Husky Exploration Drilling Project: Environmental Impact Statement

Prepared for:
Husky Energy

Prepared by:
Stantec Consulting Ltd.
141 Kelsey Drive
St. John's, NL A1B 0L2
Tel: (709) 576-1458
Fax: (709) 576-2126

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REVISED REPORT IN RESPONSE TO CEA AGENCY CONFORMITY REVIEW

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Executive Summary

Husky Oil Operations Limited (Husky) proposes to conduct exploration drilling activities within the area of its existing offshore exploration licences (ELs) on the Grand Banks, including two ELs acquired during the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) 2016 Call for Bids and one EL acquired during the C-NLOPB 2017 Call for Bids. These ELs are located approximately 350 km east of St. John's, Newfoundland and Labrador, in the Northwest Atlantic Ocean. This document is an Environmental Impact Statement (EIS) submitted to the Canadian Environmental Assessment Agency (CEA Agency) to fulfil the requirements of the Guidelines issued December 9, 2016 (amended March 27, 2017, and updated May 31, 2018), under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012).

The Project is defined as a multi-well exploration drilling program on EL 1151, EL 1152, and EL 1155. The Project includes up to ten wells to be drilled at any time between 2019 and 2027 to cover the duration of the licence term. The Project activities described herein are standard components of an offshore drilling program; however, not all details surrounding the Project have been finalized, such as drilling platform type, selection of service and supply contractors, and location of wells. Routine operations represent physical activities that would occur throughout the life of the Project and include:

- presence and operation of mobile offshore drilling unit (presence of structure; safety zone; lighting; drilling; air emissions; noise emissions; chemical use and management; operation of seawater systems; water management, well testing; cementing and completing wells)
- drilling-associated surveys (VSP and wellsite surveys; geotechnical/geophysical/ environmental surveys; diving surveys; ROV surveys)
- waste management (WBM and SBM cuttings discharge; domestic waste; sanitary waste; oily water treatment; cooling water; deck drainage; bilge water; BOP fluid; cement; vent and flare system)
- supply and servicing (operation of helicopters and supply/support/standby tow vessels within the Project Area)
- well abandonment (plugging, suspending, and abandoning of wells)

The environmental assessment (EA) method is focused on the identification and assessment of potential adverse environmental effects of the Project on valued components (VCs) (see Section 5). VCs are environmental attributes associated with the Project that are of particular value or interest because they have been identified to be of concern to Indigenous peoples, regulatory agencies, Husky, resource managers, scientists, key stakeholders, and/or the general public. The following six VCs were selected to facilitate a focused and effective EA process that complies with government requirements and supports public review:

- fish and fish habitat;
- commercial fisheries;
- marine mammals and sea turtles;
- migratory birds;
- special areas; and
- Indigenous people and community values.

The potential environmental effects of Project activities and components are assessed in Section 6 using a standard framework to facilitate assessment of each VC. Evaluation tables and matrices are used to document the assessment. Residual Project-related environmental effects (i.e., those environmental effects that remain after the planned mitigation measures have been applied) are characterized for each individual VC using specific analysis criteria (i.e., magnitude, geographic extent, duration, frequency, reversibility, and context). The significance of residual Project-related environmental effects is then determined based on pre-defined standards or thresholds (i.e., significance rating criteria).

The EA methods used in the preparation of this EIS included an evaluation of the potential environmental effects for each VC that may arise during the Project as well as from accidental events (see Section 7). The evaluation of potential cumulative environmental effects considers whether there is potential for the residual environmental effects of the Project to interact cumulatively with the residual environmental effects of other past, present, or future (i.e., certain or reasonably foreseeable) physical activities in the vicinity of the Project (see Section 9).

The residual adverse environmental effects from planned routine activities associated with the Project are predicted to be not significant. Most environmental effects are predicted to be reversible, of limited duration, magnitude, and geographic extent. Mitigation measures have been proposed to address potential Project and cumulative environmental effects and address all components of the Project scope (see Section 11.2). They include both general Project mitigation measures and best management practices as well as VC-specific mitigation measures.

The only potential for significant residual adverse environmental effects as a result of the Project is associated with an accidental event (see Section 7.3). Should an accidental event occur, significant adverse environmental effects have been predicted for commercial fisheries, migratory birds, and Indigenous people and community values; however, the likelihood of an accidental event occurring is considered low (see Section 7.2). Husky will design the Project and conduct all activities with a focus on safety and pollution prevention (see Section 7.1).

In summary, with the implementation of these proposed mitigation measures, residual adverse environmental effects of routine Project activities and components are predicted to be not significant for all VCs.

Husky has and will continue to follow a performance-based assessment and continuous improvement approach with respect to environmental management of the Project using the Husky Operational Integrity Management System, which covers all of Husky's businesses, with

particular emphasis on projects and operations, and manages operational integrity through the life-cycle of the assets.

A concordance table (Table E.1) is provided to demonstrate compliance with the EIS Guidelines and indicate where requirements have been addressed in this EIS document.

Table E.1 Concordance with Guidelines for the Preparation of an Environmental Impact Statement pursuant to the *Canadian Environmental Assessment Act, 2012* for the Husky Energy Exploration Drilling Project

EIS Guidelines	EIS Reference
Part 1 - Key Considerations	
1. INTRODUCTION	
2. GUIDING PRINCIPLES	
2.1. Environmental assessment as a planning and decision-making tool	EIS Submission
2.2. Public participation The proponent is required to provide current information about the project to the public and especially to the communities likely to be most affected by the project.	Section 3.2: Stakeholder Consultation Section 3.2.1.5: Public
2.3. Engagement with Indigenous groups The proponent will make reasonable efforts to integrate Aboriginal traditional knowledge into the assessment of environmental effects.	Section 3.3 Indigenous Engagement Section 6.6 Indigenous People and Community Values
2.4. Application of the precautionary approach The proponent will demonstrate that all aspects of the project have been examined and planned in a careful and precautionary manner in order to avoid significant adverse environmental effects.	Section 5.1: Scope of the Assessment Section 6: Environmental Effects Assessment Section 7: Accidental Events
3. SCOPE OF THE ENVIRONMENTAL ASSESSMENT	
3.1. Designated project Based on the project description, the Agency determined that an EA is required under CEAA 2012 and will include the following project components: - the mobilization, operation and demobilization of Mobile Offshore Drilling Units designed for year-round operations for the drilling, testing and abandonment of up to ten wells within exploration licences operated by Husky Oil Operations Ltd. (exploration licences 1151, 1152, and 1155), including consideration of any proposed safety exclusion zones. Drilling may occur in various water depths under consideration, with various types of drilling units, and with multiple drilling units operating simultaneously, if applicable; - vertical seismic profiling surveys and in-water work to support the specific exploration wells under consideration (excluding surveys potentially required to support the conduct of the EA [e.g. environmental baseline surveys] and surveys related to the broader delineation of resources); and	Section 2: Project Description Section 5.1: Scope of the Assessment

