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Our Reference: EQ-IAAC-0022-21

IAAC Reference: 80154

Attention: Sue Belford  
Project Manager, M.Sc., Eng

**RE: Equinor Canada Ltd. ("ECL") comments on Potential Environmental Assessment Conditions ("Potential Conditions") and the Draft Environmental Assessment Report (the "DEAR") for the Bay du Nord Development Project ("Project")**

ECL has reviewed the Potential Conditions and the DEAR and provides this letter, complete with the attachments, as our response. There are two attachments to this letter: (A) detailed comments on the Potential Conditions; and (B) detailed comments on the DEAR.

#### *About Equinor*

Our parent Equinor is a broad energy company, aiming to be a leader in global energy transition. We believe a well-functioning natural environment is a prerequisite to achieve the UN Sustainable Development Goals. Bold actions are needed to address the dual crisis of biodiversity loss and climate change. We support the global ambition of reversing nature loss by 2030 and are ready to play our part. For decades, our "no harm to the environment" ambition has guided our operations and stimulated innovation. Based on our Norwegian heritage, we see the merit of an integrated ecosystem-based management approach and our business decisions rest on thorough risk and impact assessments.

Equinor is among the world's largest offshore operators. The company has a long history of operating offshore oil and gas platforms on the Norwegian Continental Shelf (NCS) in an environment similar to that of offshore Newfoundland and Labrador and has a track record of excellent environmental performance and innovation. Equinor has decades of environmental monitoring experience in cold water environments with corals and sponges and has driven or supported scientific research that currently defines impacts and mitigations to cold water coral habitat on the NCS. In support of our offshore windfarms and unstaffed platforms on the NCS, Equinor is leading technological advances and research related to bird monitoring. We are well placed to apply our knowledge and experience to offshore Newfoundland and Labrador.

## About the Bay du Nord Project

Equinor is committed to a continued focus on technology, digitalization and innovation to continue to boost efficiency and improve environmental protection, health and safety in our global operations. The digital transformation is driving change and defining how fields will be developed and operated in the future. In line with this transformation and industry best practices, the operating philosophy for the Project will be to ensure safe and reliable operation of the floating production storage and offloading vessel (FPSO) in a harsh, remote and ice-prone offshore environment through utilization of technology advances and digitalization. This application of technology will enable data-driven operations that will minimize the number of people physically required offshore to safely and efficiently manage operations. Enablers to these safe operations will include 24/7 onshore control, monitoring and support capabilities; an optimized use of automation, detection and robotics; and high-speed and capacity data transfer to allow for advanced data analytics and machine learning to support operations. Any operational activities that can be safely performed onshore shall be. ECL is proposing to develop and implement a technology-based bird monitoring system, the first of its kind in the world, based on technologies we utilise and develop for our offshore wind energy projects and unstaffed remotely operated oil and gas installations. The FPSO will also be designed with specialised, customised lighting that minimises light emission – another first of its kind in the world.

## High level comments

ECL's comments on the Potential Conditions are based on the perspective of safely operationalising these Potential Conditions over the 20-30-year timeframe of the Project, in a rapidly transforming technological period. ECL supports in principle, the majority of the Potential Conditions. ECL comments are generally limited to issues that unintentionally weaken safety, impede the application of technology and innovation and / or instances where the Potential Condition appears to have very limited environmental benefit but imposes a disproportionate operational risk or cost. In most cases, ECL has proposed alternative language that addresses the identified issue while meeting the intent of the Potential Condition. In addition to the detailed comments set out in the attachments hereto, ECL would like to make the following general comments on the Potential Conditions and the DEAR:

1. **Adaptative management** – The Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) is the lifecycle regulator for the offshore oil and gas industry. The C-NLOPB has decades of experience overseeing all aspects of the industry, including monitoring and enforcing environmental conditions and requirements. The Potential Conditions should be sufficiently adaptable to allow the C-NLOPB to use its reasonable discretion to alter aspects of monitoring and other conditions, after consultation with the relevant stakeholders, where warranted by new information acquired over the course of the potentially 30-year lifespan of the Project. This issue can be addressed with the inclusion of an additional condition, as indicated in the attached and language (such as “unless otherwise directed by the Board”) which is commonly used by established regulators.
2. **Exploration EA Conditions** - The Potential Conditions bear many similarities with conditions found in recent exploration drilling environmental assessments related to bird monitoring, flaring and spill response plan reviews. While these conditions are appropriate for exploration campaigns, which are typically for short durations, the same conditions are not necessarily appropriate for a long-term operational development like the Bay du Nord Project. Essentially the level of data required under the Potential Conditions must be proportionate to benefit of obtaining the data. Furthermore, in many instances, the

Potential Conditions lack the necessary versatility to allow for changes in technology and knowledge that can reasonably expected to take place over the next 20-30 years.

3. Migratory Bird Monitoring – as set out in the environmental impact statement (“EIS”), ECL is proposing an innovative, best-in-class proposal to fundamentally revolutionize the collection of data related to offshore bird monitoring for Newfoundland and Labrador. The data that ECL is proposing to obtain will be significantly better than would be available by following the proposed data collection in the Potential Conditions. Requiring that an individual be consistently present offshore with the primary responsibility of bird monitoring for potentially the next 30 years is inconsistent with ECL’s design philosophy to minimize offshore personnel and harness technology in a way that reduces human exposure to serious health and safety threats and obtain higher quality data. The purpose of a minimally staffed FPSO design is to reduce the number of people exposed to the dangers inherent in an offshore environment.
4. Flaring – ECL has committed to not engage in flaring as a means of enhancing production and will not use a pilot flare for the FPSO. These two commitments alone represent a significant change to flaring practices in offshore Newfoundland and Labrador. The remaining circumstances where flaring will occur are related to safety and maintenance. Flaring in relation to safety and maintenance are both relatively uncommon occurrences. Requiring that “all” flaring be started during daylight hours or conducted at specific visibility conditions ignores circumstances where flaring is being done for safety reasons and similarly fails to reflect the fact that delaying the start of flaring during a start-up can increase safety and environmental risks. This is inappropriate.
5. Lighting on MODUs and Project vessels – ECL has proposed to design the FPSO lighting to reduce light levels to the extent that worker safety and operations are not compromised, and all regulatory requirements are met. As the FPSO will be designed and constructed specifically for the Project, this is technically feasible, albeit the first of its kind in the world. This is a significant mitigation since the FPSO is the largest Project vessel and the only vessel on-site for the entire Project duration. There are a limited number of harsh weather Mobile Offshore Drilling Units (MODUs) and construction vessels available globally. MODUs and specialised vessels that operate in the Newfoundland and Labrador offshore typically come from the UK Continental Shelf (“UKCS”) and the NCS. It is ECL’s view that there is no safe, regulatory compliant, technically and economically feasible solution to retro-fit these MODUs and vessels, -nor is it necessary to minimize the Project’s predicted effects on migratory birds. Lighting on the MODU’s and vessels is required for safe working environment, emergency response and navigational safety. It is anticipated that there would be minimal to no opportunities to deactivate these light sources and maintain safe conditions and regulatory compliance related to safe lighting levels. The administrative burden of assessments and compliance monitoring of all Project vessels over the life of the Project, 20-30 years is disproportionate to the anticipated immaterial reduction in overall Project light levels.
6. Limits on Thrusters – The operation of the thrusters of the FPSO and MODUs is part of the safety critical systems. While ECL anticipates the thrusters will, on average, operate as was described in the EIS, it is not appropriate to impose limits on the output of the thrusters when they are absolutely necessary for ensuring the safety of the vessel and crew. ECL understands that it is not the intent of the condition to reduce safety levels, however that would be the unintended consequence, if implemented. ECL would not be prepared to agree to limit the thrusters as they are safety critical equipment and must not be impaired.

*Conclusion*

We appreciate the opportunity to provide this feedback and look forward to continuing to move the Project forward via continued engagement and collaboration with federal and provincial agencies, Indigenous groups, the fishing industry and stakeholders.

Sincerely,

Equinor Canada Ltd.

