information Requirement:

Provide information on the protocols to be developed for systematic searches of the platform for stranded birds, including frequency of searches and reporting procedures, and the training of observers responsible for monitoring and handling stranded birds. Indicate whether ECCC will be involved in seabird observation training.

INFORMATION REQUIREMENT - IR-39-2

The Agency required updated tables and a related figure with listings of all special areas that could be affected by the Projects. This requirement was intended to update the table and figure already provided in the EIS with information on the additional special areas identified by Fisheries and Oceans Canada in IR-39. The proponents' response provided a table and figures specific to those additional special areas.

Specific Follow-up Questions/Information Requirements:

Consolidate the information from the EIS, IR-39 and also the EIS Addendum for the addition of exploration licence 1134 to provide one table and one figure depicting distances to special areas that could be affected by the Projects.

The figure, similar to Figure 11-2 in the EIS, should depict all the special areas that overlap with the project area as well as with the potential vessel and aircraft routes. The figure should also include any special areas that, while not directly overlapping with the project area or vessel and aircraft routes, may be within the zone of influence for effects of routine Project activities.

Provide a table, as per Table 6 in IR-39 and Table 4.17 of ExxonMobil's EIS Addendum for the addition of exploration licence 1134, of all special areas within the Regional Study Area and the distance of each of those special areas to the exploratory licences included in the Projects.

INFORMATION REQUIREMENT - IR-40-2

The Agency required the proponents to assess the potential environmental effects of routine Project operations (e.g. noise, light, water, sediment) on special areas that are both overlapping with the Project and **on those to which potential effects may extend**. It is not clear whether the potential effects on special areas outside the ELs but within the potential zones of influence for noise, light, and cuttings disposal have been assessed.

The proponents' response focused on the potential environmental effects on special areas that are overlapping with the exploration licences associated with the Projects. Although effects of supply and servicing were discussed, special areas overlapping with vessel and aircraft transit routes were not

identified; only those overlapping with ELs were included in the assessment (as per Table 11.4 in the IR-40 response).

Specific Follow-up Questions/Information Requirements:

Clarify how the analysis considered potential zones of influence of noise, light and routine discharges when identifying the special areas that could be affected by routine operations. If there is potential for effects to extend to special areas not already discussed in IR-40, provide an analysis of effects of routine project operations on special areas that, while not directly overlapping the project area or vessel and aircraft transit routes, may be within the zone of influence for effects from noise, light, and drill cuttings disposal.

Further to the updated map and table required in IR-39-2, ensure that the analysis of effects of supply and servicing identifies the special areas that could interact (if any) with the Projects along or nearby potential vessel and aircraft transit routes and include this information in a consolidated list of special areas that could overlap with the Projects such as the one provided by the proponents in Table 11.4.

INFORMATION REQUIREMENT - IR-41-2

The Agency required additional information on potential interactions between commercial fisheries operating within transit routes and vessel traffic. In its response, the proponent indicated that the mitigation measures discussed in the effects assessment, including those regarding the implementation of a compensation program for gear damage, are equally applicable to commercial fisheries occurring along potential vessel transit routes as they are for those occurring within the Project Area.

Sipekne'katik First Nation expressed interest in how compensation programs for offshore exploration drilling projects would take into account the differences between the communal commercial rights holders fishery and the commercial fishery stakeholders fishery:

- stakeholders have the ability to leverage their fishing licence as an asset, whereas rights holder's licences do not allow for this,
- stakeholders have the ability to apply for employment insurance, whereas rightsholders' licences do not allow for this, and
- the income from the communal commercial rights holders is an important source of revenue to the community.

Sipekne'Katik First Nation noted that these differences should be recognized in the development and the implementation of any fishing gear damage or loss compensation programs.

The KMKNO has expressed interest in how offshore exploration projects would involve Indigenous groups in the development of fishing gear damage or loss compensation programs.

Specific Follow-up Question/Clarification:

With respect to the development and implementation of the fishing gear damage or loss compensation program, discuss how differences between the communal commercial rights holders fishery and the commercial fishery stakeholders fishery would be considered.

Provide information on if and how Indigenous groups would be involved in the development of the fishing gear damage or loss compensation program.

INFORMATION REQUIREMENT - IR-47-2

The Agency required a reference for the statement in Section 15.2.2 of the EIS that previous analysis indicated a nearshore spill event would result in oil moving to the east and not contacting the shoreline. The Agency further required an assessment of effects of a nearshore vessel spill on relevant valued components.