EIS Guidelines	EIS Reference
- the loading, refuelling and operation of marine support vessels and helicopter support including transportation to the Mobile Offshore Drilling Unit.	
3.2. Factors to be considered – environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other physical activities that have been or will be carried out; – the significance of the effects referred to above; – comments from the public; – mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project; – the requirements of the follow-up program in respect of the project; – the purpose of the project; – alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means; – any change to the project that may be caused by the environment; and – the results of any relevant regional study pursuant to CEAA 2012.	Section 5.1.2: Factors to be Considered
3.2.1. Changes to the environment An examination of environmental effects that result from changes to the environment as a result of the project being carried out or as a result of the federal government exercising any power duty or function that would allow the project to be carried out must be considered in the EIS.	Section 6.1: Fish and Fish Habitat Section 6.2: Commercial Fisheries Section 6.3: Marine Mammals and Sea Turtles Section 6.4: Migratory Birds Section 6.5: Special Areas Section 6.6: Indigenous People and Community Values Section 10.1: Changes to Components of the Environment within Federal Jurisdiction Section 10.2: Changes to the Environment that would occur on Federal or Transboundary Lands
3.2.2. Valued components to be examined The proponent must conduct and focus its analysis on VCs as they relate to section 5 of CEAA 2012, including the ones identified in Section 6.2 (Part 2) of these guidelines that may be affected by changes in the environment, as well as species at risk and their critical habitat as per the requirement outlined in section 79 of the *Species at Risk Act*.	Section 5.2.2: Selection of Valued Components Section 10.1.4: Species at Risk/Species of Conservation Concern

EIS Guidelines	EIS Reference
3.2.3. Spatial and temporal boundaries The EIS will describe the spatial boundaries, including local and regional study areas, of each VC to be used in assessing the potential adverse environmental effects of the project and provide a rationale for each boundary. The temporal boundaries of the EA will span all phases of the project determined to be within the scope of this EA. Community knowledge and Aboriginal traditional knowledge should factor into decisions around defining boundaries.	Section 5.2.3.4: Boundaries Section 6.1.5: Boundaries (Fish and Fish Habitat VC) Section 6.2.5: Boundaries (Commercial Fisheries VC) Section 6.3.5: Boundaries (Marine Mammals and Sea Turtles VC) Section 6.4.5: Boundaries (Migratory Birds VC) Section 6.5.5: Boundaries (Special Areas VC) Section 6.6.5: Boundaries (Indigenous People and Community Values VC)
4. PREPARATION AND PRESENTATION OF THE ENVIRONMENTAL IMPACT STATEMENT	
4.1. Guidance While the EIS must outline applicable federal authorizations required for the project to proceed, the proponent must provide information relevant to the regulatory role of the federal government. It should be noted that the issuance of these other applicable federal legislative, regulatory and constitutional requirements are within the purview of the relevant federal authorities and are subject to separate processes post EA decision.	Section 1.3: Regulatory Framework and the Role of Government
4.2. Use of information	
4.2.1. Government expert advice The Agency will advise the proponent of the availability of pertinent information or knowledge or expert and specialist knowledge received from other federal authorities or other levels of government so that it can be incorporated into the EIS.	Noted.
4.2.2. Community knowledge and Aboriginal traditional knowledge The proponent will incorporate into the EIS the community knowledge and Aboriginal traditional knowledge to which it has access or that is acquired through public participation and engagement with Indigenous groups, in keeping with appropriate ethical standards and obligations of confidentiality. The proponent will integrate Aboriginal traditional knowledge into all aspects of its assessment including both methodology (e.g. establishing spatial and temporal boundaries, defining significance criteria) and analysis (e.g. baseline characterization, effects prediction, development of mitigation measures).	Section 3.3: Indigenous Engagement
4.2.3. Existing information In preparing the EIS, the proponent can use existing information relevant to the project. When relying on existing information to meet requirements of the EIS Guidelines, the proponent will either include the information directly in the EIS and clearly direct the reader to where the information may be found (i.e. through cross-referencing).	Section 4: Existing Environment

EIS Guidelines	EIS Reference
4.2.4. Confidential information For this reason, the EIS will not contain information that: - is sensitive or confidential (i.e. financial, commercial, scientific, technical, personal, cultural or other nature), that is treated consistently as confidential, and the person affected has not consented to the disclosure; or - may cause substantial harm to a person or specific harm to the environment through its disclosure. The proponent will consult with the Agency regarding whether specific information requested by these guidelines should be treated as confidential.	N/A
4.3. Study strategy and methodology The proponent is expected to respect the intent of these guidelines and to consider the environmental effects that are likely to arise from the project (including situations not explicitly identified in these guidelines), the technically and economically feasible mitigation measures that will be applied, and the significance of any residual effects.	Section 5: Environmental Effects Assessment Scope and Methods
The EIS will include a description of the environment (both biophysical and human), including the components of the existing environment and environmental processes, their interrelations as well as the variability in these components, processes and interactions over time scales appropriate to the likely effects of the project.	Section 4: Existing Environment
In describing and assessing effects to the physical and biological environment, the proponent will take an ecosystem approach that considers both scientific and community knowledge and Aboriginal traditional knowledge and perspectives regarding ecosystem health and integrity. The proponent will consider the resilience of relevant species populations, communities and their habitats.	Section 6: Environmental Effects Assessment
The proponent will provide Indigenous groups the opportunity to review and provide comments on the information used for describing and assessing effects on Aboriginal peoples (further information on engaging with Indigenous groups is provided in Part 2, Section 5 of the guidelines).	Section 3.3: Indigenous Engagement Section 3.3.3: Questions and Comments Raised During Engagement (Indigenous Engagement)
4.4. Presentation and organization of the environmental impact statement The EIS will be written in clear, precise language. A glossary defining technical words, acronyms and abbreviations will be included. The EIS will include charts, diagrams, tables, maps and photographs, where appropriate, to clarify the text. Perspective drawings that clearly convey the various components of the project will also be provided. Wherever possible, maps will be presented in common scales and datum to allow for comparison and overlay of mapped features.	Title Page Table of Contents List of Tables and Figures Concordance Table Acronyms
4.5. Summary of the environmental impact statement The proponent will prepare a summary of the EIS in both of Canada's official languages (French and English) to be provided to the Agency at the same time as the EIS.	EIS Summary

