



Canadian Environmental
Assessment Agency

Agence canadienne
d'évaluation environnementale

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July 26, 2019

Sent by E-mail

Heather Giddens
BP Canada Energy Group ULC
10th Floor, Founders Square
1701 Hollis Street
Halifax, NS B3J 3M8
Heather.Giddens@bp.com

Dear Ms. Giddens,

SUBJECT: Newfoundland Orphan Basin Exploration Drilling Project – Round II Information Requirements

On February 13, 2019, the Canadian Environmental Assessment Agency (the Agency) sent Information Requirements (IRs) and clarifications to BP Canada Energy Group ULC (BP) following a technical review of the Environmental Impact Statement by the Agency, other federal government experts, Indigenous groups, and the public. BP Canada Energy Group ULC responses to the IRs and clarifications were provided on April 5, 2019. The Agency determined that the responses to 93 of the 96 information requirements and the responses to 24 of the clarifications were sufficient to facilitate a technical review. The Agency received revised responses on the three non-conforming information requirements from BP on May 31, 2019.

The Agency has reviewed comments from federal departments and Indigenous groups and completed the technical review on the responses to the information requirements including the revised responses and identified 6 follow-up IRs (Attachment 1). The requests are denoted as follow-up by the addition of the number '-2' to the IR number (e.g. IR-01-02).

The Agency requires acceptable responses to the IRs in order to complete its review of the Environmental Impact Statement and to proceed with the preparation of its Environmental Assessment Report. Once you have submitted complete responses to all IRs, the Agency will determine whether the required information has been provided. If the Agency determines the responses to be complete, it will commence a technical review of the responses; if the responses are determined to be incomplete, you will be notified at that time. The issue of these follow-up IRs will not automatically pause the timeline for the environmental assessment; however, if responses to the IRs are not received within 30 days of



the issue of this letter, the timeline will be paused at that time until the responses are received by the Agency.

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 Internet site: <https://www.ceaa-acee.gc.ca/050/evaluations/document/exploration/80147?culture=en-CA>.

The Agency is available to further discuss the information requirements. Please contact me at 902-399-8834 or via email at ceaa.orphanbasin-bassinorphan.acee@canada.ca

Sincerely,

<Original signed by>

Kathryn MacCarthy, Ph. D., P.Geo.
Project Manager
Canadian Environmental Assessment Agency

Attachment (1) – Newfoundland Orphan Basin Exploration Drilling Project – Round II Information Requirements

Cc: Elizabeth Young, Canada - Newfoundland Labrador Offshore Petroleum Board
Darren Hicks, Canada - Newfoundland Labrador Offshore Petroleum Board
Bret Pilgrim, Fisheries and Oceans Canada
Glenn Troke, Environment and Climate Change Canada
Sara Rumbolt, Health Canada
Jason Flanagan, Transport Canada
Maximilien Genest, Natural Resources Canada
Carla Stevens, Major Projects Management Office
Carol Lee Giffin, Department National Defence
Vanessa Rodrigues, Parks Canada
Joe Behar, Crown-Indigenous Relations and Northern Affairs Canada

Attachment 1
Newfoundland Orphan Basin Exploration Drilling Project
Round II Information Requirements from Environmental Impact Statement Review
July XX, 2019

INTRODUCTION

On February 13, 2019, the Canadian Environmental Assessment Agency (the Agency) sent 96 information requirements (IRs) and 24 clarifications to BP Canada Energy Group ULC (the proponent) based on the technical review of the Environmental Impact Statement (EIS) and associated EIS Summary for the proposed Newfoundland Orphan Basin Exploration Drilling Project. The proponent submitted responses to the IRs and clarifications on April 5, 2019. The Agency, other federal government experts, and Indigenous groups have reviewed the IR responses and the Agency has prepared additional IRs, which are necessary to continue our analysis, as elaborated in this document.

