

1. C-NLOPB Comment:

Please confirm, in light of StatoilHydro Canada Ltd. having obtained reservoir crude samples, that the results of the “Hypothetical Spill Trajectory Probabilities from the StatoilHydro 2008 Mizzen Drilling Program” (S.L. Ross Environmental Research Ltd. Ottawa, ON January 2008) are still valid.

Statoil Response:

Statoil reviewed the spill trajectory modelling report undertaken in support of the 2008 environmental assessment. The crude type used in in 2008 spill trajectory modelling was Hibernia crude. The Hibernia crude characteristics were compared with the crude characteristics from the Flemish Pass area obtained in 2015 to determine if the 2008 oil drift modelling results would remain valid. Results of the comparison concluded that both crude oils would behave similarly in a spill event. Any differences in mass balance, lifetime on sea surface and emulsion properties would not significantly alter the results of the 2008 spill trajectory modelling.

Key parameters of crude oils that should be considered in spill trajectory modelling studies include wax content, asphaltene content, viscosity, pour point, density and true boiling point curve. Each of these parameters was used in the comparison of the two crude types and showed that there is not a significant difference between the two crudes in terms of spill trajectory modelling. Both crude oils can be classified as medium density oils, with high pour point and moderate viscosity. Both oils have a high wax content and low asphaltene content.

Predictions for mass balance up to 5 days after a spill occurs in summer and winter conditions, both for Hibernia and crude from the Flemish Pass area are comparable. For both oil types, kinetics of evaporation and natural dispersion and relative proportion of the two processes are very comparable over time. Both oils are expected to produce emulsion with similar water content, both with high viscosities although the accuracy of the predicted viscosity is more uncertain due to the challenges described above. In conclusion, the mass balance for Hibernia crude and crude from the Flemish Pass are expected to be comparable. Therefore, using crude oil from Flemish Pass area as a reference oil, it is not expected to result in a significant change in the output of the oil drift simulation. The results in “Hypothetical Spill Trajectory Probabilities from the StatoilHydro 2008 Mizzen Drilling Program” remain valid.

2. Department of National Defence (DND) Comment:

- Please identify a specific individual or office to serve as a Point of Contact (POC) for MARLANT queries and concerns
- Please ensure the appropriate Notice to Mariners will be issued for all underwater activities and any significant surface ventures, such as use of flares, buoys, and unconventional lighting;
- Please ensure the appropriate Notice to Airmen will be issued for all activities that could affect air safety, such as use of balloons, Unmanned Aerial Vehicles (UAVs) or tethered airborne devices; and
- Please ensure engagement of CTF 84, through Director General Naval Strategic Readiness (DGNSR), to ensure de-confliction with possible Allied submarine activities.

Statoil Response:

Bullet 1: All queries can be addressed to Ms. Stephanie Curran, Regulatory Lead, Statoil Canada Ltd. 2 Steers Cove, Cormack Building, St. John's NL A1C 6H5. 709-726-9091.

Bullet 2: Statoil will issue a Notice to Shipping upon commencement of any planned activities.

Bullet 3 – Statoil does not currently have any of the activities listed here planned as part of a drilling program. Should any of these activities be undertaken, Statoil will issue an appropriate Notice to Airmen.

Bullet 4 - Statoil does not currently have any geophysical activities planned in association with drilling activities. If geophysical activities are to be undertaken, Statoil will consult with the Director General Naval Strategic Readiness to determine if there are any planned conflicts between allied submarine activities and Statoil geophysical operations.

3. Fisheries and Oceans Canada Comment:

Section 1.2 Proposed Project modifications (page 5) Section 2.2 Planned Activities for 2016 (page 8) and Section 2.3.2 Increased Number of Wells (page 10) – Further to comments provided on January 15, 2015 arising from review of the Statoil EA Update for 2016 the proponent should indicate the probable drilling / well locations planned for 2016 – 2019 especially whether or not any such wells will be located within or near any of the NAFO Vulnerable Marine Ecosystem (VME) areas or other sensitive marine areas depicted in Appendix A – Figure 1..

Statoil Response:

The specifics of a drilling program for 2017, or subsequent years cannot be provided as a drilling program has not been planned. However, when locations are decided, per C-NLOPB requirements, pre-spud video surveys are undertaken to determine if the well location falls within 100 m of a *Lophelia pertusa* complex. In the event there are *L. pertusa* within 100 m of the well site, the well location will be moved. These pre-spud video surveys are always undertaken irrespective of the wellsite proximity to a VME or other sensitive marine area.