<Original signed by>

Stephanie Curran  
Safety & Sustainability Manger  
Equinor Canada Ltd., Bay du Nord Development Project

cc: Jill Adams, Impact Assessment Agency of Canada  
Elizabeth Young, C-NLOPB

enclosures

Attachment A – ECL Comments on  
Potential Conditions

**ECL Comments on Potential Environmental Assessment Conditions**

<p><b>Comment C1</b></p>	<p><b>Potential EA Condition 2.6</b>  <i>The Proponent shall, where a follow-up program is a requirement of a condition set out in this document, determine the following information, for each follow-up program:</i></p> <p><i>2.6.1 the methodology, location, frequency, timing and duration of monitoring associated with the follow-up program;</i></p> <p><i>2.6.2 the scope, content and frequency of reporting of the results of the follow-up program;</i></p> <p><i>2.6.3 the frequency at which the follow-up program must be updated, unless already specified in the condition;</i></p> <p><i>2.6.4 the levels of environmental change relative to baseline conditions and predicted effects as described in the environmental impact statement, that would require the Proponent to implement modified or additional mitigation measure(s), including instances where the Proponent may require Designated Project activities to stop; and</i></p> <p><i>2.6.5 the technically and economically feasible mitigation measures to be implemented by the Proponent if monitoring conducted as part of the follow-up program shows that the levels of environmental change referred to in condition 2.6.4 have been reached or exceeded.</i></p>
<p><b>ECL Comment</b></p>	<p>As stated in the EIS, ECL is committed to follow-up monitoring programs based on the principles of adaptive management. The follow-up monitoring programs will change and evolve over the course of the Project in consideration of follow-up monitoring/environmental effects monitoring (EEM) results; new relevant academic and applied research; new and emerging technologies; and, evolving industry best practices, consistent with ECL's commitment to continuous improvement. ECL is requesting that these adaptive management principles be included in the requirements for follow-up monitoring as listed in proposed condition 2.6.</p> <p>ECL proposes a new EA Condition 2.6.6.</p> <p><b>ECL Proposed Condition 2.6.6:</b> <i>Follow-up programs and mitigation measures can be reviewed, at the request of the Proponent, with the C-NLOPB and relevant regulatory agencies to determine if, in keeping with adaptive management, elements of any one follow-up program (e.g., marine mammals, marine birds, fish and fish habitat, etc.) or mitigation measure will be modified or removed.</i></p>

<p><b>Comment C2</b></p>	<p><b>Potential EA Condition 3.10</b>  <i>The Proponent shall ensure that it does not undertake seismic testing concurrently with any planned seismic testing occurring within 30 kilometres of the Designated Project. The proponent shall consult with the Board in respect of planned seismic testing and, if the Board indicates that seismic testing will be occurring within 30 kilometres of the Designated Project, the proponent shall alter its seismic testing schedule to avoid testing concurrently with that planned seismic testing.</i></p>
<p><b>ECL Comment</b></p>	<p>It is unclear to ECL, why certain operations would take precedent over others, especially over a long-term project development. All operators offshore typically work cooperatively with one another to ensure efficient and safe operations. ECL committed in the EIS to “communicate seismic survey plans to C-NLOPB and geophysical operators as early as possible to reduce concurrent seismic surveys and/or to maximize the separation distance between surveys to the extent possible.” Geophysical operations are regulated by the C-NLOPB and through that process mitigations regarding overlapping and/or concurrent geophysical operations are managed. Therefore, potential Condition 3.10 is not necessary, given seismic programs require authorization from the C-NLOPB, which is the appropriate regulatory process and authority to ensure the required separation is maintained for environmental protection.</p> <p>ECL’s seismic programs, as described in the EIS, could occur up to two times per year and be carried out over two to four weeks. 3D seismic programs carried out by geophysical companies occur over a large area of the NL offshore area and typically take three to four months to complete. Given the short timeframe noted for ECL’s surveys, it may not be feasible to reschedule; however, geophysical companies likely have more opportunity to alter survey patterns and timing to reduce or avoid overlapping programs.</p> <p>ECL is committed to reducing or avoiding overlapping surveys, and as such potential effects of underwater sound in the marine environment. It is suggested that the condition be amended to read as follows:</p> <p>ECL proposes removing or amending potential EA Condition 3.10, as follows:</p> <p><b>ECL Proposed Amended Potential Condition 3.10:</b> <i>To avoid concurrent seismic surveys and/or to maximize the separation distance between surveys, the Proponent shall communicate its seismic survey plans to the C-NLOPB and geophysical operators, as early as practicable.</i></p>

<p><b>Comment C3</b></p>	<p><b>Potential EA Condition 7.9</b>  <i>The Proponent shall, commencing before the first well is drilled and continuing until decommissioning is complete, review its Spill Response Plan prior to the drilling of each well and otherwise at a frequency determined in consultation with the Board to verify that the plan continues to be appropriate and, when necessary, shall update the plan in a manner acceptable to the Board.</i></p>
<p><b>ECL Comment</b></p>	<p>This condition appears to be an artefact of conditions applied to exploration drilling environmental assessments.</p> <p>Unlike short term exploration drilling programs, where this condition has been previously applied, this condition is not appropriate for longer-term production drilling programs that include a number of wells. As noted in the EIS, up to 60 wells may be drilled over the life of the Project, inclusive of tiebacks. As also noted in the EIS, wells may be drilled via batch drilling, which is the process of consecutively drilling the top-hole sections for multiple wells first. The remainder of each well would then be completed once all the top holes are done. This provides a number of efficiencies, which are outlined in the EIS, including operational efficiencies and improved health, safety and environmental factors. As the condition is currently worded, it is not clear how “prior to drilling each well” would be determined in a batch drilling program. In addition, the review of a spill response plan up to 60 times during the drilling campaign(s) is an unnecessary administrative burden without any corresponding increase in environmental protection. Spill response strategies, technology and practices are well established and do not change at a pace that would warrant review on a well-by-well basis.</p> <p>ECL maintains a strong commitment to safe, secure, and sustainable operations and oil spill prevention and response planning is a key focus of ECL’s plans and activities, including continual improvement and regular reviews. ECL will continue to monitor oil spill response technologies being developed locally and internationally to adopt in the Project operations as appropriate. ECL suggests that potential Condition 7.9 be amended to reflect the longer-term and multi-well drilling activities of a development project.</p> <p><b>ECL Proposed Amended Potential Condition 3.10:</b> <i>The Proponent shall, commencing before the first well is drilled and continuing until decommissioning is complete, review its Spill Response Plan annually or at a frequency determined in consultation with the Board to verify that the plan continues to be appropriate and, when necessary, shall update the plan in a manner acceptable to the Board.</i></p>
<p><b>Comment C4</b></p>	<p><b>Potential EA Conditions 3.7.3, 3.14.2</b></p> <p><b>Potential EA Condition 3.7.3:</b> <i>The Proponent shall develop and conduct, in consultation with Fisheries and Oceans Canada and the Board, a seabed investigation survey of fish and fish habitat based on the locations of any subsea infrastructure prior to conducting any activities on the seafloor related to the installation of this</i></p>



	<p><i>infrastructure. In doing so, the Proponent shall: survey transect length and pattern around well templates based on modelling predictions of the areas to be affected by applicable drill cutting dispersion and suspended particulate matter in the water column and survey transects that extend 50 metres around all other subsea infrastructure.</i></p> <p><b>Potential EA Condition 3.14.2:</b> <i>The Proponent shall have a qualified individual develop follow-up requirements pursuant to condition 2.6, to verify the accuracy of the predictions made during the environmental assessment as it pertains to fish and fish habitat, including marine mammals, and to determine the effectiveness of mitigation measures identified under conditions 3.1 to 3.12. The Proponent shall implement the follow-up requirements for the duration of the Designated Project and submit these follow-up requirements to the Board prior to conducting any Designated Project activities within the Designated Project Area. As part of these follow-up requirements, the Proponent shall: for all subsea infrastructure, develop and implement, in consultation with Fisheries and Oceans Canada, Environment and Climate Change Canada, and the Board, follow-up requirements to verify the accuracy of the environmental assessment and effectiveness of mitigation measures as they pertain to the effects of drill cuttings discharges and infrastructure installation on benthic fish and fish habitat, including aggregations of habitat-forming corals or sponges. Follow-up requirements shall include:</i></p> <ul style="list-style-type: none"> <li><i>3.14.2.1 measurement of sediment deposition extent, and quality pre- and post-drilling to verify the drill waste deposition modeling predictions;</i></li> <li><i>3.14.2.2 measurement of suspended particulate matter prior to and during drilling to verify drilling mud and cuttings dispersion predictions;</i></li> <li><i>3.14.2.3 benthic fauna surveys to verify the effectiveness of mitigation measures;</i></li> <li><i>3.14.2.4 monitor recovery of sediment quality, and fish and fish habitat determined to be affected following measurements pursuant to 3.14.2.1 and 3.14.2.3 to verify recovery time as predicted in the environmental assessment report;</i></li> <li><i>3.14.2.5 survey colonization by sessile epifauna of subsea infrastructure, and</i></li> <li><i>3.14.2.6 the Proponent shall report the information collected, as identified in conditions 3.14.2.1 through 3.14.2.5, including a comparison of modelling results to in situ results, at a frequency determined by the Board;</i></li> </ul>
<p><b>ECL Comment</b></p>	<p>ECL agrees in principle to monitoring suspended particulate matter (Conditions 3.14.2.2, 3.7.3) in relation to drilling activity to confirm EIS effects predictions. As identified in the Bay du Nord EIS, the discharge of low toxicity drill cuttings was predicted to result in localized and temporary increase in suspended sediments and turbidity. ECL will monitor for suspended particulate matter during drilling activities within the localized area of the wellhead. Monitoring for suspended particulate matter is not feasible for areas of low drill cuttings dispersion as it is not likely to be in sufficient quantities to characterize.</p> <p>ECL agrees in principle to monitor the recovery of sediment quality and fish habitat. The follow-up monitoring program will be designed to verify the impact predictions</p>

