SHARED VALUE SOLUTIONS

EQUINOR CANADA LTD CENTRAL RIDGE OFFSHORE EXPLORATION PROJECT: TECHNICAL REVIEW OF ENVIRONMENTAL IMPACT STATEMENT

Prepared for: Mi'gmawe'l Tplu'taqnn Incorporated

February 14, 2020

Rachel Speiran

226 706 8888 ext 120
rachel.speiran@sharedvaluesolutions.com
sharedvaluesolutions.com

62 Baker Street
Guelph Ontario Canada
N1H 4G1

Mi'gmawe'l Tplu'taqnn Incorporated

Chief George Ginnish
Chief Rebecca Knockwood
40 Micmac Rd
Eel Ground New Brunswick

February 14, 2020

Dear Chief George Ginnish and Chief Rebecca Knockwood:

It is our pleasure to provide you with the technical review report on the Environmental Impact Statement for the Equinor Central Ridge Offshore Exploration Project. This review was completed by Allie Mayberry, MA, BSc; Lauren Jones, BSc; Chris Wagner, BSc; Levi Snook, BSc; Meaghan Langille, BSc; and Rachel Speiran, MA of Shared Value Solutions. We look forward to continuing to serve you in consultation and lands and resources protection matters. Please do not hesitate to get in touch with us if you have any questions or concerns with the enclosed report.

With best regards,

<Original signed by>

Rachel Speiran, MA

Senior Consultant and Regulatory and Negotiations Practice Area Lead, Shared Value Solutions Ltd.

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1.0 REVIEW OBJECTIVES

Shared Value Solutions Ltd. (SVS) provides this independent high-level peer review and strategic assessment of Equinor Canada Ltd.'s (Equinor; the Proponent) proposed Central Ridge Exploration Drilling Project Environmental Impact Statement (EIS) on behalf of Mi'gmawe'l Tplu'taqnn Incorporated (MTI). The EIS for the Project is an abridged EIS whose content was directly informed by the Environmental Impact Statement Equinor submitted for the Flemish Pass Exploration Drilling Project.

MTI is a not for profit organization created by the Mi'gmaq First Nations of New Brunswick to promote and support the recognition, affirmation, exercise, and implementation of their members' Aboriginal and Treaty Rights and title.

SVS consultants with expertise in marine water resources, aquatic ecology, migratory birds, fisheries biology, and socio-economics conducted the review.

This report is not intended to be a comprehensive review of the Proponent's EIS and documentation for the Project. This report identifies concerns, potential impacts and additional protection measures related to seven key issues of concern identified by MTI in communications with SVS, in relation to the rights, key values and interests of MTI member communities:

1. Atlantic salmon
2. Atlantic bluefin tuna
3. Migratory birds
4. North Atlantic right whale
5. Cumulative effects
6. MTI Indigenous Knowledge and Land Use (IKLU) and Socio-economic impacts on commercial Swordfish fisheries and Atlantic Salmon
7. Accidents and malfunctions

This report provides a summary of our review findings, which are also provided in the form of a Comment and Response Tracking Table in Appendix A, which MTI can provide to the Agency.

2.0 PROJECT DESCRIPTION AND REGULATORY PROCESS

2.1 CENTRAL RIDGE EXPLORATION DRILLING PROGRAM

Equinor Canada Ltd. (Equinor Canada), on behalf of its partners, Husky Oil Operations Limited (Husky Energy) and Suncor Energy Offshore Exploration Partnership (Suncor Energy), is proposing to undertake an exploration drilling program on Exploration Licences (ELs) 1159 and 1160 in the Central Ridge Area, located offshore of Newfoundland and Labrador (NL) and approximately 375 km east of St. John's, NL.

The drilling, testing, and abandonment of offshore exploratory wells in the first drilling program for an area set out in one or more ELs issued in accordance with the Canada-Newfoundland and Labrador Atlantic Accord Implementation Act is a designated project under the Canadian Environmental Assessment Act, 2012 (CEAA, 2012). The EIS was prepared to address the information requirements pursuant to CEAA 2012 and its regulations, as well as the requirements under the Canada-Newfoundland and Labrador Atlantic Accord Implementation Act and the Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act (the Accord Acts). It is also intended to assist other regulatory agencies, Indigenous groups and the public to determine their interest and participation in the EA process.

Equinor Canada Ltd. submitted an EIS for the Flemish Pass Exploration Drilling Program (the Flemish Pass EIS) in December 2017 and was released from the CEAA 2012 assessment process, with conditions, in April 2019. ELs 1159 and 1160 are within the Project Area assessed in the Flemish Pass EIS and the Agency has determined that an abridged EIS is required for any exploration drilling to be conducted in these two ELs.

The scope, as identified in the EIS, includes the mobilization and operation of drilling installations, drilling activities, supporting ancillary activities to drilling programs, and well decommissioning or suspension. The components and activities are summarized in Section 2.5. It is unlikely to have drilling installations completing exploration drilling in the same area, but there may be efficiency by having a "top hole" installation completing riserless operations while a second installation performs reservoir drilling with blowout preventer (BOP) installed on another well. Operations with two dynamic positioning drilling installations requires a minimum spacing of 500 metres. Therefore, simultaneous operations in the Project Area could occur on each of the ELs, but it is unlikely the wells would be close enough to each other to have overlapping impacts.

2.1.1 PROJECT LOCATION

ELs 1159 and 1160 (the Project) are within the area previously assessed in the Flemish Pass EIS (Figure 1). That EIS has a Project Area of approximately 100,800 square kilometres (km²), divided into the Northern Section and Southern Section. EL 1160 is located within the Project Area – Southern Section, while EL 1159 is located within both the Project Area – Northern Section and Project Area – Southern Section. Further Information on the Project location is available in Section 2.3 of the EIS.