ACRONYMS AND SHORT FORMS

Agency	Canadian Environmental Assessment Agency
EIS	Environmental Impact Statement
IR	Information Requirement

ROUND II INFORMATION REQUIREMENTS AND REQUIRED CLARIFICATIONS FOR THE NEWFOUNDLAND ORPHAN BASIN EXPLORATION DRILLING PROJECT

IR Number	Reference to EIS	Context and Rationale	Specific Question/ Information Requirement
IR-08-02	Section 2.8.1; Section 5.3.3	<p>In IR-08, the Agency required the proponent to provide details on the assumed composition being flared and volumes. Environment and Climate Change Canada noted that, based on the response, it is unclear the amount of gas that is expected to be flared and it appears that flaring of associated gas has not been considered. Natural Resources Canada noted that other proponents have estimated a much larger volume of flared hydrocarbons in their estimates (up to six times the amount estimated in IR-08) and commented that it appears that gas was not considered in the flaring estimate.</p> <p>Natural Resources Canada also requested clarification on the units used in Table 3 as they questioned if the units were intended to be tonnes per day rather than tonnes per year. If the units were to be tonnes per day then it should be clarified as to how many days per year it is assumed that flaring would occur.</p>	<p>Confirm whether gas was included in the flaring estimate and, if not, update the flaring estimate to include gas or provide a rationale for not including it in the estimate.</p> <p>Provide the rationale for using the upper limit of 10,000 barrels of oil flared during a well test or revise the assumptions to be consistent with other assessments or base the assumptions on representative field data, if available.</p> <p>Confirm the units for Table 3 and provide the assumptions used with respect to how many days per year would flaring be expected to occur.</p>
IR-48-02	Section 6.4; Figure 6.30	<p>The Agency required that the proponent update Table 6.24 with the distance from each identified special area (Marine Refuges, Ecologically and Biologically Significant Areas, Important Bird and Biodiversity Areas, Newfoundland and Labrador Shelves Bioregion Significant Benthic Areas, United Nations Convention on Biological Diversity Ecologically and Biologically Significant Areas, and Vulnerable Marine Ecosystems (NAFO Fisheries Closure Areas and NAFO Seamount Closures) to the nearest exploration licence and where there is the potential for platform supply vessels to intersect with the special area. However, the proponent provided the distance to the project area and did not identify the special areas where there is the potential for vessel traffic to overlap.</p> <p>Provide a description for any special areas which were not included in the original response, such as Important Bird and Biodiversity Areas (e.g. Quidi Vidi Lake, Cape St. Francis and Witless Bay Islands) and Newfoundland and Labrador Shelves Bioregion Significant Benthic Areas (e.g. Large Gorgonian Corals).</p> <p>In addition, the Agency required the proponent to update Figure 6.30 with all special areas. This figure does not illustrate the location of Important Bird Areas and Newfoundland and Labrador Shelves Bioregion Significant Benthic Areas. In addition, the revised Ecologically and Biologically Significant Areas are illustrated on a separate figure. A revised Figure 6.30 illustrating all special areas is required for the EA report.</p>	<p>Provide the distance from each identified special area to the nearest exploration licence and where there is the potential for platform supply vessels to intersect with the special area.</p> <p>Update Figure 6.30 to include all special areas on one figure.</p> <p>With respect to special areas that have not been included in the EIS or IR-48, provide a description of the ecosystem and conduct an assessment of potential effects on the additional special areas.</p> <p>Identify proposed mitigation and follow-up, for routine activities and potential accidental events, as applicable.</p>
IR-49-02	Section 6.4.1.4 Section 11.1.3 Section 11.1.4.2 Section 11.3 Section 11.3.3.1	<p>In IR-49-02, the Agency requested the proponent provide information on the potential effects of Project activities on the Northeast Newfoundland Slope Closure marine refuge. The proponent provided information on the Northeast Newfoundland Slope Closure marine refuge and zones of influence from project activities which have the potential to cause effects. The KMKNO noted, in the proponent's assessment of effects on the Project on water quality and valued components was limited as the proponent did not discuss potential effects of water-based muds, synthetic-based muds and barite on marine species. With respect to the one literature reference provided (Trannum et al. 2011), KMKNO noted additional publications are available which have shown that:</p> <ul style="list-style-type: none"> • barite may result in toxicity in deep-water sponges (Edge et al. 2016); • metals and organic compounds in water-based muds may accumulate in tissues reducing growth and reproduction even at relatively low concentrations, (Lee et al, 2011); • microbial degeneration of synthetic-based muds may result in hypoxia (Tait et al., 2016); and • sediment reworking activity in water-based drill cuttings found a significant reduction in downward transportation of sediment particles and in maximum mixing depth (Trannum, 2017). <p>The Agency notes the R_{95%} distance estimate is less conservative than the R_{max} estimate for the distance over which sound above the behavioural threshold could be expected. The R_{max} estimate has been used on other exploration projects in the Newfoundland Offshore.</p>	<p>Provide an assessment of the potential effect of project activities that result in a release of barite, water-based muds, synthetic-based muds, and drill cuttings on valued components located in the Northeast Newfoundland Slope Closure Marine Refuge (e.g., deep-water sponges)</p> <p>Discuss the how the potential effects described in the references could affect the Northeast Newfoundland Slope Closure Marine Refuge or provide a rationale for not assessing these potential impacts.</p> <p>Revise the effects analysis to use the more conservative R_{max} estimate for the distance over which sound above the behavioural threshold could be expected (i.e. 61 km). Revise the figures provided in IR-48, to illustrate the R_{max} distance of</p>