	<p>made in the Bay du Nord EIS, per commitments stated in the EIS and per potential EA Condition 2.6.4, which states the follow-up program shall determine “the levels of environmental change relative to baseline conditions and predicted effects as described in the <u>environmental impact statement</u>.” The reference to the recovery time as predicted in the DEAR stated in potential Condition 3.14.2.4 as the baseline upon which to measure recovery, is not aligned and conflicts with the above noted potential condition 2.6.4.</p> <p>In addition, it may not be feasible to identify ‘sensitive fish’ as it is our understanding that there is no established thresholds or guidance for aggregations of ‘sensitive fish’.</p> <p>ECL proposes amended potential Condition 3.14.2.4 as follows:</p> <p><b>ECL Proposed Amended Potential Condition 3.14.2.4:</b> <i>monitor recovery of sediment quality and fish habitat determined to be affected following measurements pursuant to 3.14.2.1 and 3.14.2.3 to verify recovery time as predicted in the <u>environmental impact statement</u>.</i></p> <p>Furthermore, as noted above in Comment C1, the follow-up or EEM program will be based on the principles of adaptive management. If EIS predictions are confirmed by early monitoring during drilling (i.e., first development well(s) (shallow and deep water) within the Project Area), or, in the case of recovery times for benthic habitat when data shows that fish habitat has recovered within the framework of the follow-up monitoring program, in keeping with adaptive management, a continuation of monitoring may no longer be required.</p>
<p><b>Comment C5</b></p>	<p><b>Potential EA Condition 3.5</b></p> <p><i>The Proponent shall, for Designated Project vessel(s), ensure that the energy output of the thrusters on the floating production storage and offloading vessel(s) and mobile offshore drilling units does not exceed 50% of their maximum energy output, unless not feasible for safety reasons.</i></p> <p><b>Note:</b> ECL assumes this potential condition is intended to apply to the FPSO and MODUs only and does not apply to transiting.</p>
<p><b>ECL Comment</b></p>	<p>The FPSO and MODU thrusters are safety related and automated systems that are engaged, as necessary, for operational and/or emergency conditions. The FPSO thruster system is required for active heading control under certain circumstances, such as maintaining position during crew and cargo transfer, to optimize heading in case of storm conditions, offloading, or to make a safer heading for helicopter operations. These circumstances collectively make up a fraction of total operational time. As the Project design progresses, the FPSO thruster design will be optimised for sound output, energy efficiency and as a safety critical system. The conditions under which the FPSO and MODU thrusters will be used for propulsion, position control, or heading</p>

	<p>control, as appropriate, will be described in various manuals that will be submitted to C-NLOPB for Operations Authorizations. These manuals include as a minimum:</p> <ul style="list-style-type: none"><li>• the Operations Manual,</li><li>• the Safety Plan,</li><li>• the Contingency Plans / Emergency Response Plan, and</li><li>• the Ice Management Plan.</li></ul> <p>In addition, these systems are governed and designed to the relevant vessel Class requirements and oversight is provided by the Certifying Authority and C-NLOPB via the Certificate of Fitness process based on the Class. Also, as per regulation and best practice, the Offshore Installation Manager has full jurisdiction over the operation of the positioning systems at all times. These aspects are stringently governed due to the necessity of the system operating as designed for safe operations.</p> <p>Therefore, ECL cannot apply any specific impairments to the system, including artificial limits to power output. Doing so would undermine ECL's ability to ensure the safety of the vessel, crew, and the public. It should be noted that additional power capacity is a requirement for thruster systems to allow for system failures and less frequent operational conditions, such as severe weather.</p> <p>The acoustic modelling for the FPSO and MODUs conducted for the EIS assumed the thrusters were continuously operational at 50% power. This assumption was considered as the most appropriate and conservative input to understand the potential effects as it is the average worst case scenario for potential marine mammal behavioural effects over time. Relative to modelling predictions for the FPSO, when the vessel is moored and does not use thrusters at all, its sound emissions will decrease substantially. This is a significant consideration related to the effects assessment given the FPSO is the only sound source to be on site for the entire life of the Project. As noted in the EIS, ECL committed to undertake sound monitoring when the FPSO and MODU are concurrently at site to compare model predictions.</p> <p>Other Project optimization concepts that would reduce sound emissions and improve energy efficiency are under investigation. Some examples of these concepts include the maintenance excellence program and a shared support vessel approach for FPSO and drilling operations. If implemented these concepts would decrease the number of vessels on site simultaneously.</p> <p>For the above reasons, specifically that the FPSO and MODU thrusters are safety critical, the thrusters operate under specific design requirements, the proposed 50% output limit cannot be implemented or enforced, and the proposed limit is not necessary to minimize predicted effects on marine mammal behaviour, ECL requests that potential EA Condition 3.5 be removed.</p>
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<p><b>Comment C6</b></p>	<p><b>Potential EA Condition 3.8:</b>  <i>If the survey(s) conducted in accordance with condition 3.7 confirm(s) the presence of aggregations of habitat-forming corals or sponges, or if other environmentally sensitive fish and fish habitat are identified by a qualified individual, the Proponent shall:</i></p> <p><i>3.8.1: change the location of the subsea infrastructure on the seafloor or redirect drill cuttings discharges to avoid affecting the aggregations of habitat-forming corals or sponges or other environmentally sensitive fish and fish habitat, unless not technically feasible, as determined in consultation with the Board;</i></p> <p><i>3.8.2: if changing the location of the subsea infrastructure, or redirecting drill cuttings discharges pursuant to condition 3.8.1 is not technically feasible, consult with the Board and Fisheries and Oceans Canada to determine an appropriate course of action, including the implementation of any additional mitigation measures and monitoring, prior to commencing any activities on the seafloor related to the installation of any subsea infrastructure, subject to the acceptance of the Board; and</i></p> <p><i>3.8.3: include mitigation options to reduce any identified risk to habitat-forming coral and sponge aggregations or other environmentally sensitive benthic fish and fish habitat in accordance with the provisions of the Fisheries Act when consulting with Fisheries and Oceans Canada pursuant to condition 3.8.2.</i></p>
<p><b>ECL Comment</b></p>	<p>Potential EA Condition 3.8 does not include reference to the economic feasibility of implementing the identified mitigations. Most other conditions that refer to the implementation of a specific mitigation include the language “unless not technically or economically feasible”. Complex and unrealistic measures may be considered technically possible, however, the economic considerations of implementation should also be a factor in determining the feasibility of mitigation, as is common practice in effects assessment. As stated in the CEAA 2012 technical guidance document “Determining Whether a Designated Project is likely to Cause Significant Adverse Environmental Effects under the Canadian Environmental Assessment Act, 2021” mitigation measures must be technically and economically feasible.</p> <p>Furthermore, compliance with the sections of these conditions in terms of “sensitive fish” will be difficult to measure as it is our understanding that there is no established thresholds or guidance for ‘aggregations of sensitive fish’. ECL requests the term “sensitive fish” be removed from the condition as there is no measurable path to compliance.</p> <p>ECL proposes amended potential Condition 3.8 as follows:</p> <p><b>ECL Proposed Amended Potential EA Condition 3.8:</b> <i>If the survey(s) conducted in accordance with condition 3.7 confirm(s) the presence of aggregations of habitat-forming corals or sponges, or if other environmentally sensitive fish habitat are identified by a qualified individual, the Proponent shall:</i></p>