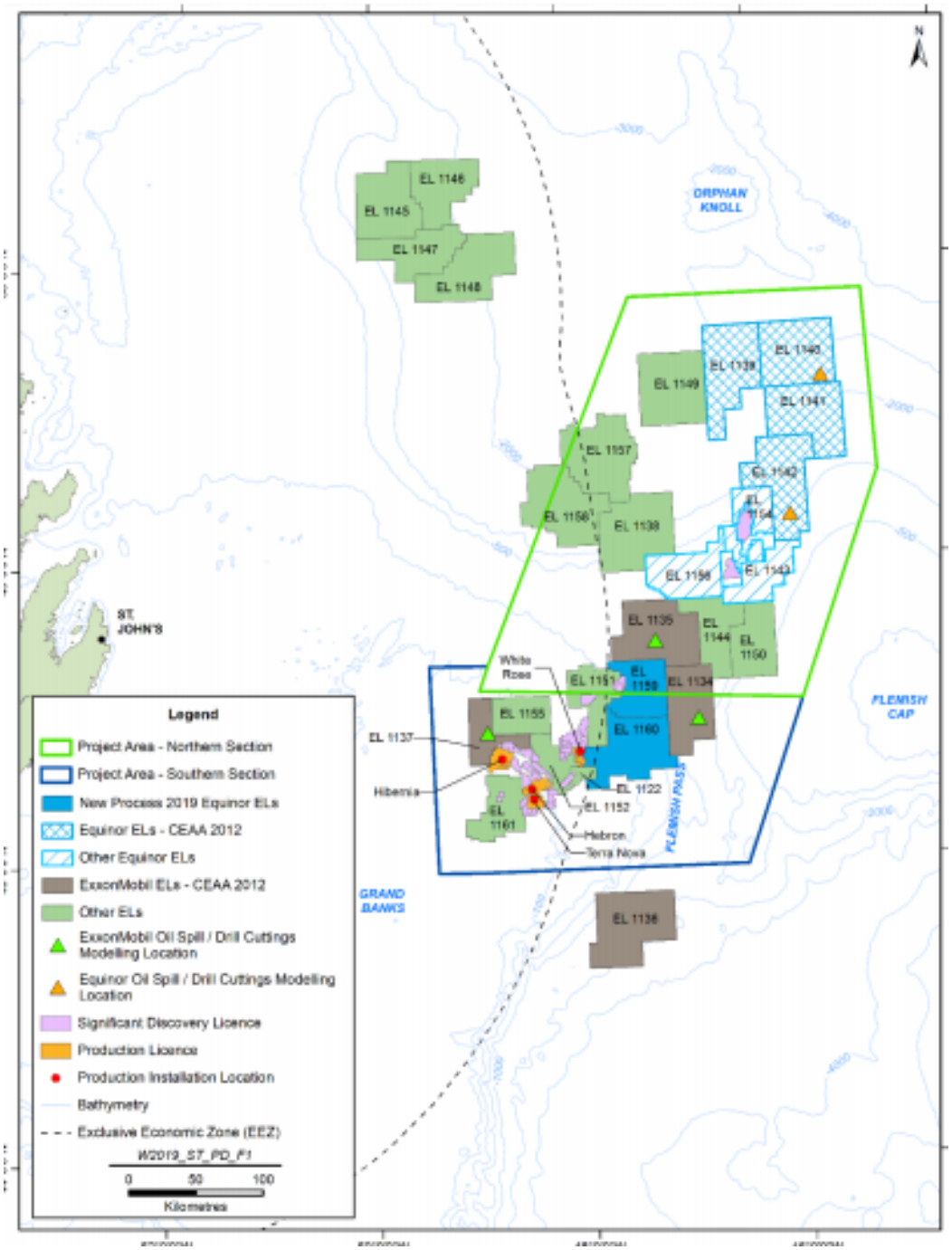

Figure 1. Location of Project Area

2.2 REGULATORY PROCESS

The Project will require a number of approvals and authorizations under applicable regulatory processes, as summarized in the following sections.

2.2.1 THE ACCORD ACT

As outlined on the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) website (C-NLOPB, n.d.), their role, under the Accord Acts, is to regulate oil and gas exploration and development in the Canada-NL Offshore Area, oversee compliance with regulatory requirements for worker safety, environmental protection and safety, conservation of the resource, land tenure, and Canada-NL benefits. These processes are administered under various legislation, regulations, guidelines, and memoranda of understanding.

2.2.2 LAND TENURE AND LICENSING

The Canada-NL Offshore Area, as defined in the Accord Acts, includes those lands within Canada's 200 nautical mile (NM) Exclusive Economic Zone or to the edge of the continental margin, whichever is greater. EL 1159 is located beyond Canada's EEZ on the outer continental shelf, while EL 1160 has portions within and beyond Canada's EEZ. Other activities, such as vessel traffic, will take place within the 200 NM EEZ. In addition, CEAA 2012 defines federal lands as including:

"(i) the internal waters of Canada, in any area of the sea not within a province, (ii) the territorial sea of Canada, in any area of the sea not within a province, (iii) the exclusive economic zone of Canada, and (iv) the continental shelf of *Canada*."

Therefore, pursuant to CEAA 2012, exploration drilling on ELs 1159 and 1160 will be carried out on federal lands.

2.2.3 ENVIRONMENTAL ASSESSMENT UNDER CEAA 2012

Schedule I of the Regulations Designating Physical Activities designates "*The drilling, testing and abandonment of offshore exploratory wells in the first drilling program in an area set out in one or more exploration licences issued in accordance with the Canada-Newfoundland and Labrador Atlantic Accord Implementation Act or the Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act*" as a designated project under CEAA 2012 (Central Ridge Exploration Drilling Program abridged EIS January, 2020).

2.2.4 OTHER POTENTIAL REGULATORY AND POLICY REQUIREMENTS AND INTERESTS

Federal and provincial government departments and agencies, which may have regulatory responsibilities, information, and advice regarding exploration drilling activities in the Project Area pursuant to their associated legislation and mandates include the following:

- Fisheries and Oceans Canada (DFO)

- Environment and Climate Change Canada (ECCC)
- Transport Canada
- Department of National Defence (DND)
- NL Department of Municipal Affairs and Environment
- NL Department of Fisheries and Land Resources
- NL Department of Natural Resources Legislation, and regulations thereunder, that may be relevant and subsequently required regulatory approvals include the following:
    - Accord Acts and its associated Regulations and Guidelines
    - Fisheries Act
    - Canadian Environmental Protection Act
    - Oceans Act
    - Canadian Navigable Waters Act
    - Canada Shipping Act, 2001
    - Migratory Birds Convention Act
    - Species at Risk Act (SARA)
    - NL Endangered Species Act (NL ESA)
    - NL Seabird Ecological Reserve Regulations

3.0 MI'GMAQ RIGHTS AND INTERESTS RELATIVE TO PROJECT INTERACTIONS

For this review, Mi'gmawe'l Tplu'taqnn Incorporated represents the rights and interests of eight of its nine member communities: Amlamgog (Fort Folly) First Nation, Natoaganeg (Eel Ground) First Nation, Oinpegitjoig (Pabineau) First Nation, Esgenoôpetitj (Burnt Church) First Nation, Tjipõgtõtjg (Buctouche) First Nation, L'nui Menikuk (Indian Island) First Nation, Ugpi'ganjig (Eel River Bar) First Nation and Metepenagiag Mi'kmaq Nation.

The Mi'gmaq are the Indigenous people (known to ourselves as L'Nu'g) whose traditional territory, known as Mi'gmaq'i, encompasses the lands and waters of what is currently known as Nova Scotia, Prince Edward Island, New Brunswick, southern and western Newfoundland, the Gaspe area of Quebec, Anticosti Island, the Magdalen Islands, and sections of the Northeastern United States (D. Simon, personal communication, December 14, 2018).

The Mi'gmaq have occupied, relied on, used, and been stewards of the lands and waters in Mi'gmaq'i since time immemorial. The Mi'gmaq entered into Peace and Friendship Treaties with the British Crown, which have been

renewed many times and form a covenant chain. These treaties are in the process of being implemented through a Mi'gmaq /New Brunswick/Canada Framework Agreement (Government of New Brunswick, 2011).