IR Number	Reference to EIS	Context and Rationale	Specific Question/ Information Requirement
		<p>References: Edge, K. J., Johnston, E. L., Dafforn, K. A., Simpson, S. L., Kutti, T., and Bannister, R. J. (2016) Sub-lethal effects of water-based drilling muds on the deep-water sponge <i>Geodia barretti</i>. <i>Environ. Pollut.</i> 212: 525–534. doi: 10.1016/j.envpol.2016.02.047</p> <p>Lee, K., Armsworthy, S.L., Cobanli, S.E., Cochrane, N.A., Cranford, P.J., Drozdowski, A., Hamoutene, D., Hannah, C.G., Kennedy, E., King, T., Niu, H., Law, B.A., Li, Z., Milligan, T.G., Neff, J., Payne, J.F., Robinson, B.J., Romero, M., and Worcester, T. (2011) Consideration of the Potential Impacts on the Marine Environment Associated with Offshore Petroleum Exploration and Development Activities. DFO. Can. Sci. Advis. Sec. Res.Doc. 2011/060: xii + 134 p. Available online at: http://waves.vagues.dfo-mpo.gc.ca/Library/343863.pdf</p> <p>Tait, R.D., Maxon, C.L., Parr, T.D., and Newton, F.C. (2016) Benthos response following petroleum exploration in the southern Caspian Sea: Relating effects of nonaqueous drilling fluid, water depth, and dissolved oxygen. <i>Marine Pollution Bulletin</i>, 110(1): 520-527. ISSN 0025-326X, doi.org/10.1016/j.marpolbul.2016.02.079</p> <p>Trannum, H.C. (2017) Drilling discharges reduce sediment reworking of two benthic species. <i>Marine Pollution Bulletin</i>, 124(1): 266-269. ISSN 0025-326X, doi.org/10.1016/j.marpolbul.2017.07.044</p>	<p>potential effects from sound. Alternatively provide a sound rationale as to why the values were chosen</p>
IR-51-02	Section 8.3.3.2	<p>The Agency required that sea pen habitat be described with respect to ecological processes that govern their presence and that potential effects from Project discharges and emissions be described in terms of a change to habitat quality. The proponent responded by describing the habitat of three species of sea pens studied by Greathead et al. (2015) and identifying two species of coral known to be present in waters off Newfoundland and Labrador. The Greathead et al. (2015) study is related to sea pens found in Scottish waters and it is unclear how this study relates to the project area. The proponent stated that no other life history information was available for the species found within the project area; however, information is available (see below).</p> <p>References: Baillon S, Hamel J-F, Mercier A (2014) Diversity, Distribution and Nature of Faunal Associations with Deep-Sea Pennatulacean Corals in the Northwest Atlantic. <i>PLoS ONE</i> 9(11): e111519. https://doi.org/10.1371/journal.pone.0111519</p> <p>Baker, K., Wareham, V., Snelgrove, P., Haedrich, R., Fifield, D., Edinger, E., & Gilkinson, K. (2012). Distributional patterns of deep-sea coral assemblages in three submarine canyons off Newfoundland, Canada. <i>Marine Ecology Progress Series</i>, 445, 235-249. Retrieved from http://www.jstor.org/stable/24875404</p>	<p>Provide clarification on the applicability of Greathead et al. (2015) to the sea pens in the project area and update the sea pen habitat description and analysis to include relevant information in Baillon et al. (2014) and Baker et al. (2012) with respect to ecological processes for <i>Anthoptilum grandiflorum</i> and <i>Distichoptilum gracile</i>. Discuss how potential effects from project discharges and emissions could cause changes to the habitat quality or use by sea pens or species dependent upon them.</p>