	<p><i>3.8.1: change the location of the subsea infrastructure on the seafloor or redirect drill cuttings discharges to avoid affecting the aggregations of habitat-forming corals or sponges or other environmentally sensitive fish habitat, unless not technically <b>or economically</b> feasible, as determined in consultation with the Board;</i></p> <p><i>3.8.2: if changing the location of the subsea infrastructure, or redirecting drill cuttings discharges pursuant to condition 3.8.1 is not technically <b>or economically</b> feasible, consult with the Board and Fisheries and Oceans Canada to determine an appropriate course of action, including the implementation of any additional mitigation measures and monitoring, prior to commencing any activities on the seafloor related to the installation of any subsea infrastructure, subject to the acceptance of the Board; and</i></p> <p><i>3.8.3: include mitigation options to reduce any identified risk to habitat-forming coral and sponge aggregations or other environmentally sensitive benthic fish habitat in accordance with the provisions of the Fisheries Act when consulting with Fisheries and Oceans Canada pursuant to condition 3.8.2.</i></p>
<p><b>Comment C7</b></p>	<p><b>Potential EA Condition 3.14.3</b>  <i>Develop and implement, in consultation with Indigenous groups, Fisheries and Oceans Canada and the Board, follow-up requirements to verify the accuracy of the environmental assessment as it pertains to the effects of underwater sound emissions on fish, including marine mammals, taking into account all Project sound sources. The follow-up requirements shall include:</i></p> <p><i>3.14.3.1 measurement of underwater sound levels to verify acoustic modeling results and predicted geographic extent of likely effects;</i></p> <p><i>3.14.3.2 surveys of marine mammal presence, distribution, important habitat areas, and behavior, including mating, calving, nursing and feeding, within the zones of influence for behavior predicted by modelling and geographic extent of likely effects prior to installing subsea infrastructure and during drilling, production and seismic activities;</i></p> <p><i>3.14.3.3 the requirement that marine mammal observations pursuant to condition 3.14.3.2 be conducted by a marine mammal observer; and</i></p> <p><i>3.14.3.4 an annual summary report of all north Atlantic right whale (<i>Eubalaena glacialis</i>) observations recorded, which the Proponent shall provide to Indigenous groups annually.</i></p>
<p><b>ECL Comment</b></p>	<p>ECL agrees with these conditions in principle. ECL will develop a follow-up program in consultation with Indigenous groups, Fisheries and Oceans Canada and the Board that will be designed to understand predicted Project-related effects on marine mammals regarding underwater sound emissions. Potential EA Condition 3.14.3.3 prescribes the use of a marine mammal observer to undertake follow-up monitoring. Based on</p>

	<p>Equinor’s global experience in other jurisdictions and industries, best practice is the application of a technology-based program, such as passive acoustic monitoring, potentially supported by periodic marine mammal observations conducted by a marine mammal observer. Potential EA Condition 3.14.3.4 may be interpreted to preclude the application of technological monitoring solutions and innovations that will occur over the Project life of 20-30 years. In addition, this program should be subject to adaptive management principles as noted, above in Comment C1.</p> <p>ECL proposes potential EA Condition 3.14.3.3 be removed.</p>
<p><b>Comment C8</b></p>	<p><b>Potential EA Condition 4.3</b>  <i>The Proponent shall develop, in consultation with Environment and Climate Change Canada and the Board, measures to mitigate impacts of lighting from the Designated Project’s mobile offshore drilling unit(s), floating production storage and offloading vessel(s) and other Designated Project vessels on migratory birds, including measures to control the direction, timing, intensity, and glare of light fixtures while meeting operational health and safety requirements.</i></p> <p><i>The Proponent shall submit these measures to the Board prior to conducting any Designated Project activities within the Designated Project Area. In doing so, the Proponent shall:</i></p> <p style="padding-left: 40px;"><i>4.3.1 use lighting, including nighttime lighting, only to the extent necessary to carry out the Designated Project and meet operational health and safety requirements; and</i></p> <p style="padding-left: 40px;"><i>4.3.2 for all measures, including spectral modified lighting, shielding lights downward, changing the type and intensity of light and any other measures identified by Environment and Climate Change Canada, determine the economic and technical feasibility of these measures and how they meet health and occupational safety requirements and provide this evaluation to Environment and Climate Change Canada and the Board prior to conducting any Designated Project activities within the Designated Project Area.</i></p>
<p><b>ECL Comment</b></p>	<p>As stated in the EIS, ECL has committed to designing the FPSO so that lighting is reduced to the extent that worker safety and operations are not compromised, and all regulatory requirements are met. This may include directional lighting, intensity, shading, time and other design features. As the FPSO will be designed and constructed specifically for the Project, it is technically feasible to design the lighting in consideration of having the potential capability to deactivate light sources not needed and minimising light to levels necessary for safe operations and regulatory requirements. Detailed analysis, studies, planning and design will be required to achieve this lighting philosophy such that human safety is not compromised, and all regulatory requirements are met. It is important to note that the FPSO will be the only light source that will be present on site for the entire life of the Project, 20-30 years.</p>

	<p>Unlike the FPSO, the MODU(s) and other Project vessels will be existing vessels contracted by ECL, rather than designed and built specifically for the Project. In the EIS, ECL did not propose measures to modify lighting on other Project vessels such as MODU's, construction vessels and supply/stand-by vessels as it is not economically or technically feasible. There are a limited number of MODU's and construction vessels available globally that can be utilised for the Project. Extensive modifications to these specialised vessels would be required to notably reduce ambient lighting, at great expense and it is unclear whether any meaningful reduction in lighting levels could be achieved. Over the life of the Project, numerous other vessels such as shuttle tankers, standby, supply and ice management vessels will be utilised on both short (spot market) and long-term basis. In some cases, these vessels are engaged on very short notice, to perform important tasks for the safe operation of the Project such as ice management and personnel downstaffing for forecasted severe storms. Modifications of the lighting on this number of vessels, and under the context of what is needed for safe and reliable Project operations, is not practicable, or economically feasible. Furthermore, it is not clear that it would be technically feasible to retro-fit and alter the lighting design on any existing Project vessels or MODU (s) to achieve any meaningful reduction in lighting. These vessels are often engaged in operations 24 hours a day, and the personnel on-board require lighting for safe working conditions. There are a number of regulations, codes and standards that apply to lighting of vessels for occupational health and safety and navigational safety purposes, which cannot be compromised.</p> <p>As retrofit of MODUs and vessels is not feasible, the only possible option for compliance with potential Condition 4.3.1, would be to switch off/down existing lighting that is not required for worker safety, while remaining compliant with the various lighting regulatory requirements. The safety of workers and other ocean users is paramount, therefore any deactivation of lighting, even for a temporary basis, would need to be carefully assessed to ensure risk to human safety is not compromised and that the procedure is compliant with regulatory requirements. From a practical perspective, it is anticipated that there would be very limited or no opportunities to 'turn off' lights on these Project vessels, as the lighting is required for a safe working environment, navigational safety and for emergency response. Therefore, the reduction in overall Project light levels would likely be immaterial. However, there is a significant and disproportionate administrative burden to the Project to complete reviews and risk assessments on all Project vessels to establish safe vessel specific protocols for turning off lights and the associated record keeping for the numerous vessels engaged over the operational life of the Project, 20-30 years.</p> <p>It is ECL's view that there is no safe, regulatory compliant, technically and economically feasible <u>meaningful</u> path to compliance for the Potential Conditions 4.3, 4.3.1 and 4.3.2 for MODU's and project vessels, except the FPSO. Nor is it necessary to minimize predicted effects on migratory birds. The FPSO is the largest</p>
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	<p>Project vessel and will be onsite for the longest timeframe and therefore represents the most significant opportunity to reduce light levels of the Project.</p> <p>Considering the high level of administrative burden for anticipated immaterial Project lighting level reduction on MODU's and other Project vessels, ECL proposes that potential Condition 4.3 be limited to the FPSO.</p> <p><b>ECL Proposed Amended Potential EA Condition 4.3.</b> <i>The Proponent shall develop, in consultation with Environment and Climate Change Canada and the Board, measures to mitigate impacts of lighting from the FPSO on migratory birds, including measures to control the direction, timing, intensity, and glare of light fixtures while meeting operational health and safety requirements. The Proponent shall submit these measures to the Board prior to FPSO transit to site. In doing so, the Proponent shall:</i></p> <p style="padding-left: 40px;"><i>4.3.1 on the FPSO, use lighting, including nighttime lighting, only to the extent necessary to carry out the Designated Project and meet operational health and safety requirements; and</i></p> <p style="padding-left: 40px;"><i>4.3.2 for the FPSO all measures, including spectral modified lighting, shielding lights downward, changing the type and intensity of light and any other measures identified by Environment and Climate Change Canada, determine the economic and technical feasibility of these measures and how they meet health and occupational safety requirements and provide this evaluation to Environment and Climate Change Canada and the Board prior to conducting any Designated Project activities within the Designated Project Area.</i></p>
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<p><b>Comment C9</b></p>	<p><b>Potential EA Condition 4.6</b></p> <p><i>The Proponent shall have a qualified individual develop, prior to conducting any Designated Project activities within the Designated Project Area and in consultation with Environment and Climate Change Canada and the Board, follow-up requirements, pursuant to condition 2.6, to verify the accuracy of the environmental assessment as it pertains to migratory birds and to determine the effectiveness of the mitigation measures implemented by the Proponent to avoid harm to migratory birds, their eggs and nests, including the mitigation measures used to comply with conditions 4.1 and 4.3. The Proponent shall implement these follow-up requirements for the duration of the Designated Project. As part of the follow-up requirements, the Proponent shall:</i></p> <p style="padding-left: 40px;"><i>4.6.1 monitor daily for the presence of migratory birds at the mobile offshore drilling unit(s), and other Designated Project-related vessels, excluding supply and standby vessels using a trained observer whose primary responsibility is</i></p>
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	<p><i>observing migratory birds and following Environment and Climate Change Canada's Eastern Canada Seabirds at Sea Standardized Protocol for Pelagic Seabird Surveys from Moving and Stationary Platforms;</i></p> <p><i>4.6.2 develop and implement procedures and methods for systematic monitoring of the mobile offshore drilling unit(s), and Designated Project-related vessels, excluding supply and standby vessels daily for the presence of stranded and re-stranded migratory birds using a trained observer and follow Environment and Climate Change Canada's Procedures for Handling and Documenting Stranded Birds Encountered on Infrastructure Offshore Atlantic Canada. Procedures and methods should include any technically and economically feasible ways to monitor strandings from areas of the mobile offshore drilling unit(s), and Designated Project-related vessels, excluding supply and standby vessels that are inaccessible to observers;</i></p> <p><i>4.6.3 monitor during flaring for the presence of migratory birds using a trained observer whose primary responsibility is observing migratory birds and document migratory bird behavior around the flares;</i></p> <p><i>4.6.4 develop and implement procedures and methods for monitoring migratory bird interactions with lighting related to the Designated Project, including the effectiveness of any spectrally modified lighting measures, if implemented pursuant to condition 4.3. Methods shall consider and, where appropriate, incorporate the use of radar, infrared imaging, aerial surveys or telemetry studies.</i></p>
<p><b>ECL Comment</b></p>	<p><b>Primary Responsibility</b></p> <p>In potential EA Conditions 4.6.1 and 4.6.3, it is unclear what is intended by “primary responsibility” and whether that requires additional person(s) to be stationed on the installation(s) and vessel(s) at all times. Any offshore installation or vessel, by its very nature, has limitations on the number of personnel based on safety and regulatory requirements. Depending on the installation or vessel and the required operations, personnel will have a variety of tasks and responsibilities.</p> <p>It is not possible to predict at this time, the personnel hours required to complete the observations and how that will vary seasonally and over the life of the Project, for 20-30 years. In addition, the application of technology that exists now or will be developed over the Project life has the potential to materially change the personnel hours required to collect the data and Environment and Climate Change Canada’s protocol for data collection may change over the life of the Project. Therefore, the requirement that there be a “trained observer whose primary responsibility is observing migratory birds” is too rigid and prescriptive and not required to achieve the objective of the condition.</p> <p>The objective of the condition is the gathering of systematic information regarding the presence of migratory birds at the Project. To meet that objective, the procedures and competency of the person(s) completing the task are the relevant aspects, not the job description for observations made by people. The requirement for ‘trained’ observer</p>