EIS Guidelines	EIS Reference
Part 2 – Content of the Environmental Impact Statement	
1. INTRODUCTION AND OVERVIEW	
1.1. The proponent In the EIS, the proponent will: - provide contact information (e.g. name, address, phone, fax, email); - identify itself and the name of the legal entity(ies) that would develop, manage and operate the project; - describe corporate and management structures; - specify the mechanism used to ensure that corporate policies will be implemented and respected for the project; and - identify key personnel, contractors, and/or sub-contractors responsible for preparing the EIS.	Section 1.2: Proponent Information Section 1.2.2: Commitment to Health, Safety and the Environment Section 1.2.3: Proponent Contacts Section 1.2.4: Environmental Assessment Study Team
1.2. Project overview The EIS will describe the project, key project components and associated activities, scheduling details, the timing of each phase of the project and other key features. If the project is part of a larger sequence of projects, the EIS will outline the larger context.	Section 1.1: Project Overview Section 2.4: Project Components Section 2.5: Project Activities Section 2.8: Project Schedule
1.3. Project location The following information will be included: – the Universal Transverse Mercator (UTM) projection coordinates of the main project site;	Section 2.3: Project Location Figure 2-1: Proposed Study and Project Areas
– current resource use in the area;	Section 4: Existing Environment
– distance of the project facilities and components to any federal lands;	Section 2.3: Project Location
– the environmental significance and value of the geographical setting in which the project will take place and the surrounding area;	Section 4: Existing Environment
– environmentally sensitive areas, such as national, provincial and regional parks, ecological reserves, ecologically and biologically significant areas and habitats of federally or provincially listed species at risk and other sensitive areas;	Section 4: Existing Environment
– description of local and Indigenous communities; and	Section 3.3.1: Indigenous Organizations
– traditional territories and/or consultation areas, treaty lands, and Indian Reserve lands.	Section 3.3.1: Indigenous Organizations Section 4.3.2: Indigenous Use (Existing Environment)
1.4. Regulatory framework and the role of government	
The EIS will identify: – any federal power, duty or function that may be exercised that would permit the carrying out (in whole or in part) of the project or associated activities;	Section 1.3: Regulatory Framework and the Role of Government
– legislation and other regulatory approvals that are applicable to the project at the federal, provincial, regional and municipal levels;	Section 1.3.3: Other Applicable Requirements and Resources

EIS Guidelines	EIS Reference
– government policies, resource management plans, planning or study initiatives pertinent to the project and/or EA and their implications;	Section 1.3.4: Applicable Guidelines
– any treaty, self-government or other agreements between federal or provincial governments and Indigenous groups that are pertinent to the project and/or EA;	Section 1.3.4.2: Aboriginal Policies and Guidelines
– any relevant land use plans, or land zoning; and	N/A
– regional, provincial and/or national objectives, standards or guidelines that have been used by the proponent to assist in the evaluation of any predicted environmental effects.	Section 1.3: Regulatory Framework and the Role of Government Section 6.1.2: Regulatory and Policy Setting (Fish and Fish Habitat) Section 6.2.2: Regulatory and Policy Setting (Commercial Fisheries) Section 6.3.2: Regulatory and Policy Setting (Marine Mammals and Sea Turtles) Section 6.4.2: Regulatory and Policy Setting (Migratory Birds) Section 6.5.2: Regulatory and Policy Setting (Special Areas) Section 6.6.2: Regulatory and Policy Setting (Indigenous Use)
2. PROJECT JUSTIFICATION AND ALTERNATIVES CONSIDERED	
2.1. Purpose of the project	
The EIS will describe the purpose of the project by providing the rationale for the project, explaining the background, the problems or opportunities that the project is intended to satisfy and the stated objectives from the perspective of the proponent.	Section 2.1: Project Purpose, Rationale and Need
The EIS will also describe the predicted environmental, economic and social benefits of the project.	Section 2.2: Benefits of the Project
2.2. Alternative means of carrying out the project The EIS will identify and consider the environmental effects of alternative means of carrying out the project that are technically and economically feasible. In its alternative means analysis, the proponent will address, at a minimum, the following project components: – choice of drilling fluid (i.e. water-based drilling mud or synthetic-based drilling mud); – choice of drilling unit (i.e. drillship or semi-submersible); – management of drilling wastes (i.e. disposal on seabed or into water column, recover and ship to shore, re-inject); – water management and location of the final effluent discharge points; and – alternative ways to light the platform at night (or flare at night when testing the well), to reduce attraction and associated mortality of birds, such as by installing flare shields.	Section 2.9.1: Identification of Alternatives Section 2.9.1.1: Drilling Unit Section 2.9.1.2: Drilling Fluid Section 2.9.1.3: Drill Waste Management Section 2.9.1.4: Water Management Section 2.9.1.5: MODU Lighting and Flaring

EIS Guidelines	EIS Reference
With the objective of minimizing potential environmental impacts of discharges to the marine environment, the proponent should identify the quantity and type of chemicals (or constituents) that may be used in support of the proposed project that are: – included on the *Canadian Environmental Protection Act's* List of Toxic Substances; – not included on the OSPAR Pose Little or No Risk to the Environment (PLONOR) list of chemicals and have a PARCOM Offshore Chemical Notification Scheme Hazard Rating of A, B or purple, orange, blue, or white; or – not included on the PLONOR list of chemicals and have not been assigned a PARCOM Offshore Chemical Notification Scheme Hazard Rating. Alternatives to the use of the above-listed chemicals (e.g. through alternative means of operating or use of less-toxic alternatives) should be discussed in the EIS.	Section 2.9.2: Chemical Selection
3. PROJECT DESCRIPTION	
3.1. Project components	
– maps, at an appropriate scale, of the project location;	Figure 2-1: Proposed Study and Project Areas
– project components;	Section 2.4: Project Components
– boundaries of the proposed exploration licences (1121, 1134, 1151, and 1152) with UTM coordinates;	Section 2.3: Project Location
– the major existing infrastructure;	Section 2.4: Project Components Section 2.5: Project Activities
– adjacent land and resource uses; and	Section 4.3: Socio-Economic Environment
– any important environmental features.	Section 4.1: Marine Physical Environment Section 4.2: Marine Biological Environment
In its EIS, the proponent will describe: – the Mobile Offshore Drilling Units and/or drill ships and their operations (drilling, testing, abandonment) in locations and water depths under consideration;	Section 2.4.1: Drilling Platform Section 2.5.2: Drilling Section 2.5.4: Well Testing Section 2.5.5: Decommissioning and Abandonment
– the size and types of vessels that will be used including navigation activities (i.e. routes, number and frequency of trips) and icebreaking activities (time of year, frequency, duration, expected start and end dates);	Section 2.4.3.2: Offshore Supply Vessels Section 8.3.2: Sea Ice and Icebergs
– helicopters, including routes, number and frequency of trips;	Section 2.4.3.3: Helicopter Support
– vertical seismic profiling or any other in-water works to support the specific exploration wells under consideration, but excluding surveys potentially required to support the conduct of the EA (e.g. environmental baseline surveys) and surveys related to the broader delineation of resources;	Section 2.5.1: Well Site/Geohazard/ Geotechnical Surveys Section 2.5.3: Vertical Seismic Profiling