The Mi'gmaq have established Aboriginal and Treaty Rights to, amongst others, hunt, fish and gather from the lands and waters of their territory for food, social and ceremonial purposes, as well as to trade and to earn a moderate livelihood all of which have been upheld by the Supreme Court of Canada.

3.1 MI'GMAWE'L TPLU'TAQNN'S VISION FOR SUSTAINABLE DEVELOPMENT OF NATURAL RESOURCES

Natural Resources are an integral part of the Lands and Waters of the Mi'gmaq. The Vision for Sustainable Development of Natural Resources states:

Those Resources belong to Mother Earth. We may use them, but we are also their custodians. Natural Resources are not simply here for the taking, rather they must be managed carefully so as to provide benefits today while guaranteeing the rights and needs of generations yet to come. This requires truly sustainable development.

There are four pillars to sustainable development:

- Environmental Sustainability
- Social Sustainability
- Cultural Sustainability
- Economic Sustainability

Each pillar supports the others. They must be kept in balance. The Mi'gmag are committed to the cultural, spiritual and social importance of lands, waters and natural resources. Natural resource development must:

- Understand that lands, waters and natural resources are integral to the well-being of humanity and are not simply commodities to be exploited;
- Seriously take into account the short- and long-term ecological costs of natural resource extraction and see those costs as potentially debilitating debts;
- Honour the precautionary principle (in that lack of scientific certainty must not impede conservation efforts and must not enable irresponsible development);
- Guarantee that the benefits of natural resource development are shared equitably with those most in need;
- Protect the environment;
- Ensure biological diversity;

- Maintain ecological balance;
- Commit to the rehabilitation of habitat and species that have been damaged by current and past natural resource extraction practices; and
- Place the needs of future generations on at least an equal footing with the needs of our time.

This Vision, and the rights described above, were the primary guides to undertaking this review considering Mi'gmag's rights and interests. Also considered, in a more generic sense, are the primary effects of importance to the federal EA process that overlap with the MTI's rights and interests (as per Section 5(1)(c) of CEAA, 2012) are as follows:

Section 5. (1)(c*)- "with respect to Aboriginal peoples, an effect occurring in Canada of any change that may be caused to the environment on:*

i. health and socio-economic conditions;

ii. physical and cultural heritage;

iii. the current use of lands and resources for traditional purposes; or

iv. any structure, site or thing that is of historical, archaeological, paleontological or architectural significance."

The proposed activities within the geographic location of the Project's development area have the potential to impact Mi'gmag's rights to the lands and waters, especially in the Atlantic Ocean shorelines, which are used by some Mi'gmaq for land and water use and socio-economic purposes.

3.2 SUMMARY OF MI'GMAWE'L TPLU'TAQNN MEMBER COMMUNITIES' INDIGENOUS KNOWLEDGE, LAND USE AND OCCUPANCY IN THE PROJECT STUDY AREA

Although required to by the EIS Guidelines and despite receiving an Indigenous Knowledge (IK) Study from MTI, Equinor has not explicitly or directly integrated Mi'gmaq Indigenous Knowledge or Socio-Cultural-Economic Baseline Information, from MTI and MTI member communities, into their respective project's environmental assessment process to date. As such, the Crown's duty to consult, via integration of adequate and meaningful engagement, consultation, and accommodation with the Mi'gmaq in New Brunswick, has not been met.

4.0 REVIEW FINDINGS

The results of SVS's review of Equinor Canada's Central Ridge EIS are presented below, with a focus on key issues and concerns related to potential impacts on the marine environment, marine mammals, cumulative effects, accidents and malfunctions, and socio-economics and community well-being as they relate to the rights, values and interests of MTI First Nation communities.

4.1 MARINE FISH AND FISH HABITAT

4.1.1 EVALUATION & RECOMMENDATIONS

The following section describes issues identified by MTI in review of all marine environment related information provided within the Project's EIS and provides comment and recommendations to resolve the issues.

Comment 1: *EIS Section 7.3.1 - Concerns Expressed by Indigenous Groups:* The abridged EIS states that there are potential impacts of exploration drilling on Atlantic salmon populations that may migrate and overwinter in the Project Area. MTI have consistently established that these populations of Atlantic salmon are important as they return to their natal rivers and streams where they are harvested for food, social and ceremonial purposes. In addition, some of these populations are listed under the *SARA*, and in many cases, MTI and other Indigenous communities have refrained from harvesting due to ecological concerns. Equinor has acknowledged the importance of salmon to Indigenous groups in the Atlantic region. As such, Equinor has stated that they are providing funding to the Environmental Science Research Fund (ESRF) for environmental and social issues studies related to decision-making for oil and gas projects.

Recommendation 1a: The North Shore Micmac District Council has established the Anqotum Fisheries Resource Centre, which is an Aboriginal Aquatic Resources and Oceans Management Program. Anqotum has been formed to establish a permanent Indigenous presence in the Canadian fishing industry by developing a strategy focused on capacity building, combining resources, and strengthening relationships with all stakeholders. Anqotum has the knowledge, skills and expertise to develop and execute an Atlantic salmon research program specific to New Brunswick and salmon populations important to MTI. As an addition to the ESRF funding, the Proponent should work directly with MTI and Anqotum to ensure that a comprehensive Atlantic salmon research study is funded and executed. The Impact Assessment Agency of Canada ("the Agency") can require a follow-up program that includes research to fill the knowledge gaps identified in the project EA and satisfy MTI concerns regarding New Brunswick-Atlantic salmon impacts from the Project.

Recommendation 1b: Potential research projects that could be cooperatively carried out between the Proponent, MTI and Anqotum may include a tracking study of Atlantic salmon using tags on salmon leaving New Brunswick waters to determine if those populations in fact reach and migrate through the Project Area. Acoustic receivers could be installed on the drilling platforms to monitor for the occurrence of those salmon populations within the Project Area during drilling operations. The Agency can require a follow-up program that includes such a tracking study.

Comment 2: *EIS Section 7.3.1 - Concerns Expressed by Indigenous Groups:* MTI has consistently observed that EIS documents submitted to date have relied on existing data and studies, some of which are outdated. For example, the data on Atlantic salmon distribution that the EIS references within the Effects Assessment is considerably outdated, referring to data collected in the 1970s, '80s and '90s. Atlantic salmon distributions are likely to have changed and shifted due to a variety of environmental conditions. MTI, as well as many other Indigenous groups, have requested more original, updated and new baseline studies for all of the exploration projects. However, Equinor's response is that that they have collected baseline data such as corals, bathymetry, and geotechnical for the Bay du Nord project for which the assessment process commenced in 2018 and is ongoing. Further, the Proponent states that this example illustrates the lead time involved in acquiring relevant baseline data, as Bay du Nord is years away from construction; for the exploration projects planned for the near future that opportunity does not exist. However, pre-spud data (seabed surveys) was collected for a number of wells drilled in the area as part of our normal requirements for drilling exploration wells and will be collected for any future wells drilled on the area as indicated in the EIS. These data contribute to the dataset which will be available in the future for projects in the area.