	<p>ensures the person(s) undertaking the task has the appropriate training to complete the task in accordance with the established protocol. The requirement for daily observations ensures the regular collection of data. The protocol for completing these observations is specified in the condition – the “<i>Environment and Climate Change Canada’s Eastern Canada Seabirds at Sea Standardized Protocol for Pelagic Seabird Surveys from Moving and Stationary Platforms</i>” (the ECCC protocol). Therefore, the objective of the condition is met without inclusion of the term “primary responsibility”.</p> <p><b>Bird Monitoring on the FPSO</b></p> <p>Equinor is committed to a continued focus on technology, digitalization and innovation to boost efficiency and improve health and safety in our global operations. The digital transformation is driving change and defining how fields will be developed and operated in the future. In line with this transformation and industry best practices, the operating philosophy for the Project will be to ensure safe and reliable operation of the FPSO in a harsh, remote and ice-prone offshore environment through utilization of technology advances and digitalization to enable data-driven operations that will minimize the number of people physically required offshore to safely and efficiently manage the operations. Enablers will include 24/7 onshore control, monitoring and support capabilities; an optimized use of automation, detection and robotics; and high-speed and capacity data transfer to allow for advanced data analytics and machine learning to support the operations. Any operational activities that can be safely performed onshore, shall be.</p> <p>Equinor has experience utilising digital technology-based solutions for bird monitoring in our offshore wind farms in Europe, where infrared cameras, radar and visual cameras are used to collect data on the presence of birds. In addition, Equinor is in the process of developing and implementing technology-based bird monitoring systems for normally unstaffed oil and gas platforms on the Norwegian Continental Shelf. These systems include radar detection for wide area surveillance and bird density measurements and high-resolution closed-circuit television for species recognition with data transmission to shore. This technology will be used for Project flaring and stranding monitoring protocols, as well. With the Project’s high-speed data transmission capability to the onshore control room via a fibreoptic cable, large amounts of bird monitoring data can be transmitted to shore in real time and processed. Bird occurrences and species are logged simultaneously at various locations on the installations, enabling a better understanding of the bird dynamic at the installation. The development of algorithms for machine learning will further digitise and automate the data collection for identification of bird species, their behaviour and abundance with time.</p> <p>ECL has a technological solution for marine bird observations, including facility searches, flaring monitoring and follow-up monitoring protocols that is superior to human-based observations. ECL plans to make significant investment to develop and implement a technology-based system for monitoring the presence of migratory birds at the Bay du Nord FPSO, which incorporates our corporate experience and best</p>
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	<p>available technology. The technology-based solution was proposed in the EIS <u>instead of</u> day- to-day data collection by human seabird observers to provide more detailed and reliable knowledge of bird identification and behaviour.</p> <p>In addition to the technology-based monitoring system, as stated in the EIS, ECL proposed supplemental periodic dedicated seabird observer programs for the FPSO, similar to those undertaken by ExxonMobil at the Hebron platform.</p> <p>Such long-term, 24/7 systematic gathering of data combined with periodic validation with human observations and machine learning will provide more detailed knowledge and reliability than a traditional human-based observation program. Therefore, it is ECL's view, that the combination of a technology-based system with periodic human observer programs will provide superior bird monitoring data in a manner that minimises safety risk to personnel. Therefore, a requirement for a human observer on the FPSO is redundant. Substitution of a human observer on the FPSO, as the proposed condition states, to collect data that can be automatically generated with digital solutions, imposes unnecessary safety risk to that person and increases the overall safety risk exposure for the Project.</p> <p><b>Stranded Birds</b></p> <p>Potential EA Condition 4.6.2 requires systematic monitoring for the presence of stranded birds in accordance with Environment and Climate Change Canada's procedures. ECL concurs with the requirement and has implemented this monitoring in our survey and exploration programs. The condition stipulates that the monitoring for stranded birds be completed by a "trained observer". The level of training and requirements to complete bird observations (i.e. be a "trained observer") is different than the training and skills required to monitor for stranded birds. Based on experience, monitoring for stranded birds can be effectively achieved in accordance with the prescribed procedures by other personnel, including vessel crew and operators who are trained in the procedures for handling and documenting stranded birds. Vessel crew and operators are most familiar with the areas and complete regular checks and inspections throughout the installations as part of their work routines. Furthermore, as noted in the discussions above, the FPSO will be equipped with digital monitoring for the presence of birds. Limiting the monitoring to a "trained observer" imposes unnecessary restrictions to which personnel can perform the task and also prevents the implementation of modern digital solutions and innovation.</p> <p>The restriction of using a "trained observer" for stranded bird monitoring is unnecessary to achieve the objective of the condition, places excessive restrictions on work planning and allocation for the staff onboard and prevents the implementation of modern digital solutions and innovation.</p> <p><b>Adaptive Management</b></p> <p>It is noted that the Potential EA Condition 4.6.4, as written, would require the daily collection of this observation data for MODU and other Designated Project Vessel(s), without provision for reassessment of this requirement over time to assess the value of</p>
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	<p>the daily data collection based on the variability of the data and environmental effects observed. The wording does not provide flexibility to adapt the monitoring program over time, based on the results. As stated in the EIS and comment C1, the follow-up program will be based on the principles of adaptive management.</p> <p>In consideration of the implementation of technology to maximise data quality and minimise human safety risk exposure, it is recommended that potential EA Conditions 4.6.1 and 4.6.3 be merged into a single condition and potential EA Condition 4.6.2 be amended as follows:</p> <p><b>ECL Proposed Amended Potential EA Condition 4.6.1:</b> <i>monitor for the presence of migratory birds at the mobile offshore drilling unit(s), and other Designated Project-related vessels, excluding the FPSO, supply and standby vessels, using a trained observer consistent with Environment and Climate Change Canada’s Eastern Canada Seabirds at Sea Standardized Protocol for Pelagic Seabird Surveys from Moving and Stationary Platforms or other protocol as agreed by Environment and Climate Change Canada; and develop and implement a technology-based system for monitoring the presence of migratory birds at the FPSO, including when flaring occurs, which includes a periodic human migratory bird observation program.</i></p> <p><b>ECL Proposed Amended Potential EA Condition 4.6.2:</b> <i>develop and implement procedures and methods for daily systematic monitoring of the mobile offshore drilling unit(s), and Designated Project-related vessels, excluding supply and standby vessels, for the presence of stranded and re-stranded migratory birds and follow Environment and Climate Change Canada's Procedures for Handling and Documenting Stranded Birds Encountered on Infrastructure Offshore Atlantic Canada. Procedures and methods should include any technically and economically feasible ways to monitor strandings from areas of the mobile offshore drilling unit(s), and Designated Project-related vessels, excluding supply and standby vessels, that are inaccessible to observers;</i></p>
<p><b>Comment C10</b></p>	<p><b>Potential EA Condition 4.2</b>  <i>The Proponent shall implement measures to avoid harming, killing or disturbing migratory birds, including:</i></p> <p>4.2.1 <i>conducting only non-routine or safety flaring;</i></p> <p>4.2.2 <i>starting all flaring as early as practicable during daylight hours to limit flaring that occurs during nighttime;</i></p> <p>4.2.3 <i>identifying specific circumstances under which the Proponent shall not commence flaring during conditions of poor visibility including when there is a low cloud ceiling or fog, and not commencing flaring during these circumstances;</i></p> <p>4.2.4 <i>notifying the Board at least 30 days in advance of any planned flaring to determine whether the flaring would occur during a period of migratory bird</i></p>