EIS Guidelines	EIS Reference
– reagent requirements and uses (e.g. volumes, storage, types);	Section 2.6: Waste Discharges and Emissions
– petroleum products (e.g. source, volume, storage);	Section 2.6.2: Other Wastes
– the nature, composition and fate (e.g. areal extent) of drilling wastes (e.g. muds, cuttings) at various water depths and at various stages of drilling, including during riserless drilling and drilling with the marine riser in place, using dispersion modelling;	Section 2.6.1: Drilling Waste
– the management or disposal of wastes (e.g. type and constituents of waste, quantity, treatment and method of disposal) including: ✓ drilling muds, drill solids; ✓ bilge and ballast water; ✓ deck drainage; ✓ cooling water; ✓ fire control system test water; ✓ operational discharges from subsea systems and the installation of subsea systems; ✓ sewage and food wastes; ✓ well treatment or testing fluids; and ✓ other operational discharges.	Section 2.6: Waste Discharges and Emissions
- contributions to atmospheric emissions, including emissions profile (i.e. type, rate and source) for activities including routine or upset flaring, routine drilling, testing, shipping etc.;	Section 2.6.3.1: Atmospheric Emissions
– sources and extent of light, heat and noise;	Section 2.6.3.2: Noise Emissions Section 2.6.3.3: Light Emissions
– transfers of bulk materials (e.g. mud) and fuel;	Section 2.4.3: Logistical Support Section 2.6.2: Other Wastes
– number of employees and transportation of employees;	Section 2.4.1: Drilling Platform Section 2.4.3: Logistical Support
– drinking and industrial water requirements (source, quantity required, need for water treatment);	Section 2.6: Waste Discharges and Emissions Section 2.6.2: Other Wastes
– energy supply (source, quantity); and	Section 2.6.3.1: Atmospheric Environment
– waste disposal (types of waste, methods of disposal, quantity).	Section 2.6: Waste Discharges and Emissions. Section 2.6.2: Other Wastes
3.2. Project activities	
The EIS will include descriptions of the drilling, testing and decommissioning, suspension or abandonment of exploration wells associated with the proposed project.	Section 2.5: Project Activities Section 2.5.2: Drilling Section 2.5.4: Well Testing Section 2.5.5: Decommissioning and Abandonment

EIS Guidelines	EIS Reference
This will include descriptions of the activities to be carried out during each phase, the location of each activity, expected outputs and an indication of the activity's magnitude and scale. Water depths for potential drill sites will be specified.	Section 2.5: Project Activities Section 2.5.1: Well Site/Geohazard/ Geotechnical Surveys Section 2.5.2: Drilling Section 2.5.3: Vertical Seismic Profiling Section 2.5.4: Well Testing Section 2.5.5: Decommissioning and Abandonment
The EIS will include a summary of the changes that have been made to the project since originally proposed, including the benefits of these changes to the environment, Indigenous groups, and the public.	Section 2.2: Benefits of the Project
The EIS will include a schedule including time of year, frequency, and duration for all project activities.	Section 2.8: Project Schedule
3.2.1. Drilling and testing activities:	
– operation of the Mobile Offshore Drilling Unit and/or drill ships, including: ✓ drilling at various water depths and in locations under consideration	Section 2.4.1: Drilling Platform Section 2.5.2: Drilling Section 2.3: Project Location
✓ well flow testing	Section 2.5.4: Well Testing
✓ waste management	Section 2.6: Waste Discharges and Emissions Section 2.7: Husky's Environmental Management System and Environmental Compliance Plan
✓ water management	Section 2.6.2: Other Wastes Section 2.9.1.4: Water Management
– vertical seismic profile surveys;	Section 2.5.3: Vertical Seismic Profiling
– equipment requirements (type, quantity); and	Section 2.4: Project Components
– storage and management of hazardous materials, fuels and residues.	Section 2.6.2: Other Waste
3.2.2. Supply and servicing	
– vessel support, including loading, refuelling and operation of marine support vessels (i.e. for transfer, re-supply and on-site safety during drilling activities) and.	Section 2.4.3.2: Offshore Supply Vessels
– helicopter support (i.e. crew transport and delivery of supplies and equipment).	Section 2.4.3.3: Helicopter Support
3.2.3. Decommissioning, suspension or abandonment of wells – the preliminary outline of a well decommissioning, suspension and abandonment plan for wells at varying water depths	Section 2.5.5: Decommissioning and Abandonment
4. PUBLIC PARTICIPATION AND CONCERNS	
The EIS will describe the ongoing and proposed public participation activities that the proponent will undertake or that it has already conducted on the project.	Section 3.2: Stakeholder Consultation
It will provide a description of efforts made to distribute project information and provide a description of information and materials that were distributed during the consultation process.	Section 3.2.2: Summary of Engagement Activities