Recommendation 2: In the context of the Central Ridge Project EIS, it is evident that the proponent is more concerned with the scheduling of the Project, than with understanding the full scope of environmental impacts. Consistent with the above recommendations, it is advised that updated salmon distribution studies should be carried out, in order to create a more reliable and relevant data set with which to analyze effects of the Project. See recommendations 1a and 1b.

Comment 3: *EIS Section 6.1.5 Finfish (Demersal and Pelagic Species):* Despite swordfish being included in the MTI IKLU studies provided to Equinor, swordfish is not listed in the existing biological environment of the Project Area. In addition, swordfish is described in the existing biological environment from the original Flemish Pass EIS but was not carried forward in the abridged EIS. Although expected in low abundance, the Flemish Pass EIS still acknowledges that swordfish may be found within the Project Area. Despite this, swordfish are not included in the Effects Assessment and thus the EIS has not included biological context or susceptibility assessment of swordfish to outside stressors or impacts. Swordfish are known to tolerate only small environmental changes and are likely to experience greater detrimental effects from offshore activities when compared to other species.

Recommendation 3: Considering the commercial and cultural importance of swordfish to MTI, a full assessment of environmental effects on swordfish should be provided within the effects assessment. This assessment should include the impacts of sound, light and spills as well as the biological thresholds and behaviour response from swordfish and be inclusive of Indigenous Knowledge from MTI knowledge holders.

Comment 4: The original Flemish Pass EIS acknowledges that presence of swordfish likely occurs within the Project Area during migratory seasons, although in low abundance. The original EIS goes on to discuss that during their northern migrations, the temperate species typically remain in areas under the influence of the Gulf Stream (Walli et al., 2009), and therefore would be expected to be at relatively low abundance in the Project Area. Although the EIS acknowledges the potential presence of swordfish, they have not been included in the list of species known to occur in the Project Area. In fact, they are also not included in the Exiting Biological Environment section of the EIS.

Recommendation 4a: Considering the cultural and commercial importance of swordfish to MTI, the species needs to be included in the list of species present in the Project Area, regardless of abundance or duration, as well as included explicitly in the Effects Assessment.

Recommendation 4b: The EIS should include MTI's Indigenous Knowledge around swordfish interactions with the Project Area, provided to Equinor, in the terms of reference for a focused Indigenous Knowledge Study with MTI knowledge holders and complete a more comprehensive assessment of swordfish in the Existing Biological Environment sections of the report.

Comment 5: *EIS Section 12.3 - Environmental Effects Assessment and Mitigation:* Throughout the regulatory review process of the Flemish Pass exploration project, MTI have consistently indicated that Atlantic salmon, swordfish, and bluefin tuna are species of interest. Despite raising the concern, the effects assessment is relatively quick to establish that there are no predicted significant adverse impacts of the Project on these species.

Recommendation 5: The EIS should include MTI's Indigenous Knowledge around bluefin tuna interactions with the Project Area in the terms of reference for a focused Indigenous Knowledge Study with MTI knowledge holders and complete a more comprehensive assessment of tuna in the Existing Biological Environment and Effects Assessment sections of the EIS.

4.2 MARINE MAMMALS & MIGRATORY BIRDS

4.2.1 EVALUATION & RECOMMENDATIONS

The following section describes issues identified by MTI in our scoped review of Marine Mammals and Migratory Birds provided within the EIS and provides comments and recommendations to resolve the issues.

Comment 6: *Section 10.3.2, Pg 383 of 522 – Summary of Key Mitigation; In Section 10.6 (p. 392)* of the EIS, Equinor states that trained marine mammal observers (MMOs) will be on board the Mobile Offshore Drilling Unit (MODU) during geophysical and VSP surveys to record marine mammal sightings during project operation. Equinor further states that a marine mammal (and sea turtle) monitoring plan will be submitted to the applicable regulators for review at least 30 days prior to the commencement of the first geophysical survey.

MTI is concerned that Equinor's approach to monitoring marine mammals (visual observations, using trained MMOs) during geophysical and VSP surveys is too minimal. Visual marine mammal surveys can be limited by a number of factors including daylight, weather and ocean conditions, the availability of suitable monitoring platforms in appropriate locations, and the timing of surveys (Baumgartner et al., 2019; Heenehan et al., 2016; Brillant et al., 2015). Additional or alternative approaches such as the use of passive acoustic monitoring (PAM) or unmanned aerial systems (UAS) offer additional opportunities to effectively monitor marine mammals In real-time, and under circumstances where MODU-based visual observation might be limited (e.g., the safety exclusion zone is too large to monitor from the MODU, during Inclement weather and sea conditions, etc.) (Baumgartner et al., 2019; Heenehan et al., 2016; Brillant et al., 2015; Koski et al., 2010).

The EIS does not include enough information on the marine mammal monitoring plan and overall efforts (e.g., protocols, equipment used, location of observation platforms, timing of monitoring, etc.) for MTI to complete a full review of Equinor's marine mammal monitoring efforts at this time. In addition to this, Equinor has committed to providing the appropriate regulator with a marine mammal monitoring plan for review but has not stated that they will provide this opportunity to affected Indigenous organizations, including MTI, or consult them in the development of this plan. Mi'gmaq citizens are familiar with these waters and can provide Indigenous Knowledge and insights regarding marine mammals.

Lastly, Equinor has not stated that they will consider training and hiring Mi'gmaq monitors to assist with the implementation of the marine mammal monitoring plan.

Recommendation 6a: Equinor should consider expanding its marine mammal monitoring efforts to include multiple tools and methodologies (e.g., visual observations paired with PAM, or UAS surveys paired with PAM, etc.). This would help maximize the overall effectiveness of marine mammal detection during times when singular approaches might be Ineffective (e.g., inclement weather, low visibility, seismic background, etc.).

Recommendation 6b: Equinor should consult MTI in the development of the marine mammal monitoring plan. MTI should also be given the opportunity to review and approve marine mammal monitoring plan 30 days prior to the commencement of the first geophysical survey, similar to other applicable regulators.

Recommendation 6c: Equinor should consider providing industry-standard job training and salaries for Mi'gmaq monitors to assist with marine mammal monitoring activities. This level of on-the-ground oversight would provide MTI with greater confidence that Equinor is taking all measures necessary to monitor for and protect marine mammals of cultural importance.

Comment 7: *Section 6.3 (p. 200 - 219) of the EIS* shows that several marine mammal species, including the endangered North Atlantic right whale, have been documented in the Project Area, LSA, and RSA. Due to their feeding behaviour, North Atlantic right whales are a slow-moving species and therefore especially vulnerable to vessel strikes (DFO, 2014). This threat is exacerbated by low visibility conditions and in the presence of fast-moving vessels (Vanderlann et al., 2007). While Equinor has acknowledged that project supply vessel traffic in the LSA and RSA may lead to an increased risk of vessel strikes with marine mammals, It is unclear to MTI whether any measures will be taken to prevent vessel strikes. Without measures in place to detect marine mammals and slow project vessels in their vicinity, it is unclear how Equinor will prevent this risk.