	<p><i>vulnerability and to determine how the Proponent plans to avoid adverse environmental effects on migratory birds, including by implementing modified or additional mitigation measures;</i></p>
<p><b>ECL Comment</b></p>	<p><b>Background</b></p> <p>As described in the EIS and ECL responses to information requests, the Project will make investments to minimise flaring through the implementation of the following design and operational measures:</p> <ul style="list-style-type: none"> <li>• No routine flaring</li> <li>• Flare gas recovery system</li> <li>• Pilotless flaring system (pending safety design approvals)</li> </ul> <p>These ECL best practices and technology applications will minimise the flaring required to operate safely and result in significantly less flaring than existing production installations operating in offshore Newfoundland. In addition to protecting birds, minimising flaring is an important green house gas reduction measure, that is integral to ECL's operations philosophy.</p> <p>ECL will only conduct non-routine and safety flaring (as per World Bank definitions) in the operations of the Bay du Nord Project. Flaring in these circumstances is required to maintain safe operations and technical asset integrity. Flaring of hydrocarbons or other gasses is done to ensure that pressures and temperatures in the facilities processing systems do not exceed prescribed safe limits that could result in gas leaks or explosions. The processing systems shall be designed to minimise flaring. The most common circumstance when flaring will occur will be during shut-down and start-up of the processing facility, however there will be operational circumstances when an upset condition occurs when the safest operation is to continue production with flaring until the problem is understood or resolved, taking into account the overall environmental impact of the operation.</p> <p>In some cases, flaring is required to perform scheduled testing and/or maintenance on certain systems on the FPSO. These scheduled maintenance programs may occur during production shutdowns, thereby avoiding flaring. In some circumstances, planned maintenance is necessary outside of the production shutdown window and flaring will be required.</p> <p>In the event of an unplanned processing facility shutdown, there may be safety and asset integrity risks introduced by delaying a start up to avoid flaring during the night or low visibility conditions. Time related risks would include the risk of hydrate formation in subsea infrastructure. Hydrates are solid 'ice-like crystals' that can form in the presence of water and natural gas while under pressure. In order to mitigate the risk of hydrate formation, it is best to resume normal production operations as soon as possible and before hydrates have adequate time to form. Otherwise, the gas subsea infrastructure would need to be depressurized via the flare system to prevent hydrate formation. Hydrates formed in subsea infrastructure, including flowlines, create a</p>

	<p>significant risk for breaches of integrity and subsequent hydrocarbon spills to the environment, as was experienced recently in this jurisdiction.</p> <p><b>Timing of flaring</b></p> <p>“Starting all” flaring as early as practicable implies that there is an ability to determine the timing that flaring commences for “all” flaring scenarios. The term “all” may be interpreted to be inclusive of safety and non-routine flaring. As noted above, in most flaring scenarios, flaring is initiated automatically in response to unsafe process conditions or is initiated in response to an unplanned operational issue. Overriding or changing a safety flaring event is not feasible as it would impose tremendous risk to personnel safety and the environment. For unplanned shut-downs that require flaring to restart safely, risk of the formation of hydrates increases with the time the facility is in an unplanned shut-down condition. Hydrates can cause blockages in subsea infrastructure, resulting in serious safety and environmental consequences. ECL assumes that increasing safety and environmental risk is not at all the intent of this condition. Therefore, this condition should only apply to scheduled flaring events, which can be planned to occur in daylight hours without increasing safety and environmental risks.</p> <p><b>Conditions for Flaring</b></p> <p>During the poorest visibility months daylight hours, visibility is less than 1000 metres and ceiling height is lower than 300 metres between 35% and 50% of the time. On an annual basis, these conditions occur 25% of the time. Correspondingly there are periods when these conditions exist continuously for extended periods of time (several days to weeks). Extended delay of operations that require flaring based on these environmental conditions could impose safety, integrity and environmental risks (such as hydrate formation in subsea infrastructure, wellbore integrity and reservoir damage, and facility integrity) and disproportionate cost related to an extended period of production shut down. Furthermore, extended periods of shut-down could impact the focus, the continuity and morale of the offshore crew which could impact health and safety.</p> <p>Therefore, it is not possible to identify specific circumstances under which flaring would not commence during poor visibility conditions as it would create additional risk to the operation.</p> <p>Based on this, ECL requests that that potential EA Condition 4.2.3 be removed as there is no meaningful path to compliance.</p> <p><b>Flaring and Venting Plan</b></p> <p>As stated in the EIS, a Flaring and Venting Plan is planned and required to be submitted to the C-NLOPB on an annual basis. The Flaring and Venting Plan outlines scheduled flaring events and timing for the year. A separate notification process would be redundant. For administrative efficiency and clarity, ECL proposes amended potential EA Condition 4.2.4, as provided below.</p>
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	<p>ECL proposes amendments to potential EA Conditions 4.2.2 and 4.2.4:</p> <p><b>ECL Proposed Amended Potential EA Condition 4.2.2:</b> <i>for scheduled flaring, starting during daylight hours to limit flaring that occurs during nighttime, where practicable.</i></p> <p><b>ECL Proposed Amended Potential EA Condition 4.2.4:</b> <i>submission to the Board of an annual flaring and venting plan that includes the timing of scheduled flaring including, for periods of migratory bird vulnerability, any modified or additional mitigation measures to avoid adverse environmental effects on migratory birds.</i></p>
<p><b>Comment C11</b></p>	<p><b>Potential EA Conditions 2.5, 3.15, 3.16 and 4.7</b></p> <p><i>Potential EA Condition 2.5: The Proponent shall, where participation is a requirement of a condition set out in this document, notify potential parties responsible for applicable research programs of the Proponent’s interest in participating in these programs and determine, in consultation with the parties that have expressed interest in the Proponent’s participation, the actions and resources needed to carry out the Proponent’s participation.</i></p> <p><i>Potential EA Condition 3.15: The Proponent shall participate in research programs pertaining to the presence of Atlantic salmon (Salmo salar) in the Eastern Canadian offshore areas, where available and agreed upon by the party(ies) responsible for the research programs.</i></p> <p><i>Potential EA Condition 3.16: The Proponent shall participate in research programs in the Eastern Canadian offshore areas pertaining to the behaviour, presence, distribution, and important habitat areas of cetaceans where available and agreed upon by the party(ies) responsible for the research programs.</i></p> <p><i>Potential EA Condition 4.7: The Proponent shall participate in research and monitoring programs pertaining to the effects of light attraction on migratory birds in offshore areas and mitigation measures to reduce the attraction of migratory birds to lighting, where available and agreed upon by the party(ies) responsible for the research programs. Research and monitoring programs pertaining to the effects of light on birds may include:</i></p>
<p><b>ECL Comment</b></p>	<p>ECL has committed to participating in or contributing to research and monitoring initiatives being completed by other parties with the objective of helping to fill knowledge gaps relevant to potential Project effects for wildlife species including migratory birds, salmon and marine mammals. ECL therefore supports potential EA Conditions 3.15, 3.16 and 4.7, in principle. However, the conditions as drafted are vague and contain no reference to technical or economic feasibility. While recognizing that potential Condition 2.5 applies to potential Conditions 3.15, 3.16 and 4.7 such that <i>“The Proponent shall ... determine, in consultation with the parties that have expressed interest in the Proponent’s participation, the actions and resources needed to carry out</i></p>