EIS Guidelines	EIS Reference
The EIS will indicate the methods used, where the consultation was held, the persons and organizations consulted, the concerns voiced and the extent to which this information was incorporated in the design of the project as well as in the EIS.	Section 3.2.2: Summary of Engagement Activities Section 3.2.3: Questions and Comments Raised During Public Consultation
The EIS will provide a summary of key issues raised related to the project and its potential effects to the environment as well as describe any outstanding issues and ways to address them.	Section 3.2.3: Questions and Comments Raised During Public Consultation
5. ENGAGEMENT WITH INDIGENOUS GROUPS AND CONCERNS RAISED	
For the purposes of developing the EIS, the proponent will engage with Indigenous groups that may be affected by the project, to obtain their views on: – effects of changes to the environment on Aboriginal peoples (health and socio-economic conditions; physical and cultural heritage, including any structure, site or thing that is of historical, archaeological, paleontological or architectural significance; and current use of lands and resources for traditional purposes) pursuant to paragraph 5(1)(c) of CEAA 2012; and	Section 3.3: Indigenous Engagement Section 3.3.3: Questions and Comments Raised During Engagement (Indigenous Engagement) Section 4.3.2: Indigenous Use
– potential adverse impacts of the project on potential or established section 35 rights, including title and related interests, in respect of the Crown's duty to consult, and where appropriate, accommodate Aboriginal peoples.	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment)
With respect to potential adverse impacts of the project on potential or established section 35 rights, including title and related interests, the EIS will document for each group identified in Section 5.1 below (or in subsequent correspondence from the Agency): - potential or established section 35 rights7, including title and related interests, when this information is directly provided by a group to the proponent, the Agency or is available through public records, including: ✓ geographical extent, nature, frequency and timing of the practice or exercise of the right; and, ✓ maps and data sets (e.g. fish catch numbers);	Section 4.3.2: Indigenous Use (Existing Environment) Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment)
– potential adverse impacts of each of the project components and physical activities, in all phases, on potential or established section 35 rights, including title and related interests. This assessment is to be based on a comparison of the exercise of the identified rights, title and related interests between the predicted future conditions with the project and the predicted future conditions without the project. Include the perspectives of potentially impacted groups where these were provided to the proponent by the groups;	Section 3.3.3: Questions and Comments Raised During Engagement (Indigenous Engagement) Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment)

EIS Guidelines	EIS Reference
– measures identified to accommodate potential adverse impacts of the project on the potential or established section 35 rights, including title and related interests. These measures will be written as specific commitments that clearly describe how the proponent intends to implement them, and may go beyond mitigation measures that are developed to address potential adverse environmental effects;	Section 6.6.10: Assessment of Residual Effects on Indigenous People and Community Values Section 6.6.10.2: Mitigation (Indigenous People and Community Values)
– potential adverse impacts on potential or established section 35 rights, including title and related interests that have not been fully mitigated or accommodated as part of the EA and associated engagement with Indigenous groups. The proponent will also take into account the potential adverse impacts that may result from the residual and cumulative environmental effects. Include the perspectives of potentially affected groups where these were provided to the proponent by the groups.	Section 3.3.3: Questions and Comments Raised During Engagement (Indigenous Engagement) Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment)
The information sources, methodology and findings of the assessment of paragraph 5(1)(c) effects under CEAA 2012 may be used to inform the assessment of potential adverse impacts of the project on potential or established section 35 rights, including title and related interests. However, there may be distinctions between the adverse impacts on potential or established section 35 rights, including title and related interests and paragraph 5(1)(c) effects under CEAA 2012. The proponent will carefully consider the potential distinction between these two aspects and, where there are differences, will include the relevant information in its assessment.	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment)
In terms of gathering views from potentially affected groups with respect to both environmental effects of the project and the potential adverse impacts of the project on potential or established section 35 rights, including title and related interests, the EIS will document: – VCs suggested by groups for inclusion in the EIS, whether they were included, and the rationale for any exclusions;	Section 3.3.3: Questions and Comments Raised During Engagement (Indigenous Engagement)
– specific suggestions raised by each group for mitigating the effects of changes to the environment on Aboriginal peoples or accommodating potential adverse impacts of the project on potential or established section 35 rights, including title and related interests;	Section 3.3.3: Questions and Comments Raised During Engagement (Indigenous Engagement)
– views expressed by each group on the effectiveness of the mitigation or accommodation measures;	Section 3.3.3: Questions and Comments Raised During Engagement (Indigenous Engagement)

EIS Guidelines	EIS Reference
– from the proponent's perspective, any potential cultural, social and/or economic impacts or benefits to each group identified that may arise as a result of the project. Include the perspectives of potentially affected groups where these were provided to the proponent by the groups;	Section 3.3.3: Questions and Comments Raised During Engagement (Indigenous Engagement)
– any other comments, specific issues and concerns raised by potentially affected groups and how they were responded to or addressed;	Section 3.3.3: Questions and Comments Raised During Engagement (Indigenous Engagement)
– changes made to the project design and implementation directly as a result of discussions with potentially affected groups;	Section 2.2.1: Changes to the Project since Originally Proposed Section 3.3.3: Questions and Comments Raised During Engagement (Indigenous Engagement)
– where and how Aboriginal traditional knowledge was incorporated into the environmental effects assessment (including methodology, baseline conditions and effects analysis for all VCs) and the consideration of potential adverse impacts on potential or established section 35 rights, including title and related interests, and related mitigation measures; and	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment)
– any additional issues and concerns raised by potentially affected groups in relation to the environmental effects assessment and the potential adverse impacts of the project on potential or established section 35 rights, including title and related interests.	Section 3.3.3: Questions and Comments Raised During Engagement (Indigenous Engagement)
The Agency recommends the proponent create a tracking table of key issues raised by each group, including the concerns raised related to the project, proposed mitigation measures, and where appropriate, a reference to the proponent's analysis in the EIS.	Table 3.4: Questions and Comments Raised During Indigenous Engagement and Where They are Addressed in the Environmental Assessment
5.1. Indigenous groups and engagement activities	
With respect to engagement activities, the EIS will document: – the engagement activities undertaken with each group prior to the submission of the EIS, including the date and means of engagement (e.g. meeting, mail, telephone);	Section 3.3.2: Engagement Activities (Indigenous Engagement)
– any future planned engagement activities; and	Section 3.3.2: Engagement Activities (Indigenous Engagement)
– how engagement activities by the proponent allowed groups to understand the project and evaluate its effects on their communities, activities, potential or established section 35 rights, including title and related interests.	Section 3.3.2: Engagement Activities (Indigenous Engagement)
The EIS will describe all efforts, successful or not, taken to solicit the information required from groups to support the preparation of the EIS.	Section 3.3.2: Engagement Activities (Indigenous Engagement)