The proponents provided new modelling results for the Nexen Energy ULC Flemish Pass Exploration Drilling Project, in which modelling of a spill from a supply vessel showed oil migrating to the east, without shoreline oiling. The original reference supporting the statement in the Section 15.2.2 of the EIS was not provided. It is noted that the Nexen model was for a vessel spill originating at the midpoint between St. John's and the Nexen project area (in the Flemish Pass), and therefore still a considerable distance offshore.

The proponents stated that vessel collisions in the nearshore are highly unlikely, and that nearshore effects of oiling were examined in the context of an offshore blowout. It is noted, however, that oil from an offshore blowout would be highly weathered in the unlikely event of shoreline contact; should a spill occur in the nearshore, time to shore and potential weathering might be considerably different. The EIS Guidelines (Section 6.6.1) require consideration of accidents in the near-shore environment (e.g. spills and ship groundings, as applicable).

Specific Follow-up Question/Information Requirement:

As per the original IR, provide a reference and further information on the nearshore spill modelling referred to in Section 15.2.2 of the EIS. Provide a discussion on the effect of a spill on coastal species and habitats, if a vessel collision was to occur close to shore. Indicate the prevention measures that would be taken to minimize the risk of vessel collisions, as well as mitigation and follow-up in the event of a spill from a vessel collision in the nearshore.

INFORMATION REQUIREMENT - IR-48-2

The Agency required additional rationale and analysis as to why monitoring of a worst-case synthetic drilling fluid spill was not undertaken.

In their response, the proponents indicated that a model of a synthetic based fluid spill would provide a footprint of the likely area to be potentially affected, but the resulting environmental effects would not change from those discussed in the EIS.

It is noted that Section 15.5.1.2 of the EIS provides a brief list of the potential effects of a SBM spill, and refers to information in Section 8 of the EIS on toxicity of SBM. An analysis specific to potential accidental release of a large volume of SBM is not provided.

Specific Follow-up Question/Information Requirement:

Provide an expanded analysis of the potential effects of a SBM spill on relevant valued components, including sensitive benthic species. In the analysis, provide information on typical behavior of spilled SBM in both deep and shallow water, the potential maximum area that could be affected by a large-scale spill, and the estimated recovery time for affected benthos.

Provide an overview of SBM spill prevention measures incorporated into the projects. Discuss mitigation measures and follow-up that would be undertaken in the event of a release of SBM.

INFORMATION REQUIREMENT - IR-58-2

The Agency required the proponents to discuss the probability of a vessel spill or well blowout reaching the Gulf of St. Lawrence and the Gaspé Peninsula and describe the potential environmental effects. The proponents' provided information on the scenarios modelled for an unmitigated subsea blowout and batch spill and their respective potential to reach the shoreline.

After reviewing the proponents' response, inconsistencies were identified when comparing it to information provided in the Eastern Newfoundland Offshore Exploration Drilling Project EIS. Section 4.2.3 of Appendix E for the Flemish Pass Exploration Drilling Project EIS does state that shoreline oil exposure is predicted to be less than 1% of the annual scenarios, as indicated in the proponents' response. However, this is not correct for sites modelled for Eastern Newfoundland Offshore Exploration Drilling Project. Table 15.17 of the Eastern Newfoundland EIS and Table 4-2 of the Eastern Newfoundland Appendix E describes the average annual probability of shoreline contamination as ranging from 2 to 7% depending on spill model release site and scenario.

The proponents' response also states that oil exposure greater than 1 gram per meter squared is not anticipated to reach the Gulf of St. Lawrence, however figures 4-10, 4-11, 4-12, 4-29 and 4-30 of Eastern Newfoundland Appendix E and figures 15-7, 15-8 and 15-20 of the Eastern Newfoundland EIS appear to show probability of oil exceeding thresholds within the Gulf of St. Lawrence.

Specific Follow-up Question/Information Requirement:

Provide project-specific discussions of the probability that oil from a vessel spill or well blowout could reach the Gulf of St. Lawrence and describe the potential environmental effects, taking into consideration existing modelling results which appear to show oil within the Gulf of St. Lawrence.

INFORMATION REQUIREMENT - IR-68-2

The Agency required additional information related to the capping stack mobilization, as well as information on the availability and mobilization timeline of a secondary capping stack.