IR-67-02	Section 15.5.1.3	<p>The Agency required the proponent to describe the applicability of synthetic-based mud spill modelling conducted for CNOOC International's (formerly Nexen Energy) Flemish Pass Exploration Project to the current Project given the differences in oceanographic conditions; and to discuss the potential environmental effects of the specific oceanographic conditions in the Project Area on the modelled results. The proponent provided an explanation for the west Orphan Basin exploration licences (1145,1146, 1148) but did not provide a similar assessment for the east Orphan Basin exploration licence (1149).</p>	<p>Describe the applicability of CNOOC International's Flemish Pass Exploration Project synthetic-based mud spill modelling for the current Project given the differences in oceanographic conditions in the east Orphan Basin. Discuss the potential environmental effects that the oceanographic conditions in the east Orphan Basin may have on the synthetic based mud spill modelling.</p>
IR-68-02	Appendix D	<p>The Agency required the proponent to discuss the implications of the pour point being above the deep-water temperature on the modelled results. Based on the response provided, Natural Resources Canada advised that the proponent's calculations of viscosity appear to assume that the oil remains a liquid because pour point is not a variable under consideration (viscosity would increase sharply upon solidification) as stated within the response to IR-68: "Within OSCAR a module has been developed that determines the average temperature during droplet size formation using a regression model that depends on the variables of outlet velocity, volume flux, oil temperature, water temperature and orifice diameter. This temperature (rather than the ambient temperature) is then used to estimate the oil's viscosity during droplet formation. The temperature adjusted viscosity allows for a better prediction of the oil droplet size distribution." The discussion of pour point calculated as</p>	<p>Discuss the implication on the modelled results given that the discussion of the pour point given, calculated as a function of evaporation at the water surface is not relevant to the mechanisms that would be at play in deep water (solidification of oil droplets, separation of solid oil components of the oil (e.g. wax particles from more fluid parts of the oil (dewaxed oil)),</p>

IR Number	Reference to EIS	Context and Rationale	Specific Question/ Information Requirement
		<p>a function of evaporation at the water surface given is not relevant to the mechanisms that would be at play in deep water such as solidification of oil droplets or separation of solid oil components of the oil like wax particles from more fluid parts of the oil (dewaxed oil). These mechanisms would occur before the oil arrived at the surface so no evaporation could have occurred yet.</p>	<p>etc.). These mechanisms would occur before the oil arrived at the surface so no evaporation could occur.</p>