Recommendation 7a: Equinor should clarify whether it intends to implement marine mammal monitoring on project supply vessel transit. At a minimum, trained MMOs should be present on supply vessels and responsible for undertaking visual surveys while in transit. However, MTI encourages the use of multiple surveying methods (e.g., PAM and visual surveys) to maximize real-time detection probability.

Recommendation 7b: MTI recommends that Equinor voluntarily implement more conservative vessel speed restrictions, such as those required by Transport Canada in other areas of the north Atlantic (e.g., the Gulf of St. Lawrence) within the project RSA and LSA. Specifically, this consists of a general vessel speed limit restriction of 10 knots (maximum) and 7 knots within 500 metres of North Atlantic right whales (Transport Canada, 2019).

Comment 8: Table 10.1 Pp. 390 of 522 - Marine Mammals and Sea Turtle Species at Risk : Analysis of Potential Interactions and Effects; In EIS Table 10.1, Equinor concludes that North Atlantic right whales have a low potential occurrence in the Project Area and RSA and thus a low potential for interaction with the project. However, MTI Is unclear how Equinor made this conclusion considering there is a lack of systematic surveying effort in the Project Area, LSA, and RSA, and the growing uncertainty regarding this species' movement and use of habitat in north Atlantic waters (Vanderlann et al., 2007).

Baseline data on North Atlantic right whales relied on opportunistic observations and did not include the results of systematic surveying efforts, which tend to be concentrated around known critical foraging habitat (Brillant et al., 2015). Since 2010, there has been a noticeable shift in the distribution of North Atlantic right whales, particularly in their summer foraging range, which has created uncertainty regarding their use and occupancy of habitat in the north Atlantic (Brillant et al., 2015; Plourde et al., 2016; Davis et al., 2017; Meyer-Gutbrod & Greene, 2017). For example, approximately one-third of the North Atlantic right whale population is not observed in its traditional or known summering habitats, and in some years, they will abandon these areas altogether (Plourde et al., 2016). North Atlantic right whale movement Is largely based on the movement of its prey sources (e.g., *Calanus finmarchicus*), which will move to alternate locations based on a wide variety of ocean conditions (Davies et al. 2019).

Based on these considerations and the type of baseline data used in the effects assessment, MTI asserts that more data and analysis is needed before concluding that there is a low likelihood of North Atlantic Right Whale presence in the Project Area, LSA, and RSA.

Recommendation 8: The Proponent should enhance their baseline data on the endangered North Atlantic right whale. This could be done by undertaking primary systematic surveys for North Atlantic right whale s in the region or consulting with independent researchers who may have existing datasets. Alternatively, Equinor could undertake efforts to estimate the current and projected future abundance of *C. finmarchicus* in the Project Area to help determine whether or not this is or could become important foraging habitat throughout the duration of project operations (2020-2029). If it is not possible for the Proponent to enhance their baseline data specific to North Atlantic right whale s, more conservative monitoring and mitigation measures should be implemented to account for uncertainty surrounding their potential presence in the Project Area. More Information on MTI's expectations for monitoring and mitigation can be found in the comments below.

Comment 9: *EIS Section 9.3.2 - Summary of Key Mitigations*: Equinor states that they will “develop a seabird observation protocol applicable to exploration drilling activities in consultation with ECCC-Canadian Wildlife Service (CWS). Information outlined in the seabird observation protocol will be determined in consultation with ECCC-CWS, and aspects such as frequency of searches, reporting procedures, and training requirements will be included. Past Equinor Canada exploration drilling programs had a third party representative responsible for wildlife observation and reporting, which included birds. Equinor Canada intends on continuing with this practice for the exploration drilling program” (p. 360). Equinor does not mention consultation with Indigenous communities during the development of this seabird observation protocol or whether they will provide opportunities to engage Indigenous community members to participate in this program.

Recommendation 9a: Equinor should consult with MTI during the development of the seabird observation protocol to ensure that their IK is considered, and values are protected.

Recommendation 9b: Equinor should consider hiring MTI community members and providing them with industry-standard job training if needed. This provision of direct oversight opportunities will provide MTI with greater assurance that Equinor's seabird observation protocols are being implemented correctly to monitor impacts on seabird communities throughout Project operations.

Comment 10: *EIS Section 9.3.3 - Presence and Operation of Drilling Installation and Section 9.3.8 Supply and Servicing:* Equinor states that "predicted environmental effects associated with the presence and operation of the drilling installation are primarily related to lighting and emissions that may result in changes in mortality/injury levels, presence and abundance of avifauna, and food and habitat availability and quality" which includes "possible attraction of birds due to lighting" (pp.306-361). Supply and servicing activities for the Project can affect marine and migratory birds by "attraction/disorientation of bird due to lighting" (p. 364). Equinor explains that Leach's storm petrel (*Oceanodroma leucorhoa*) are especially vulnerable to the effects of lighting associated with the project and have a high potential to be found in the Project Area. Equinor states that the potential effects of the operation of the drilling installation and supply and servicing activities are predicted to be low in magnitude, localized, and regular in frequency. Equinor did not provide potential mitigation opportunities to reduce the impact of lighting associated with the presence and operation of the drilling installation on marine and migratory birds.

Recommendation 10: Equinor should provide mitigation options regarding lighting impacts on migratory and marine birds for both the MODUs and supply and servicing vessels, such as reducing light levels during susceptible life cycle periods (Miles W., 2010), using motion activated lights, using bird friendly light spectrum (Poot, 2008), and manipulating the light direction (Reed, 1985).

Comment 11: *EIS Section 9.3.5 - Formation Flow Testing with Flaring*: Equinor states that "environmental effects of formation flow testing with flaring are primarily related to attraction of birds to flares, which may result in changes in mortality / injury levels, and in presence and abundance of avifauna" (p. 362). Equinor further explains mass mortality events associated with flaring are most likely to occur on misty/foggy nights with low clouds during the migration season. Equinor does not provide any mitigation strategies to prevent mortalities should flaring occur.

Recommendation 11a: Equinor should provide mitigation options regarding the effects of flaring on marine and migratory birds (e.g., avoiding during weather conditions that could attract birds, operating water curtains around flares). Water curtains have been identified by Canadian Environmental Assessment Agency as key mitigation measures in other Environmental Assessments (Canadian Environmental Assessment Agency, 2018). Equinor Canada should where possible, avoid the use of flaring and use their alternative method of Formation Testing While Tripping, thus mitigating possible effects on marine and migratory birds.

Recommendation 11b: Equinor should notify ECCC-CWS before planning flaring activities, with sufficient time to be able to incorporate their suggestions (e.g., plan flaring outside of sensitive period for marine and migratory birds).