EIS Guidelines	EIS Reference
The proponent will ensure these groups are reflected in the baseline information and assessment of potential effects or impacts in the EIS. These groups include: The following Indigenous groups in Newfoundland and Labrador: – *the Labrador Inuit (Nunatsiavut Government),* – *the Labrador Innu (Innu Nation),* – *the NunatuKavut Community Council,* The following Indigenous groups in Nova Scotia (as per April 27, 2017 letter from CEA Agency): – *Acadia First Nation* – *Annapolis Valley First Nation* – *Bear River First Nation* – *Eskasoni First Nation* – *Glooscap First Nation* – *Membertou First Nation* – *Paqtnkek Mi'kmaw Nation* – *Pictou Landing First Nation* – *Potlotek First Nation* – *Wagmatcook First Nation* – *Waycobah First Nation* – *Millbrook First Nation* – *Sipekne'katik First Nation* The following Indigenous groups in New Brunswick (as per April 27, 2017 letter from CEA Agency): – *Elsipogtog First Nation* – *Fort Folly First Nation* – *Eel Ground First Nation* – *Pabineau First Nation* – *Esgenoôpetitj First Nation* – *Buctouche First Nation* – *Indian Island First Nation* – *Eel River Bar First Nation* – *Metepenagiag Mi'kmaq Nation* – *Kingsclear First Nation* – *Madawaska Maliseet First Nation* – *Oromocto First Nation* – *Tobique First Nation* – *St. Mary's First Nation* – *Woodstock First Nation* – *Peskotomuhkati Nation at Skutik (Passamaquoddy of New Brunswick) (as per July 27, 2017 letter from CEA Agency)* The following Indigenous groups in Prince Edward Island (as per April 27, 2017 letter from CEA Agency): – *Abegweit First Nation* – *Lennox Island First Nation* The following Indigenous groups in Quebec (as per April 27, 2017 letter from CEA Agency): – *Micmacs of Gesgapegiag*	Section 3.3.1: Indigenous Organizations (Indigenous Engagement) Section 4.3.2: Indigenous Use (Existing Environment) Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment)

EIS Guidelines	EIS Reference
– *La Nation Micmac de Gespeg* – *Listuguj Mi'gmaq Government* – *Les Innus de Ekuanitshit* – *Montagnais de Natashquan*	
In addition, for the purposes of good governance, the proponent should also provide information to and discuss potential environmental effects from the Project, as described under section 5 of CEAA 2012, with the Qalipu Mi'kmaq First Nation Band and the Miawpukek First Nation.	Section 10.3: Effect of Changes to the Environment on Indigenous People (CEAA 2012 section 5(1)(c))
6. EFFECTS ASSESSMENT	
6.1. Project setting and baseline conditions	
Based on the scope of the project described in Section 3 (Part 1), the EIS will present baseline information in sufficient detail to enable the identification of how the project could affect the VCs and an analysis of those effects.	Section 4: Existing Environment
6.1.1. Atmospheric environment	
The EIS will describe the atmospheric environment and climate at the project site and within areas that could be affected by routine project operations or accidents and malfunctions, such as: – ambient air quality in the project areas and in the airshed likely to be affected by the project, including consideration of the following contaminants: total suspended particulates (TSP), fine particulates smaller than 2.5 microns ($PM_{2.5}$), respirable particulates of less than 10 microns (PM_{10}), carbon monoxide (CO), sulphur oxides (SO_X), nitrogen oxides (NO_X), volatile organic compounds (VOCs), hydrogen sulfide (H_2S) and any other potentially toxic air pollutants;	Section 2.6.3.1: Atmospheric Emissions Section 4.1.2: Atmospheric Environment
– identify and quantify existing greenhouse gas emissions by individual pollutant measured as kilotonnes of CO_2 equivalent per year in the project study areas;	Section 2.6.3.1: Atmospheric Emissions
– direct and indirect sources of air emissions;	Section 2.6.3.1: Atmospheric Emissions
– current provincial/territorial/federal limits for greenhouse gas emission targets; and	Section 2.6.3.1: Atmospheric Emissions
– information on the variation in weather conditions over the project area using historical records of relevant meteorological parameters, including the following: ✓ precipitation (rain and snow); ✓ air temperature (mean, maximum and minimum temperatures); ✓ wind speed and direction; ✓ freezing spray; ✓ lightning; and ✓ visibility.	Section 4.1.2.3: Precipitation Section 4.1.2.2: Air and Sea Temperature Section 4.1.2.1: Wind Climatology Section 4.1.2.4: Icing Section 4.1.2.6: Lightning Section 4.1.2.5: Visibility

EIS Guidelines	EIS Reference
Particular attention should also be given to the analysis of extreme meteorological events that have the potential to result in adverse effects on the project (e.g. high wind events).	Section 4.1.2.1: Wind Climatology Section 4.1.2.3: Precipitation Section 4.1.2.7: Tropical Systems Section 4.1.3.4: Wave Climatology Section 4.1.3.5: Extreme Waves Section 4.1.3.6: Extreme Winds
6.1.2. Marine environment	
The EIS will describe the marine environment within areas that could be affected by routine project operations or by accidents and malfunctions, including: – marine water quality (e.g. water temperature, turbidity, salinity and pH);	Section 4.1.3.8: Temperature, Salinity and pH
– marine geology and geomorphology (i.e. bottom sediments, including quality, thickness, grain size, and mobility);	Section 4.1.1: Marine Geology
– physical oceanography including surface and subsurface current patterns, current velocities, waves, storm surges, long shore drift processes, tidal patterns, and tide gauges levels for the site, in proximity to the site, and along the shipping routes;	Section 4.1.3.2: Ocean Currents Section 4.1.3.3: Tides
– available bathymetric information (e.g. maximum and mean water depths) for the site and along shipping routes if applicable;	Section 4.1.3.1: Bathymetry
– ice climate in the regional study area, including ice formation and thickness, breakup and movement;	Section 4.1.4: Sea Ice and Icebergs
– ice conditions along the shipping routes with consideration of predicted climate change and its possible effect on the timing of ice formation in the future;	Section 4.1.4: Sea Ice and Icebergs
– fast-ice characteristics, including its surface area and seasonal stability along the shipping routes;	Section 4.1.4: Sea Ice and Icebergs
– marine plants, including all benthic and detached algae, marine flowering plants, brown algae, red algae, green algae and phytoplankton;	Section 4.2.1: Plankton
– acoustic environment (ambient noise levels from natural sources, shipping, seismic surveys, and other sources), including information on geographic extent and temporal variations and how the acoustic environment may be affected by the project.	Section 2.6.3.2: Noise Emissions Section 4.1.5: Acoustic Environment
6.1.3. Fish and fish habitat	
The EIS will describe fish and fish habitat within areas that could be affected by routine project operations or by accidents and malfunctions, including: – a characterization of fish populations on the basis of species and life stage, including information on the surveys carried out (e.g. location of sampling stations, catch methods, date of catches, species, catch per-unit effort) and the source of data available (e.g. government and historical databases, commercial fishing data);	Section 4.2.4: Marine Fish Appendix D