The proponent indicated that the estimated 30-day timeline for capping stack installation is considered worst case, inclusive of weather and logistics, and that mobilization would begin immediately following an event, with mobilization to the site taking an anticipated 14-21 days. With respect to a secondary capping stack, the proponent noted that its member agreement with Oil Spill Response Limited provides access to up to two capping stack systems, and that, based on transit times, the Norway system would be expected to arrive ahead of any other systems. However, information on the location of other available capping stack systems and timelines for their mobilization was not provided.

Specific Follow-up Question/Information Requirement

Provide information on the locations of the other available capping stack systems, the anticipated travel time associated with their mobilization and arrival on site, and how the additional transit time required would affect the estimated worst case 30 day timeline for capping stack installation.

INFORMATION REQUIREMENT - IR-78-2

The Agency required information on the types and amounts of biocides to be used, as well as the environmental effects of the biocides (both routine use and accidental spills) on relevant valued components. The proponents indicated that while biocides have not yet been determined, they would be selected as per the *Offshore Chemical Selection Guidelines for Drilling & Production Activities on Frontier Lands*. A biocide (Myacide™ GA25) screened for a previous Equinor drilling program was identified for information purposes. The response noted that biocides will be identified in the Environmental Protection Plans, which are submitted for C-NLOPB approval as part of the Operations Authorization process, prior to work commencing.

Specific Follow-up Questions/Information Requirements:

While it was noted that biocides may not be used during exploration drilling, as was the case with the drilling conducted by Equinor during 2017, provide information on the potential impacts of biocides on the marine environment from similar or comparable installations. Provide information related to the function of biocides during offshore exploration drilling, the zone of influence when discharged, effects on target species versus incidental species, and as well as potential quantities that may be used.

Indicate the volume of biocide stored on the drilling installation during previous drilling programs, and evaluate the potential effects of an accidental spill of this stored volume on the surrounding environment and valued components.

INFORMATION REQUIREMENT - IR-82-2

The Agency required consideration of noise level predictions from Appendix C in the evaluation of underwater noise effects on fish, including estimates of distance from source that noise levels will exceed thresholds for fish injury or behavioural effects.

The response provided a comparison of estimated source levels (drilling installation and support vessel) from Appendix C with published thresholds for fish injury, noting a lack of applicable thresholds for behavioural effects. A comparison with anticipated source levels for vertical seismic profile surveys (also discussed in Appendix C) was not provided. The response states that sounds levels would decrease (rapidly) with increasing distance from the source, but a distance at which thresholds would be exceeded (as requested in IR-82) was not provided.

Specific Follow-up Question/Information Requirement:

Provide additional analysis of anticipated noise from vertical seismic profile surveys as compared to thresholds for effects on fish.

Estimate the distance from source (both drilling installation and vertical seismic profile surveys) that noise levels are anticipated to exceed thresholds for fish injury.

INFORMATION REQUIREMENT - IR-84-2

The Agency required additional information about additional collection of Indigenous Knowledge from Indigenous communities, and how this might be used in the design and implementation of follow-up and monitoring programs and further mitigations. The proponents responded that they anticipate receiving IK focused on species of interest in August 2018, and would advise further on this matter upon review of that information.

It is noted that responses to IR-16/16a, IR-22, IR-25, and IR-30 have provided additional information on the planning and development of potential follow-up and monitoring programs for Atlantic salmon, corals and sponges, marine mammals and sea turtles, and marine and migratory birds, respectively. However, the potential for participating Indigenous communities to participate in the planning and development of follow-up programs has not been discussed. Several Indigenous groups have expressed interest in remaining engaged throughout this phase of the Projects.

Specific Follow-up Question/Clarification:

Describe the on-going role of Indigenous groups in follow-up and monitoring plans, including for accidents and malfunctions, developed by Equinor and ExxonMobil.

INFORMATION REQUIREMENT - IR-86-2

The Agency required an updated assessment of the potential cumulative environmental effects on migratory birds (specifically Leaches Storm Petrel) and marine mammals, including but not limited to the spatial extent of effects from key activities (i.e. lights on birds) and cumulative effects of creating multiple zones of avoidance in the project area.

ECCC has indicated that the proponents have not adequately supported their assessment of migratory bird attraction distances; additional discussion and references are required regarding the level of certainty for the attraction distances stated and to support the conclusion of no or few cumulative effects.