	<p><i>the Proponent's participation", Conditions 3.15, 3.16 and 4.7 need to include amended wording to incorporate limits to make compliance reasonable and possible.</i></p> <p><b>ECL Proposed Amended Potential EA Condition 2.5:</b> <i>The Proponent shall, where participation is a requirement of a condition set out in this document, notify potential parties responsible for applicable research programs of the Proponent's interest in participating in these programs and determine, in consultation with the parties that have expressed interest in the Proponent's participation, the actions and resources needed to carry out the Proponent's participation. The Proponent's participation in the research programs will be subject to relevance to potential Project effects, technical and economic feasibility, and will be determined in consultation with the party(ies) responsible for the research programs.</i></p>
<p><b>Comment C12</b></p>	<p><b>Potential EA Condition 6.1</b></p> <p><i>The Proponent shall reinject into a reservoir all gas produced from the wells associated with the Designated Project that is not used as fuel, except for those quantities flared as part of nonroutine or safety flaring.</i></p>
<p><b>ECL Comment</b></p>	<p>The following amendment is proposed to be technically accurate and complete regarding how gas will be processed and used during operations.</p> <p><b>ECL Proposed Amended Potential EA Condition 6.1:</b> <i>The Proponent shall reinject, for the purpose of gas flood into reservoir(s) and gas lift into subsea wells/templates/risers, all gas produced from the wells associated with the Designated Project that is not used as fuel, except for those quantities flared as part of nonroutine or safety flaring.</i></p>



Attachment B – ECL Comments on  
Draft Environment Assessment Report

**ECL Comments on the Draft Environmental Assessment Report (DEAR)**

Comment D1	General Comment on DEAR
<p><b>ECL Comment</b></p>	<p>Inaccuracies and errors in the data summarized from the EIS were noted in a number of areas. Examples of these are provided below:</p> <ul style="list-style-type: none"> <li>• page 48 "...baleen whales within 600 metres from the FPSO...", this should be 60 m, not 600 m.</li> <li>• Page 48 "The proponent predicted that sound levels above ambient from a two-dimensional/three-dimensional/four-dimensional seismic survey could extend beyond a 150 kilometres radius, over the entire water column to depth before attenuating to background sound levels." This statement is incorrect. Sound levels will not exceed ambient levels throughout the entire water column at distances beyond 150 km, but rather some specific depth within the sound propagation path. During months with sound propagation conditions like February it is the surface channel and in months like August some path that bounces between the surface and the bottom.</li> <li>• Page 49 "the proponent predicted that sound levels from the MODU thrusters...would extend outward in all directions between six and 25.5 kilometres in radius (about 112 to 1,390 square kilometres), depending on the season.". While sound will propagate in all directions from the sound source it is important to note that sound will propagate unevenly (depending on factors like water depth, bottom type, and the sound speed profile) horizontally and vertically (i.e., throughout the water column). and only when thrusters are in use for MODUs and the FPSO, therefore, not all marine mammals that are within the noted ranges would be exposed to project-related sound from the MODU thrusters above the behavioural threshold.</li> <li>• Page 55 The table footnote - ** The proponent predicted seismic sound source to have an effect at distance to 150 kilometre outward from the seismic array source (70,685 square kilometres) - is incorrect. The EIS did not predict that the seismic array would have effects (behavioural or otherwise) on marine mammals at distances extending to 150 km. This footnote should be deleted. Note that the EIS uses a 50 km buffer around the Project Area as the Local Study Area (LSA); the LSA "encompasses the overall geographic area over which planned and routine Project-related environmental interactions may occur" (see page 11-2 of the EIS)."</li> </ul>

<b>Comment D2</b>		<b>DEAR Section 4.1.4, page 40</b>
<b>ECL Comment</b>	<p>In the statement in Section 4.1.4 “The Agency concurs with DFO that the proponent’s negligible effect conclusion regarding the effects of suspended water-based drill mud and synthetic-based cuttings is unsupported, and the geographic extent of the effects is likely greater than predicted”, specifically the text “<b>the proponent’s negligible effect conclusion</b>” is a misinterpretation of the assessment of suspended sediments in Chapter 9 of the EIS.</p> <p>Section 9.3.3.3 of the EIS addresses the likely environment effects associated with drill cuttings deposition. For the assessment of Change in Habitat Availability and/or Quality, which includes changes in water quality due to suspended particles and alteration to seabed characteristics, it was concluded that the residual environmental effects “are predicted to be adverse, <b>low in magnitude</b>, with a geographic extent between less than 1 km<sup>2</sup> to less than 10 km<sup>2</sup>, of medium- to long-term duration, occurring continuously, and reversible.” Similarly for the Change in Invertebrate Mortality, Injury and/or Health, it was concluded that the residual environmental effects “are predicted to be adverse, <b>low in magnitude</b>, with a geographic extent between less than 1 km<sup>2</sup> to less than 10 km<sup>2</sup>, of medium- to long-term duration, occurring continuously, and reversible.” It is only for the Change in Food Availability and/or Quality whereby it was concluded that the residual environmental effects “are predicted to be adverse, <b>negligible in magnitude</b>, with a geographic extent between less than 1 km<sup>2</sup> to less than 10 km<sup>2</sup>, of medium-to long-term duration, occurring continuously, and reversible. “</p> <p>Therefore, the statement “The Agency concurs with DFO that the proponent’s <i>negligible effect conclusion</i> regarding the effects of suspended water-based drill mud and synthetic-based cuttings...” is incorrect as the EIS clearly states that the magnitude of the effects is low. The conclusion by the Agency is not supported by effects assessment predictions in the EIS.</p> <p>ECL requests that the statement be amended to reflect the EIS predictions. The following modified text is proposed:</p> <p style="text-align: center;"><i>“The Agency concurs with DFO that the proponent’s estimate of geographic extent of the effects is likely greater than predicted”</i></p>	

<b>Comment D3</b>		<b>DEAR Section 4.1.4; page 40</b>
<b>ECL Comment</b>	<p>ECL has reviewed the following statement in Section 4.1.4 and is of the opinion that the Agency’s analysis is an overestimation of the potential for sediment toxicity associated with synthetic-based muds (SBM), based on the information provided in the Bay du Nord EIS.</p> <p style="text-align: center;">“The Agency understands that, based on information provided by the proponent, synthetic-based mud cuttings deposition has been shown to change sediment chemistry and result in toxic effects within two kilometres of a well template. The Agency calculated that, given the predicted locations of</p>	