4. Fisheries and Oceans Canada Comment:

Section 2.3.4 Well Decommissioning (Page 12) – based on the proposed well head decommissioning plan information should be provided (either now or in subsequent EA annual updates) on the location and number of well heads that will fall into each of the three categories noted - i.e. water depths less than 500 m, depth between 500 and 1500 m and depths greater than 1500 m.

Statoil Response:

Once drilling location are known, Statoil can provide the information in annual updates regarding the number of wells within each of the categories, as identified above. Well heads were removed in 2016 and the following table provides information on the results of the wellhead decommissioning campaign.

Well Name	Latitude	Longitude	Casing Stump Stickup	Date Wellhead Cut
Bay d'Espoir B-09	47° 58' 09.8601" N	46° 30' 19.8867" W	200 mm	23-Jul-16
Bay du Nord L-76z	47° 55' 43.9403" N	46° 26' 42.6303" W	50 mm	25-Jul-16
Bay de Loup M-62	47° 51' 48.6828" N	46° 25' 19.5067" W	450 mm	28-Jul-16
Statoil et al. Harpoon O-85	48° 4' 52.00" N	46° 12' 18.66" W	650 mm	30-Jul-16

5. Fisheries and Oceans Canada Comment:

Section 3.5 Species at Risk - Table 3 (page 18) – with respect to Atlantic salmon the population assessed as threatened by COSEWIC is the south Newfoundland population rather than the “Newfoundland Population”. This element of Table 3 should be amended accordingly

Statoil Response:

The table has been amended accordingly.

6. Fisheries and Oceans Canada Comment:

Section 4.1 Focus and Findings of the Original Environmental Assessment (page 20) – this section should provide; a summary description of VMEs and sensitive marine areas within the project area, an indication whether drilling activities have / or will occur within or near such areas, and mitigation measures that will be implemented to protect such areas.

Statoil Response:

The following text has is included under Section 3.6 Sensitive and Special Areas in the EA Amendment. The references, cited below, have been included in the reference section of the EA Amendment.

Section 3.6 Sensitive and Special Areas

The Northwest Atlantic Fisheries Organization (NAFO) has established various Fishing Closure Areas (FCAs) within Vulnerable Marine Ecosystems (VMEs) to help conserve ocean bottom (benthic) species, habitats and biodiversity from the effects of bottom fishing. Within the Exclusive Economic Zone (EEZ) of Canada, DFO manages NAFO FCAs through the Fisheries Act by restricting one or more types of bottom contact fishing gear. Outside of Canadian jurisdiction, DFO is responsible for the fishing activities of the Canadian fleet within the NAFO regulatory area and other fishing vessels are administered by their respective country or flag state (FAO 2016). Portions of NAFO Closure Areas (current to 2015) located in the Flemish Cap and Sackville Spur areas are located within the Project Area (Figure 3). These high coral concentration areas closed to all bottom fishing activities until December 31, 2020 (NAFO 2015, 2016, 2016a).

DFO identifies Ecologically and Biologically Significant Areas (EBSAs) to provide a focus on areas of particularly high ecological or biological significance for the purpose of providing a greater level of concern in management of activities in these areas (DFO 2005). DFO has identified 11 EBSAs within the Placentia Bay/Grand Bank (PB/GB) Large Ocean Management Area (LOMA) and 15 EBSAs in the Newfoundland and Labrador Shelves Bioregion outside of the PB/GB LOMA (DFO 2013).

The Northeast Shelf and Slope EBSA is located partially within the Project Area. The Virgin Rocks and Orphan Spur EBSAs are located in nearby waters. These EBSAs are summarized in Table 4 in terms of their general importance. The biological and ecological features of these areas and rationale for identification. The EBSAs are illustrated based on the available data, which may be refined in 2017.

Currently, there are no known Marine Protected Areas within the vicinity of the Project. However, nationally DFO is increasing the number of Marine Protected Areas. This initiative includes the marine waters off Newfoundland and Labrador. Figure 3 highlights the special areas discussed above that are within and adjacent to the Project Area.