Comment 12: *Section 9.3.2 – Summary of Key Mitigations*: Equinor states that they "will avoid, where possible, established bird colonies. Helicopters will avoid known coastal seabird colonies per requirements of the NL Seabird Ecological Reserve Regulations, 2015" (p. 360). They do not specify avoidance of seabird colonies with regards to supply and servicing vessels.

Recommendation 12: Equinor should specify avoidance measures for the supply and servicing vessels (e.g., not operating a motorized boat within 100 m of a cliff with nesting birds during the breeding season) that meet the requirements of the NL Seabird Ecological Reserve Regulations, 2015.

4.3 CUMULATIVE EFFECTS

4.3.1 EVALUATION AND RECOMMENDATIONS

The following section describes issues identified by MTI in our scoped review of cumulative effects provided within the EIS and provides comments and recommendations to resolve the issues.

Comment 13: *Section 14.2 Marine Fish and Fish Habitat (including Species at Risk):* Drilling mud release in these areas have occurred at considerable volumes in recent years. Newfoundland has had 417 accidental spills totalling 434,993 L of hydrocarbons and synthetic-based drilling fluids between 1997 and 2009. Thousands of litres of synthetic drilling mud were spilled at the White Rose Project in September 2017. Husky Energy reported that a spill of about 5,000 litres of drilling mud from the GSF Grand Banks oil rig occurred during normal drilling operations. Other than a relatively dismissive and presumptive statement within the cumulative effects assessment of fish and fish habitat, the EIS fails to report on the cumulative extent of drilling mud release and its impact on MTI species of concern, namely Atlantic salmon, bluefin tuna and swordfish.

Recommendation 13: The Proponent claims these drilling releases are unlikely, but recent events seem to counter that sentiment. More detail and scrutiny should be given to the physiological and behavioural responses of these species to acute and chronic exposure to non-toxic drilling fluids from multiple projects. In the context of important MTI species including swordfish, Atlantic salmon and bluefin tuna, please provide an analysis of the cumulative effects of continuous drilling fluid release.

Comment 14: *Section 14.2 Marine Fish and Fish Habitat (Including Species at Risk):* The Eastern Newfoundland Offshore Area is subject to ongoing and planned offshore oil and gas exploration and production activities within and outside the Project Area. There are four existing production projects of large scale and long-term operation in this offshore area and have associated environmental emissions and interactions related to fish and fish habitat. Despite the relative proximity to existing and planned projects as well as the transient nature of water and oil, the EIS asserts that these projects and their environmental zones of influence are, for the most part, far away from those which may be associated with this Project.

Recommendation 14: The EIS should provide greater detail on the reasoning behind the statement that the environmental zones of influence are, for the most part, far away from those which may be associated with this Project. The term “far away” lacks a certain scientific or detailed analysis and seems to suggest that the Proponent is not considering the impacts with an objective lens. It would be helpful for mapping and modelling to incorporate all ongoing and proposed projects in a “worst-case scenario” exercise, so that MTI and other Indigenous groups may visualize the true worst-case extent of a combined catastrophe (regardless of likelihood), as opposed to relying on terminology such as “far away” .

Comment 15: *Section 14.2 Marine Fish and Fish Habitat (including Species at Risk): Concern* over potential cumulative environmental effects was raised by MTI in the EIS review due to the number of potential

projects that could occur into the future of the region. The Government of Canada is working with the Province of Newfoundland and Labrador and the C-NLOPB on a regional assessment for offshore exploratory drilling in the offshore area of eastern Newfoundland, which would aim to examine the effects of existing and anticipated offshore oil and gas exploratory drilling, including cumulative environmental effects. Although the Agency states that mitigation, follow-up and monitoring for this Project would contribute to the mitigation or monitoring of cumulative environmental effects, the fulsome cumulative impact of all projects is not yet known until the completion and review of the Regional Assessment.

Recommendation 15: The EIS must acknowledge that MTI must continue to be engaged and contribute to the regional assessment. Additional measures to mitigate the cumulative impacts have not been identified by the Agency, and MTI remains concerned and interested in contributing to cumulative impact analysis during the Regional Assessment process and the development of further mitigation measures specific to cumulative impacts.

4.4 SOCIO-ECONOMICS AND COMMUNITY WELL-BEING

The socio-economics and community well-being facet of this technical review focuses on consideration of New Brunswick Mi'gmaq Knowledge within the EIS; assessing risks to MTI's land and resource uses and socio-economic impacts on fisheries.

4.4.1 EVALUATION & RECOMMENDATIONS

The following section describes issues identified by MTI upon review of the socio-economics and community well-being related sections of Equinor's Central Ridge EIS and provides recommendations to address the issues raised.

Comment 16: In *Section 3, Table 3.8 Engagement with Indigenous Groups – New Brunswick*, Equinor states that they received an IK Study from MTI (on August 8, 2019). However, nowhere within the baseline information (Section 7) or effects assessment (Section 12) is there information from this Study, even in a summarized form.

Recommendation 16: Information from MTI's IK study needs to be considered and explicitly represented in the EIS's baseline sections to adequately inform the effects assessment.

Comment 17: In *Section 3, Table 3.8 Engagement with Indigenous Groups – New Brunswick*, Equinor states that MTI provided feedback on the Indigenous Fisheries Communications Plan. However, MTI merely received the Plan and has not yet provided feedback on it.

Recommendation 17: Engage with MTI to receive and integrate feedback into the Plan.

Comment 18: *In Section 4, Table 4.2 Summary of Potential Interactions on Valued Components*, "Indigenous communities and activities" are the only value component s (VCs) that are not marked as having potential interactions with any of the Project's components or activities. This dismisses the interconnectedness and interdependencies of the marine-related VCs with Indigenous communities and their associated rights-based activities.

Recommendation 18: Include the Indigenous Communities and Activities VC as interactive with all Project component and activities given the interconnected nature of the VC, associated effect mechanisms and implications on values related to Indigenous communities in terms of marine resource harvesting and related socio-economic aspects therein.

Comment 19: In *Section 7.3 Indigenous Communities and Activities, Table 7.2 Indigenous Groups in the Maritime Provinces and Quebec*, Equinor states that, for all New Brunswick First Nations groups, the following is this group's "Identified Interest": Asserted Aboriginal right to fish for food, social, and ceremonial purposes where that right could be affected by effects to the Atlantic salmon population(s) identified as endangered by COSEWIC. MTI, however, has indicated other interests and concerns through their submitted comments on the Flemish Pass EIS as well as within their IK Study such as potential impacts to swordfish and bluefin tuna and associated fisheries.

Recommendation 19: This table, and the EIS in general, needs to clearly articulate all other interests and concerns that MTI has communicated to proponents through previous submissions and within the IK Study.

Comment 20: In *Section 7.3.1 Concerns Expressed by Indigenous Groups*, Equinor includes the issue of compensation as being an interest to Indigenous Groups. Equinor states that they are committed "to abiding to the C-NLOPB guidelines in place for loss or damage to fishing gear and vessels, or in the case of an emergency". In addition, Equinor states that they "would consider any damages to Aboriginal fishing activity resulting from an environmental impact on a case-by-case basis and in consultation with Indigenous groups." This latter part remains somewhat vague.