EIS Guidelines	EIS Reference
– a description of primary and secondary productivity in affected water bodies with a characterisation of seasonal variability;	Section 4.2.1: Plankton
– a list of any fish or invertebrate species at risk that are known to be present; and	Section 4.2.4.4: Fish Species at Risk and Species of Conservation Concern Section 4.2.8: Species at Risk and Species of Conservation Concern Appendix D
– benthic flora and fauna and their associated habitat, including sensitive features such as corals and sponges (Note: a benthic habitat survey (ROV / camera), including transects of seafloor in the area of the well locations, may be required).	Section 4.2.2: Benthic Habitat Section 4.2.3: Corals and Sponges
Emphasis will be placed on the waters likely to be affected by the project and their physical characteristics, water and sediment quality. Hence, for all areas in which effects are anticipated, the EIS will describe the biophysical water and sediment characteristics, including: – a description of the physical and biological characteristics of the fish and fish habitat likely to be directly or indirectly affected by the project;	Section 4.2.4: Marine Fish Appendix D
– maps, at a suitable scale, indicating the surface area of potential or confirmed fish habitats and a description of these habitats as determined by water depths, type of substrate (sediments), aquatic vegetation, and potential use (i.e. spawning, rearing, nursery, feeding, overwintering, migration routes, etc.). Where appropriate, this information should be linked to water depths (bathymetry) to identify the extent of a water body's littoral / photic zone;	Figure 4-23: Potential Critical Habitat under SARA for Northern and Spotter Wolffish Figure 4-20: Sediment samples from the White Rose EEM Sediment Survey Figure 1 (Appendix D): General Ocean Distribution and Migration Patters of Canadian Atlantic Salmon Section 4.2.2: Benthic Habitat Section 4.2.3: Corals and Sponges
– quality, thickness, grain size and mobility of bottom sediments; and	Section 4.1.1: Marine Geology Section 4.2.2: Benthic Habitat
– a discussion of sea bottom stability at the project site.	Section 4.2.2: Benthic Habitat
Any sampling survey methods used by the proponent will be described in order to allow experts to ensure the quality of the information provided. If previous studies on the habitat in the study area were conducted, they are to be submitted with the EIS.	Noted.
6.1.4. Migratory birds and their habitat	
The EIS will describe migratory and non-migratory marine birds and their habitat at the project site and within areas that could be affected by routine project operations or accidents and malfunctions.	Section 4.2.7: Migratory Birds

EIS Guidelines	EIS Reference
Preliminary data from existing sources will be gathered, including information such as: – birds and their habitats that are found or are likely to be found in the study area. This description may be based on existing sources, but supporting evidence is required to demonstrate that the data used are representative of the avifauna and habitats found in the study area. The existing data must be supplemented by surveys, if required;	Section 4.2.7: Migratory Birds
– abundance, distribution, and life stages of migratory and non-migratory birds likely to be affected in the project area based on existing information, or surveys, as appropriate, to provide current field data;	Section 4.2.7: Migratory Birds Appendix D
– year-round migratory bird use of the area (e.g. winter, spring migration, breeding season, fall migration), based on preliminary data from existing sources and surveys to provide current field data if appropriate; and	Section 4.2.7: Migratory Birds Appendix D
– areas of concentration of migratory birds, such as for breeding, feeding or resting.	Section 4.2.7: Migratory Birds Appendix D
6.1.5. Species at Risk	
The EIS will describe federal species at risk and their habitat at the project site and within areas that could be affected by routine project operations or accidents and malfunctions, such as: – a list of all potential or known federally listed species at risk that may be affected by the project, using existing data and literature as well as surveys to provide current field data;	Section 4.2.8: Species at Risk and Species of Conservation Concern
– a list of all federal species designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) for listing on Schedule 1 of the *Species at Risk Act*. This will include those species in the risk categories of extirpated, endangered, threatened and of special concern;	Section 4.2.8: Species at Risk and Species of Conservation Concern
– any published studies that describe the regional importance, abundance and distribution of species at risk including management plans, recovery strategies or plans. The existing data must be supplemented by surveys, if required; and	Section 4.2.4.4: Fish Species at Risk and Species of Conservation Concern Section 4.2.5.4: Marine Mammal Species at Risk and Species of Conservation Concern Section 4.2.6: Sea Turtles Section 4.2.7.5: Species at Risk and Species of Conservation Concern (Migratory Birds) Section 4.2.8: Species at Risk and Species of Conservation Concern Appendix D

EIS Guidelines	EIS Reference
– residences, seasonal movements, movement corridors, habitat requirements, key habitat areas, identified and proposed critical habitat and/or recovery habitat (where applicable) and general life history of species at risk that may occur in the project area, or be affected by the project.	Section 4.2.4.4: Fish Species at Risk and Species of Conservation Concern Section 4.2.5.4: Marine Mammal Species at Risk and Species of Conservation Concern Section 4.2.6: Sea Turtles Section 4.2.7.5: Species at Risk and Species of Conservation Concern (Migratory Birds) Appendix D
6.1.6. Marine mammals	
The EIS will describe marine mammals and their habitat at the project site and within areas that could be affected by routine project operations or accidents and malfunctions, such as: – marine mammal species that may be present, the times of year they are present, the ranges of the species and their migration patterns, and	Section 4.2.5: Marine Mammals Appendix D
– important areas in the vicinity of the drilling sites or supply routes (e.g. for mating, breeding, feeding and nursing of young) or that could be impacted by the project (e.g. acoustics, spills, etc.).	Section 4.2.5: Marine Mammals Appendix D
6.1.7. Marine turtles	
The EIS will describe marine turtles and their habitat at the project site and within areas that could be affected by routine project operations or accidents and malfunctions, such as: – marine turtle species that may be present, the times of year they are present, the ranges of the species and their migration patterns; and	Section 4.2.6: Sea Turtles Appendix D
– important areas in the vicinity of the drilling sites or supply routes (e.g. for mating, breeding, and feeding) or that could be impacted by the project (e.g. routine discharges, spills, etc.).	Section 4.2.6: Sea Turtles Appendix D
6.1.8. Indigenous peoples	
With respect to potential effects on Indigenous peoples and the related VCs, baseline information will be provided for ***each group*** identified in Section 5 (Part 2) of these guidelines (and any groups identified after these guidelines are finalized).	Section 4.3.2: Indigenous People and Community Values (Existing Environment) 4.3.2.2: Newfoundland and Labrador Indigenous Groups 4.3.2.3: Mi'kmaq of the Maritime Provinces 4.3.2.4: Wolastoqiyik of New Brunswick (Maliseet) 4.3.2.5: Peskotomuhkati Nation (Passamaquoddy) 4.3.2.6: Mi'kmaq and Innu of Québec
Baseline information will describe and characterize the elements in paragraph 5(1)(c) of CEAA 2012 based on the spatial and temporal scope selected for the EA according to the factors outlined in Part 1, Section 3.3.3 of this document.	Section 4.3.2: Indigenous People and Community Values (Existing Environment)