	<p>the five well template centres, potential adverse environmental effects could occur in a total area of about 48 square kilometres, accounting for overlapping cuttings deposition. The locations of future development areas are unknown, but could include another five well templates, thereby adding an additional 62.5 square kilometres of potentially impacted seafloor (with no overlap consideration). The Agency concludes that the total area of affected benthic habitats and communities could, in a worse-case scenario, be up to 110 square kilometres, although not expected to occur in a continuous pattern from a well template. Therefore, the Agency is of the view that the potential toxicity effects from cuttings deposition could be greater than indicated by the proponent.”</p> <p>As indicated in the EIS, acute toxicity of SBM is considered to be relatively low based on laboratory experiments and field evaluations of SBM-associated drill cuttings piles. Furthermore, any potential effects from SBMs are likely to be temporary in nature as SBMs biodegrade within a few years. The degradation of the organic components of SBMs can lead to eutrophication and creation of anoxic (low oxygen) environments which is different than toxicity. This would likely occur in the areas of drill cuttings predicted deposition - within 200 m (deep water) and 2 km (shallow water) of a well template. Creation of anoxic areas beyond these boundaries where deposition is low, as predicted by drill cuttings dispersion modelling, would be unlikely. Furthermore, a key consideration in estimating impact areas, as shown by the drilling cuttings modelling, is that cuttings dispersion would not form a uniform distribution around the well center. Therefore, the Agency’s assertion of creation of adverse environmental effects of 48 sq km<sup>2</sup> for each template is an overestimation.</p> <p>ECL requests that the statements in the DEAR regarding sediment toxicity be amended to align with the information provided in the Bay du Nord EIS. In particular, ECL requests that the following statements be amended (suggested text follows):</p> <p><i>“The Agency understands that, based on information provided by the proponent, synthetic-based mud cuttings deposition has been shown to change sediment chemistry and result in toxic effects within two kilometres of a well template”</i></p> <p><i>“The Agency is of the view that drill cutting deposition resulting in burial of benthic habitats would extend up to 200 metres, and that toxic effects may extend up to two kilometres from each well template.”</i></p> <p>Recommended text for these statements is as follows:</p> <p><i>“The Agency understands that, based on information provided by the proponent, synthetic-based mud cuttings deposition has been shown to change sediment chemistry within two kilometres of a well template.”</i></p> <p><i>“The Agency is of the view that drill cutting deposition resulting in burial of benthic habitats would extend up to 200 metres, and that changes in sediment chemistry may extend up to two kilometres from each well template.”</i></p>
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<b>Comment D4</b>		<b>DEAR Section 4.1.4, page 43 – Key Mitigation</b>
<b>ECL</b>	<p>For the key mitigation listed on page 43 “if aggregations of habitat-forming corals or sponges or other sensitive fish and fish habitat are identified when undertaking the survey,” this mitigation may not be feasible as it is our understanding that there is no established thresholds or guidance for ‘aggregations of sensitive fish’. It is suggested that the mitigation be amended to read as “<i>if aggregations of habitat-forming corals or sponges or other sensitive fish habitat are identified when undertaking the survey...</i>”</p>	

<b>Comment D5</b>		<b>DEAR Section 4.2.1, page 46 – Existing Environment</b>
<b>ECL Comment</b>	<p>The statement on page 46 “The proponent stated that the Flemish Pass is considered important year-round habitat for dolphins, sperm whales, and northern bottlenose whales” is inaccurate.</p> <p>It is not possible to conclude that the Flemish Pass provides important year-round habitat for marine mammals because sufficient data do not exist to support this conclusion. The EIS used appropriate caveats like data “suggest” the Flemish Pass provide important habitat for sperm whales and northern bottlenose whales.</p> <p>ECL requests that the statement be revised to align with the information presented in the EIS and be amended to read as: “<i>The proponent suggests that the Flemish Pass may provide important year-round habitat for sperm whales and northern bottlenose whales.</i>”</p>	

<b>Comment D6</b>		<b>DEAR Section 4.2.4; page 58</b>
<b>ECL Comment</b>	<p>For the Key Mitigation listed on page 58 “shut-down or delay ramp up of air source arrays for all marine mammals and sea turtles when observed within the safety zone” is not aligned with the mitigations listed in the Statement of Canadian Practice with Respect to the Mitigation of Seismic Sound. Shut-down during ramp-up or when the air source array is active, is a requirement “if a marine mammal or sea turtle listed as endangered or threatened on Schedule 1 of the Species at Risk Act” is sighted within the safety zone, not all marine mammals as stated in the DEAR. Equinor Canada also committed to shutting down the airsource array for all beaked whales observed within the safety zone during seismic surveys. ECL assumes that this Key Mitigation was intended to align with the Statement of Canadian Practice and the language of Potential Condition 3.9. As currently written, this Key Mitigation that references “all marine mammals” is inconsistent with mitigations applied to other seismic programs in the Canadian offshore and Potential Condition 3.9..</p> <p>ECL requests that the mitigation as listed be amended to align with the mitigations stated in the SOCP and Potential Condition 3.9 to read as:</p>	

	<p><i>“shut-down or delay ramp up of air source arrays for marine mammals and sea turtles listed as endangered or threatened on Schedule 1 of the Species at Risk Act and for all beaked whales when observed within the safety zone”</i></p>
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<b>Comment D7</b>		<b>DEAR Section 4.2.4; page 59</b>
<b>ECL Comment</b>	<p>The Agency states on page 59 that “potential behavioural effects on marine mammals may result in avoidance or displacement between 400 and 4,000 square kilometres, potentially extending outside of the project area.” This statement is unfounded as it is not based on the body of literature reviewed in the Bay du Nord EIS nor does it accurately reflect the acoustic modelling and how these modelling results were presented in the EIS.</p> <p>ECL requests that this statement be deleted.</p>	

<b>Comment D8</b>		<b>DEAR Section 4.3.4; page 70</b>
<b>ECL Comment</b>	<p>The statement in DEAR Report “The Agency is also of the view that the produced water discharge would be continuous for the life of the Project and the volume would increase with production age of the field and thereby increase the risk of bird oiling” is incorrect. Table 2.6 of the EIS states <i>“These design criteria may change as the reservoir depletion strategy and initial development phase are finalized. The design basis values listed are representative of peak production and provides for ranges in design criteria to allow for optimization to Project design. The EIS will, therefore, use the upper limit of these ranges in the associated environmental effects assessment.”</i> The FPSO will be designed to handle the maximum rate of 50,000 m<sup>3</sup>/d of produced water and the discharge cannot increase beyond the maximum 50,000 m<sup>3</sup>/d. While it is understood at initial start-up and until peak water production is reached, the rate will increase, the rate will not increase beyond 50,000 m<sup>3</sup>/d. This maximum produced water rate was the basis for the effects analysis on the receiving environment. There would be no increase in produced water discharge beyond what the EIS assessed. The assertion that produced water rate will increase and thereby increase risk of bird mortality is incorrect. The EIS assessed the potential for oiling from sheening events based on the maximum water rate.</p> <p>ECL requests that the statement be deleted as it is factually incorrect.</p>	

<b>Comment D9</b>	<b>DEAR Section 5.3.2; page 148</b>
<b>ECL Comment</b>	<p>For the statements on page 148 “<i>Marine mammals in the eastern Newfoundland offshore area may be affected by sound emissions from the Project in combination with effects of other exploration and production activities, as well as effects of vessels from shipping, fishing and other activities. The Agency determined worst-case project sound emissions resulting in adverse behavioural effects on marine mammals may extend between 2,100 and 4,000 square kilometres (see Section 4.2.4). Based on the proponent’s information and a review of other projects and activities in the region, the Agency understands that marine mammals may experience a behavioural response up to 35 kilometres from the existing production facilities (Delaure et al. 2018), between 56.8 and 150 kilometres from exploration drilling projects, and between 50 and 150 kilometres from geophysical seismic activities. In determining the potential cumulative effects of sound emission on mammals, the Agency assumed two exploration drilling projects and one seismic survey producing non-overlapping sound emissions are active simultaneously with the two Project MODUs.</i></p> <p><i>The Agency estimated that between 20,270 and 141,400 square kilometres of the region could be disturbed by sound emissions from exploration drilling projects with the potential to elicit an adverse behavioural response in marine mammals. Non-overlapping sound emissions from seismic surveys could produce adverse behavioural responses over an additional 7,850 to 70,685 square kilometres. As noted in Section 4.3, C-NLOPB records indicate that multiple seismic surveys could be undertaken simultaneously, suggesting sound emissions from seismic vessels could further expand the area of effects. Similar to fish, these sound emissions would result in the formation of overlapping and non-overlapping areas with sound disturbance. Although non-overlapping sound emissions from the existing production facilities do not directly interact with the Project, the Agency calculated these sound sources may contribute up to 9,400 square kilometres of disturbed habitat to the Regional Study Area. Although the mobile nature of marine mammals may allow them to avoid or pass through disturbed areas, avoidance of otherwise suitable habitat is in itself an adverse effect and is of concern when considering potential cumulative effects from multiple projects.”</i></p> <p>ECL disagrees with these statements, particularly the areas IAAC presents as being “disturbed by sound emissions” and which may result in adverse effects on marine mammals. IAAC does not present how these areas were calculated. For example, the reader is left to assume that for seismic surveys the “70,685 square kilometres” is based on an erroneous radius of 150 km (see Comment D1). Furthermore, air source sound does not propagate evenly in a radial pattern (i.e., it is an asymmetrical sound source); it is not a circular area of effect. The cumulative areas presented by IAAC for drilling and production installations are not based on information presented in the EIS. ECL requests that IAAC revisit the cumulative areas it calculated, ensure it is based on science (in consultation with an acoustician), and explain to the reader how the calculations were made and the associated caveats with the areal predictions. It is important to note that marine mammals in the Regional Study Area are regularly exposed to industry sounds - this does not mean they exhibit an adverse</p>

	<p>response each time. This is supported by the literature which was reviewed in the EIS.</p>
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