Recommendation 20: This statement needs to be incorporated into a binding agreement with MTI and connected to ongoing environmental monitoring of potential impacts over the course of operations.

Comment 21: In *Section 7.3.1 Concerns Expressed by Indigenous Groups*, Equinor includes environmental monitoring as being an interest of Indigenous Groups. As an Action/Mitigation to address this, Equinor states that "during operations, Equinor will share the results of environmental monitoring with Indigenous groups through monthly operational updates. At the conclusion of exploration drilling, and once results are available, Equinor will share final environmental monitoring results with Indigenous groups." Being informed retroactively of monitoring results is insufficient.

Recommendation 21: MTI requires direct involvement in environmental monitoring planning and implementation of such plans, not just receipt of results.

Comment 22: In the reference section for *Section 7 Existing Human Environment*, all references regarding Indigenous groups are to the respective First Nations' websites and Statistics Canada. There is no reference listed for MTI's IK Study, which the EIS states in an earlier section (Section 3) that the Proponent received.

Recommendation 22: Explicitly incorporate IK information received from MTI into this baseline section as appropriate and within the bounds of confidentiality parameters established between MTI and Equinor.

Comment 23: In *Section 12.3 Environmental Effects Assessment and Mitigation*, the description and intention of Equinor's proposed Indigenous Communities Fisheries Communication is positive. However the reference stating "if monitoring is undertaken and once monitoring is undertaken and once environmental monitoring data is available, Equinor Canada commits to meet with interested Indigenous groups to share

and discuss the results of environmental monitoring programs" signifies a lack of commitment to monitoring, and a retroactive reporting approach, when what MTI is requiring is direct involvement in monitoring, planning and implementation in order to provide proactive input into the program in addition to ongoing involvement**.**

Recommendation 23: A clear and explicit commitment is needed as a mitigation measure for MTI's direct involvement in monitoring, including plan design and implementation.

Comment 24: In *Section 12.5 Environmental Monitoring and Follow-up*, there is no indication of meaningful involvement or input into the Indigenous Communities Fisheries Communication Plan nor indication that involvement in reviewing environmental plans and providing input will be made possible.

Recommendation 24: Engage MTI on the Indigenous Communities Fisheries Communication Plan and establish processes for MTI's involvement in monitoring plan development and implementation.

4.5 ACCIDENTS AND MALFUNCTIONS

4.5.1 EVALUATION & RECOMMENDATIONS

The following section describes issues identified by MTI in review of Accident and Malfunction related information provided within the EIS and provides comment and recommendation to resolve the issues.

Comment 25: *EIS Section 7.3.1 - Concerns Expressed by Indigenous Groups:* MTI has continuously highlighted concerns of spill response, including concerns about oil reaching the shoreline, impacting fisheries and Mi'gmaq territory. Equinor has stated that to ensure Indigenous groups are informed of operational activity during exploratory drilling, Equinor, has developed an Indigenous Fisheries Communications Plan in consultation with MTI that also includes a protocol for communicating with Indigenous groups in the event of an emergency.

Recommendation 25: MTI feels that the representation of the level of involvement and communication is misleading. To date, the most feedback opportunity MTI was given was been requested which MTI staff should be included on the distribution list for the plan. MTI provided contact information, but no more feedback opportunity was provided beyond that. Further, from MTI's perspective, if that was the feedback opportunity, it was not clearly stated as such. Equinor needs to fully engage with MTI in a more comprehensive and meaningful way in the development and execution of the Fisheries Communication Plan. Equinor should liaise directly with Anquotum representatives regarding the development of the plan.

Comment 26: *EIS Section 7.3.1 - Concerns Expressed by Indigenous Groups:* MTI remains concerned about impacts from operations and potential incidents and spills that may result in adverse environmental effects on Mi'gmaq, commercial and communal fisheries. Specifically, MTI has consistently raised concern about behavioural impacts on Atlantic salmon, swordfish and bluefin tuna, like the impact of operations such as underwater noise, light, vibration and changes to water quality. However, Equinor's response is only to highlight a commitment to update Indigenous groups with information regarding environmental monitoring related to operations, which is meant as a communication protocol to inform Indigenous groups in the event of an emergency.

Recommendation 26: In the context of species important to MTI, including swordfish, Atlantic salmon and bluefin tuna, please provide an analysis of the cumulative effects of continuous drilling fluid release. More detail and scrutiny should be given to the physiological and behavioural responses of these species to acute and chronic exposure to non-toxic drilling fluids from multiple projects.

Comment 27: *EIS Section 7.3.1 - Concerns Expressed by Indigenous Groups:* MTI has also asked for comprehensive monitoring and follow-up programs, including research and data collection related to species and habitats of cultural importance for fish and fish habitat, and birds and marine mammals. MTI has also stated that they would like to be intimately involved in a meaningful way with environmental monitoring. However, Equinor's only commitment to the involvement of MTI and other Indigenous groups is merely to share the results of environmental monitoring with Indigenous groups through monthly operational updates, at the conclusion of exploration drilling, and once results are available.

Recommendation 27: Equinor must expand their involvement with Indigenous groups in carrying out ongoing monitoring of the Project and beyond. Meaningful participation by MTI in the development and deployment of the environmental monitoring of the project must be considered. In addition, beyond communication and sharing of information, the Proponent should provide the necessary training and capacity building both for monitoring personnel and for the entirety of the Indigenous communities to meaningfully participate and contribute to the environmental monitoring of the Project.

5.0 SUMMARY AND RECOMMENDATIONS

This independent review of Equinor's abridged EIS for the proposed Central Ridge Exploration Drilling Project focuses on areas integral to Mi’gmaq rights and interests. With this lens, the review strategically assesses potential Project interactions with the environment that may result in risks to MTI’s rights and interests, as described in Section 4.0 of this report.

The review documents issues relevant to MTI, and provides 27 recommendations for accommodations that appropriately consider and include Mi’gmaq Indigenous Knowledge that MTI has provided to Equinor, in addition to potential effects on Mi’gmaq First Nations rights and interests. In particular, the review provides recommendations for accommodations related to the Mi’gmaq Indigenous fishery, accommodations to deal with insufficient information to support mitigation and effects assessment results, and accommodations related to insufficient environmental protection planning and follow-up program involvement for MTI.

The Proponent has not integrated Mi’gmaq comprehensive Indigenous Knowledge or Socio-Cultural-Economic Baseline Information into their respective projects' Environmental Assessment processes to date. As a result, the Crown’s duty to consult, via integration of adequate and meaningful engagement, consultation, and accommodation with the Mi’gmaq in New Brunswick, has not been met.