Table 4 Designated Ecologically and Biologically Significant Areas Within 150 km Radius of the Project Area

EBSA	Purpose / Rationale
The Southeast Shoal and Tail of the Banks	<ul style="list-style-type: none"> • Only sandy offshore shoal in the Placentia Bay-Grand Banks Large Ocean Management Area • Only known offshore spawning site for capelin • Single nursery area of entire yellowtail flounder stock • Contains highest benthic biomass on the Grand Banks • Contains relict populations of blue mussel, wedge clam, and capelin associated with beach habitat

The Northeast Shelf and Slope	<ul style="list-style-type: none"> • Contains two important coral areas at Tobin's Point and Funk Island Spur (CPAWS 2009) • Spring aggregation of spotted wolffish • High spring concentrations of Greenland halibut and marine mammals such as harp seal and pilot whales
Lily Canyon-Carson Canyon	<ul style="list-style-type: none"> • High proportion of Iceland scallop known to occur • Year-round aggregations of marine mammals for feeding and overwintering (CPAWS 2009)
The Virgin Rocks	<ul style="list-style-type: none"> • Known to attract aggregations of capelin and marine birds • Support for breeding of Atlantic cod, American plaice, and yellowtail flounder

For drilling activities, the C-NLOPB requires mitigation be put in place to reduce potential effects on sensitive marine organisms (e.g., corals). Prior to spudding a well in waters where there is a potential for corals, the C-NLOPB requires a pre-spud survey be conducted at a wellsite and the final spud location be set back 100 m from any coral colonies (defined as either a *Lophelia pertusa* reef complex or five or more corals larger than 30 cm in height or width).