ECCC additionally noted that the proponents stated "...foraging tracks illustrated in the study did not show evident clustering around the production areas...", which refers to Hedd et al. 2018. ECCC advised that the tracks used in Hedd et al. 2018 cannot show clustering and therefore should not be consulted with respect to clustering. All birds referenced in Hedd et al. 2018 passed through the Project area, and therefore would be vulnerable to light attraction.

ECCC further advised that the location of the Projects is in direct line with Leach's Storm-petrel foraging paths from Baccalieu Island. Tracks show Baccalieu birds travelling through the Project area; cumulative impacts may thus occur on the Atlantic population of Leach's Storm-petrel. Tracking data currently shows birds from three of the four colonies tracked pass through current production areas, of which only Leach's Storm-petrel from Baccalieu Island do not. Leach's Storm-petrel from all four colonies would be exposed to the risks posed by lit platforms as a result of the Projects. ECCC noted that Baccalieu Island is the largest colony of Leach's Storm-petrels in the world and in significant decline.

Specific Follow-up Questions/Information Requirement:

Taking into account the information provided by ECCC, provide additional discussion on the level of certainty for the attraction distances stated, as well as references to support the conclusion of no or few cumulative effects.

In addition, provide a reference for the following statement in the proponents' response: "...foraging tracks illustrated in the study did not show evident clustering around the production areas". The response refers to Hedd et al 2018; however, as noted by ECCC, this research should not be consulted with respect to clustering.

INFORMATION REQUIREMENT - IR-87-2

Based on a concern raised by Mi'gmawe'l Tplu'taqnn Incorporated, the Agency required additional information on how magnitude is defined in relation to the range of accident types that can occur and how this criterion would be used to determine potential spill responses. The proponents responded with information on the three-tiered approach to spill response, indicating that further information would be available in each Project's Oil Spill Response Plan, to be submitted to the C-NLOPB as part of the *Operations Authorization* process.

Indigenous groups have expressed interest in participating in the development and implementation of these plans.

Specific Follow-up Question/Clarification:

Confirm the level of involvement of Indigenous groups in the development and implementation of the OSRP and other emergency response and preparedness plans, exercises and training. Confirm if Indigenous groups will be provided with versions of these plans when they are finalized.

INFORMATION REQUIREMENT - IR-89-2

The Agency required information on the potential for contamination of country foods by a spill, the potential for health effects from consumption of contaminated country foods, as well as the potential adverse effects of perceived contamination of country foods.

The proponents provided a rationale for a lack of pathway for interactions resulting in contamination and associated health effects from consumption. They indicated that spill modelling showed low potential for a spill to reach shorelines, and that modelling was for worst-case, unmitigated scenarios; actual geographic extent and magnitude of a spill would be reduced owing to spill response measures.

Specific Follow-up Question/Information Requirement:

Despite the lack of pathway for effects, in the event of a blowout or large-scale spill, there is the potential for the perception of contamination of affected fish, bird and mammal species. Provide a discussion of:

- available information on whether this effect was observed during previous large-scale spills, even when actual contamination was not observed;
- potential effects of perceived contamination on Indigenous communities being consulted as part of this environmental assessment; and
- monitoring, communication and information-sharing efforts that will be undertaken to address perceptions and mitigate potential effects on communities.

REQUIRED CLARIFICATION - CL-08-2

The clarification requires that the proponent provide the reference(s) that support the text in the EIS that states “(i)n situ experiments indicate that salmon in natural conditions (not in a lab or a cage) can likely detect hydrocarbons at concentrations approximately ten percent of those shown to cause mortality and avoid them.” The proponent provided a list of references, however, did not specify which reference contained the statement in question. Upon review of the references, this statement could not be found.

Specific Follow-up Question/Clarification:

Specify which reference contains the phrase in question, or explain how this statement was deduced from the published literature referred to in the proponents’ response.

REQUIRED CLARIFICATION - CL-20-2

The clarification requires that the proponent to provide the rationale as to why a lower resolution data set was used for oil spill model versus a high one for the HYCOM model when the source of the data (CFSR) was the same. The proponent provided an explanation of the differences between the HYCOM model and CFSR data set. The intent of the clarification was not addressed in the response.

Specific Follow-up Question/Clarification:

What is the rationale for the use of a lower resolution wind data set from the CSFR to force the oil spill model (i.e. 6 hourly winds at a 0.5 degree spatial resolution) when a higher resolution wind data set is available (i.e. 1-hour winds at 0.3125 degree spatial resolution)? What differences, if any, would be expected in the outcomes of the oil spill modelling scenarios if the high resolution data set was used to force the model?