MTI puts forward the following additional accommodations as potential means of addressing the issues and comments raised in this review of the abridged EIS for the proposed Central Ridge Exploration Drilling Project:

1. The Project EIS; its baseline, EA, mitigation, monitoring and monitoring plans need to accurately reflect consideration of MTI's Indigenous Knowledge Study that was submitted to the Proponent in August 2019

2. The Agency and/or the Proponents should engage MTI and Anqotum Fisheries Resource Centre in designing and conducting a focused Atlantic salmon research project that seeks to fill data gaps related to Atlantic salmon use and existence in the Project Area.

3. Establish a forum and process where MTI can meet with Equinor Canada Ltd. and Canada whereby issues and follow-up program decision-making regarding the Project can be brought forward, discussed, and addressed throughout the life of the Project (including the provision of capacity funding to MTI to support and participate in an equal capacity in this process).

4. Equinor Canada Ltd. and the Crown must engage in direct, meaningful consultation with all Mi'gmaq First Nations of New Brunswick to ensure that its legitimate concerns are understood and reflected throughout the life of the Project, including the EA and all follow-up monitoring programs.

    a. A plan for enhanced and ongoing engagement and consultation with MTI and its member communities for exploration activities, construction and operations of the project must be developed. An annual report should also be submitted to MTI which summarizes the implementation and results of all consultation and engagement activities.

5. MTI, the Crown and the Proponent should develop agreements to support MTI and MTI member communities' participation in environmental, socio-economic and cultural monitoring of drilling and associated activities throughout the life of the Project. This may also require:

    a. Training, involvement, employment of Mi'gmaq First Nations of New Brunswick environmental and cultural monitors for all Project phases.

    b. Involvement in emergency preparedness planning and appropriate notifications and consultations in the event of a significant accident or malfunction.

We also recommend that issues related to key concerns expressed by MTI in this report be the focus of subsequent meetings with the Proponents and Crown agencies, and in subsequent Regional Environmental Assessment Reporting, should the Project proceed.

6.0 REFERENCES

Baumgartner, M. F., Bonnell, J., Van Parijs, S. M., Corkeron, P. J., Hotchkin, C., Ball, K.,& Pietro, J. (2019). Persistent near real-time passive acoustic monitoring for baleen whales from a moored buoy: system description and evaluation. *Methods in Ecology and Evolution*. https://doi.org/10.1111/2041-210X.13244

Brillant S.W., Vanderlaan A.S.M., Rangeley R.W., Taggart C.T. (2015). Quantitative estimates of the movement and distribution of North Atlantic Right Whales along the Northeast coast of North America. *Endangerd Species Research*, 27, 141-154.

C-NLOPB (Canada-Newfoundland and Labrador Offshore Petroleum Board). No date. Mandate. https://www.cnlopb.ca/about/mandate/

Crown-Indigenous Relations and Northern Affairs Canada. (2019). Negotiations in Atlantic Canada. Retrieved from: https://www.rcaanc-cirnac.gc.ca/eng/1100100028583/1529409875394

Davis, G. E., Baumgartner, M. F., Bonnell, J. M., Bell, J., Berchok, C., Thornton, J. B., & Clark, C. W. (2017). Long-term passive acoustic recordings track the changing distribution of North Atlantic right whales (Eubalaena glacialis) from 2004 to 2014. *Scientific reports*, *7*(1), 1-12.

Davies K.T.A., Brown M.W., Hamilton P.K, Knowlton A. R., Taggart C.T., Vanderlaan A.S.M. (2019). Variation in North Atlantic Right Whale *Eubalaena glacialis* occurrence in the Bay of Fundy, Canada over three decades. *Endangered species Research.* 39, 159-171

Department of Fisheries and Oceans Canada (DFO). (2014). Recovery Strategy for the North Atlantic Right Whale (Eubalaena glacialis) in Atlantic Canadian Waters [Final]. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa. vii + 68 pp.

Hazel, J., Lawler, I.R., Marsh, H., Robson, S. (2007). Vessel Speed increases collision risk for the green sea turtle *Chelonia mydas*. *Endangered Species Research*. 3, 105-113.

Heenehan, H. L., Tyne, J. A., Bejder, L., Van Parijs, S. M., & Johnston, D. W. (2016). Passive acoustic monitoring of coastally associated Hawaiian spinner dolphins, Stenella longirostris, ground-truthed through visual surveys. *The Journal of the Acoustical Society of America*, *140*(1), 206-215.

Koski, W. R., Abgrall, P., & Yazvenko, S. B. (2010). An inventory and evaluation of unmanned aerial systems for offshore surveys of marine mammals. *J. Cetacean Res. Manage*, *11*(3), 239-247.

Meyer-Gutbrod, E. L., & Greene, C. H. (2018). Uncertain recovery of the North Atlantic right whale in a changing ocean. *Global change biology*, *24*(1), 455-464.

Meyer-Gutbrod, E. L., Greene, C. H., & Davies, K. T. (2018). Marine Species Range Shifts Necessitate Advanced Policy Planning: THE CASE OF THE NORTH ATLANTIC RIGHT WHALE. *Oceanography*, *31*(2), 19-23.

Miles W., S. M. (2010). Effects of artificial lights and moonlight on petrels at St Kilda. *Bird Study*, 244-251.

Poot, H. B. (2008). Green Light for Nocturnally Migrating Birds. *Ecology and Society*.

Reed, J. J. (1985). Light Attraction in Endangered Procellariiform Birds: Reduction by Shielding Upward Radiation. *The Auk*.

Moses, E., & Finn, J. T. (1997). Using geographic information systems to predict North Atlantic right whale (Eubalaena glacialis) habitat. *J. Northwest Atl. Fish. Sci.*, *22*, 37-46.

Plourde, S., Lesage, V., Gosselin, J., Johnson, C., & Brown, M., and J. Goldbogen. (2016). A Spatial Climatology of Calanus Species Biomass and New Potential Feeding Habitats of NARW on the Eastern Scotian Shelf and in the Gulf of St. Lawrence (Canada). NARWC Annual Meeting, New Bedford, 2-3 November 2016.

Schick R.S., Kraus S.D., Rolland R.M., Knowlton A.R., Hamilton P.K., Peltis H.M., Kenney R.D., Clark J.S. (2013). Using Hierarchical Bayes to Understand Movement, Health and Survival In the Endangered North Atlantic Right Whale. *PLoS One.* 8(6):e64166

Transport Canada. (2019, December 10). Protecting North Atlantic right whales from collisions with ships in the Gulf of St. Lawrence. Retrieved February 10, 2020, from https://www.tc.gc.ca/en/services/marine/navigation-marine-conditions/protecting-north-atlantic-right-whales-collisions-ships-gulf-st-lawrence.html

Vanderlaan, A.S., Taggart, C.T. (2007). Vessel Collisions with Whales: The probability of lethal injury based on vessel speed. *Marine Mammal Science*.. 23(1):144-15

Walli, A., Teo, S. L., Boustany, A., Farwell, C. J., Williams, T., Dewar, H., Prince, E., and B.A. Block. (2009). Seasonal movements, aggregations and diving behavior of Atlantic bluefin tuna (Thunnus thynnus) revealed with archival tags. PLoS One, 4(7), e61