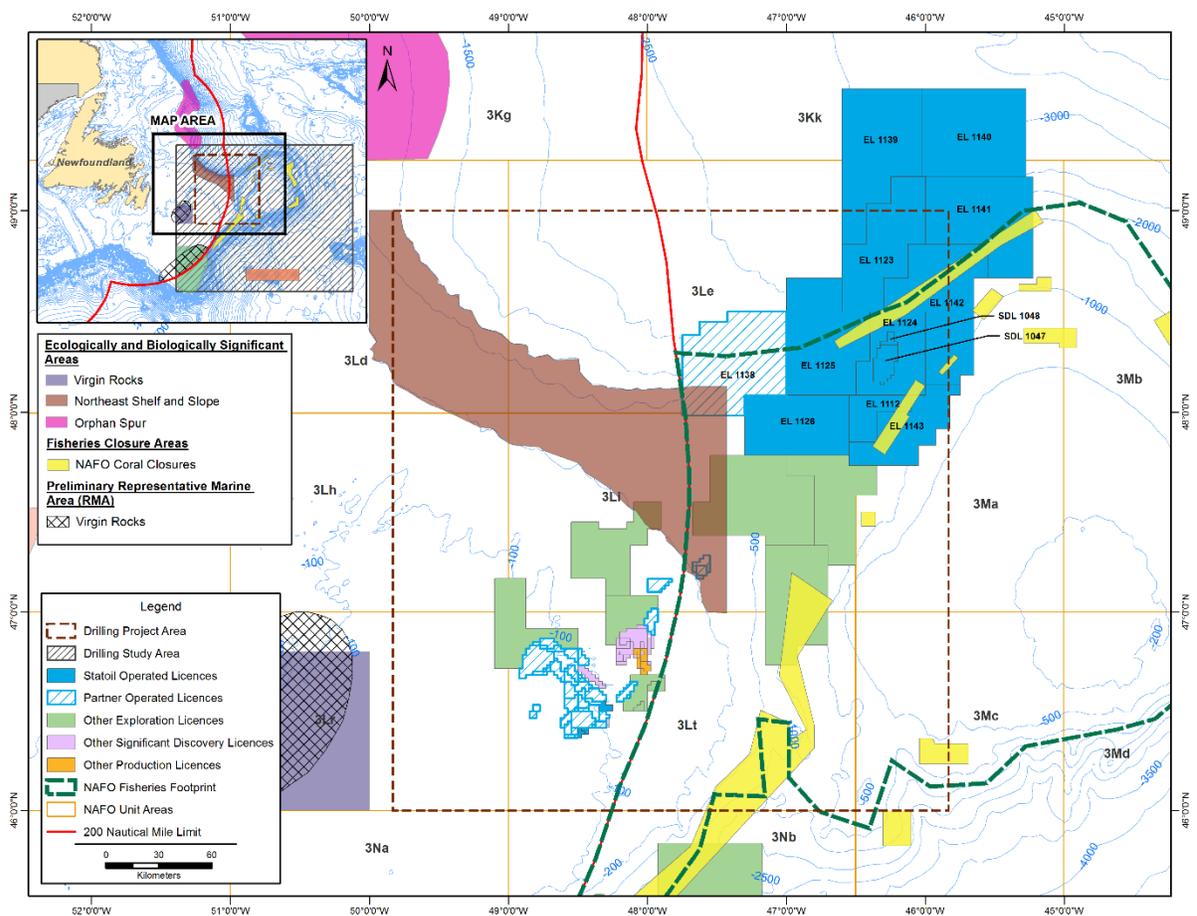


Figure 3: Location of Special/Sensitive Areas in Relation to Project Area

7. **Fisheries and Oceans Canada Comment:**

Section 4.1 Focus and Findings of the Original Environmental Assessment (page 20) – 2nd bullet Last paragraph indicates that project mitigation procedures include “pre and post drilling ROV surveys” it should be noted what the results of such surveys have been, and whether they provide information to

validate impact predictions made within the original EA and the assessment of effects relative to the expansion of drilling activity by Statoil presented within the 2016 EA Amendment.

Statoil Response:

Pre-spud ROV video surveys are undertaken to determine if there are any visible hazards to drilling at the drill site and to determine whether corals, specifically *Lophelia pertusa* are present in proximity to the wellsite. Post RoV surveys are undertaken to determine if any debris remains at the wellsite and to inspect the wellhead before the drilling unit leaves the location, if the wellhead is not removed at that time. In terms of the mitigations identified, it is primarily for the pre-spud video survey to determine presence of corals and if the well site should be moved as a mitigation to reduce potential effects on corals. Because they are used to determine presence-absence of corals, the data is not particularly useful to validate impact predictions. However, the data can be used in subsequent environmental assessments to provide more information on the location of corals in the area.

8. Fisheries and Oceans Canada Comment:

Section 4.2.2 Increased Number of Wells (page 22) – the first sentence of this section which notes “...a total of 15 well having been drilled as of the end of 2015...” is somewhat at odds with information presented in Section 2.1 that “.17 wells have been drilled as of the end of the 1st quarter of 2016...”

Statoil Response:

The Statements regarding the number of wells drilled are correct, but can be misleading. At the end of 2015 15 wells were drilled, however by the end of the first quarter 2016, an additional 2 wells were drilled bringing the total number of wells drilled to 17.

9. Environment and Climate Change Canada (ECCC):

Please be advised that Environment and Climate Change Canada has reviewed the proposed amendment and has no objection to it. However please note the following:

- We have reviewed the information provided with a focus on the regulatory requirements of the Disposal at Sea provisions of the Canadian Environmental Protection Act (CEPA) particularly sub-section 122(1) which defines at-sea disposal AND the activities which are exempt. It is our opinion that the activity will not require a permit as it is exempt under Section 122(1) (j) and is considered “the abandonment of any matter, such as a cable, pipeline or research device, placed on the seabed, or in the subsoil of the seabed, for a purpose other than its mere disposal.
- Any changes in the project description may result in the possible need for a Disposal at Sea (DAS) permit. It is recommended that Marine Programs staff be notified of any changes in the methodology. For further information on the DAS requirements and permitting process (including timelines), the proponent should contact Natasha Boyd at (709) 772-2161 or natasha.boyd@canada.ca.
- All our previous comments remain as stated during the EA of this project.

Statoil Response:

Statoil notes the comments provided and will contact ECCC should there be change in the project that could warrant a DAS permit.

10 Addition to Scope of Project

Upon further review of the original 2008 EA and subsequent amendments and updates, the environmental assessment did not include environmental surveys within the scope of the assessment. We have added the following text to the EA amendment (see Section 2.3.5) to include environmental surveys as part of the scope of project. Section 4.2.5 of the EA Amendment provides an assessment of

potential environmental impacts associated with this activity; it is predicted that there are no significant effects.

Environmental surveys are conducted to collect physical, chemical and/or biological data to characterize environmental conditions at the site. They may involve collection of data on ice and icebergs, weather, sediments, water or biota. Methods of data collection include direct observation, onsite weather station, water, core or surficial sediment sample collection and/or biota collection. All data collection would occur from vessels associated with the drilling program. Sampling would be undertaken opportunistically as required over the life of the project.