EIS Guidelines	EIS Reference
Baseline information will also characterize the regional context of each of the elements of paragraph 5(1)(c) of CEAA 2012 to support the assessment of project related effects and cumulative effects. Baseline information will be sufficient to provide a comprehensive understanding of the current state of each VC.	Section 3.3.1: Indigenous Organizations (Consultation and Engagement) Section 4.3.2: Indigenous People and Community Values (Existing Environment)
Baseline information for current use of lands and resources for traditional purposes will focus on the traditional activity (e.g. fishing) and include a characterization of all attributes of the activity that can be affected by environmental change. This includes not only identifying species of importance, but also assessing the quality and quantity of preferred traditional resources and locations, timing (e.g. seasonality, access restrictions, distance from community), ambient/sensory environment (e.g. noise, air quality, visual landscape, presence of others) and cultural environment (e.g., historical/generational connections, preferred areas). As applicable, specific aspects that will be considered include, but are not limited to: – current use of lands and resources for traditional purposes, including: ✓ location of traditional territory (including maps where available);	Section 4.3.2: Indigenous People and Community Values (Existing Environment)
✓ commercial and traditional fishing activity within the project's potential zone of influence, including licences and maps;	Section 4.3.2: Indigenous People and Community Values (Existing Environment)
✓ fish, wildlife, birds, plants or other natural resources of importance for traditional use;	Section 4.3.2: Indigenous People and Community Values (Existing Environment)
✓ places where fish, wildlife, birds, plants or other natural resources are harvested, including places that are preferred;	Section 4.3.2: Indigenous People and Community Values (Existing Environment)
✓ access and travel routes for conducting traditional practices;	Section 4.3.2: Indigenous People and Community Values (Existing Environment)
✓ frequency, duration or timing of traditional practices; and	Section 4.3.2: Indigenous People and Community Values (Existing Environment)
✓ cultural values associated with the area affected by the project and the traditional uses identified.	Section 4.3.2: Indigenous People and Community Values (Existing Environment) Section 10.3: Effects of Changes to the Environment on Indigenous People and Community Values
– any Project components and a description of any activities (e.g. exclusion zones) that may affect commercial fisheries or other uses;	Section 4.3.2: Indigenous People and Community Values (Existing Environment) Section 6.6: Assessment of Potential Effects of Indigenous People and Community Values Section 10.3: Effects of Changes to the Environment on Indigenous People and Community Values

EIS Guidelines	EIS Reference
– human health, primarily with respect to potential contamination of food sources;	Section 10.3: Effects of Changes to the Environment on Indigenous People and Community Values
– location of reserves and communities; and	Section 4.3.2: Indigenous People and Community Values (Existing Environment)
– physical and cultural heritage (including any site, structure or thing of archaeological, paleontological, historical or architectural significance).	Section 4.3.2: Indigenous People and Community Values (Existing Environment) Section 10.3: Effects of Changes to the Environment on Indigenous People and Community Values
6.1.9. Other changes to the environment arising as a result of a federal decision or due to changes on federal lands, in another province or outside Canada	
6.1.9.1. Special areas	
The EIS will describe special areas (e.g. species at risk critical habitat that has been designated and that has been proposed or that may be under consideration, Important Bird Areas, Migratory Bird Sanctuaries, ecological reserves, etc.) at the project site and within areas that could be affected by routine project operations or accidents and malfunctions, such as: – Ecologically and Biologically Significant Areas (e.g. The Southeast Shoal and Tail of the Banks, The Northeast Shelf and Slope, Lily Canyon-Carson Canyon and The Virgin Rocks)	Section 4.2.9: Special Areas Section 4.2.9.1: Ecologically and Biologically Sensitive Areas
– Fishery Closure Areas (e.g. Northwest Atlantic Fisheries Organization Coral Closures, Orphan Knoll Seamount)	Section 4.2.9.3: NAFO Coral, Sponge and Seapen Closure Areas
– Preliminary Representative Marine Areas (South Grand Bank Area)	Section 4.2.9.6: South Grand Bank Preliminary Representative Marine Area
The EIS will describe the distances between the edge of the project area (i.e. drill sites and shipping routes) and special areas. It shall state the rationale for designating specific areas as "special" (i.e. the defining environmental features of the special area).	Section 4.2.9: Special Areas
6.1.9.2. Human environment	
At a minimum, this should include: – any federal lands, lands located outside the province or Canada that may be affected by the project operations or by accidents and malfunctions;	Section 2.3: Project Location Section 10.2: Changes to the Environment that Would Occur on Federal or Transboundary Lands

EIS Guidelines	EIS Reference
– the current and historical use of waters that may be affected by routine project operations or by accidents and malfunctions, including: ✓ current commercial and recreational fishing activity, including licence holders and species fished; ✓ other ocean uses (e.g. shipping, research, oil and gas, military, ocean infrastructure [e.g. subsea cable]);	Section 4.3: Socio-economic Environment Section 4.3.1: Commercial Fisheries Section 4.3.2: Indigenous People and Community Values Section 4.3.3: Marine Research Section 4.3.4: Marine Shipping Section 4.3.5: Other Offshore Oil and Gas Activity Section 4.3.6: Department of National Defence Operations Section 4.3.7: Additional Ocean Infrastructure
– the location of and proximity of any permanent, seasonal or temporary residences or camps that could be affected by routine project operations or accidents and malfunctions;	N/A
– health and socio-economic conditions that could be affected by routine project operations or accidents and malfunctions, including the functioning and health of the socio-economic environment, encompassing a broad range of matters that affect communities in the study area in a way that recognizes interrelationships, system functions and vulnerabilities;	Section 9: Cumulative Effects Section 10.3: Effects of Changes to the Environment on Indigenous People and Community Values Section 10.4: Exercise of Power of Duty or Function by Federal Authority
– physical and cultural heritage, including structures, sites or things of historical, archaeological, paleontological or architectural significance that could be affected by routine project operations or accidents and malfunctions; – the rural and urban settings that could be affected by routine project activities or accidents and malfunctions; and – any project components and activities (e.g. exclusion zones) that may affect commercial or recreational fisheries or other uses.	Section 4.3.2: Indigenous Use Section 4.3.7: Additional Ocean Infrastructure Section 9: Cumulative Effects Section 10.3: Effects of Changes to the Environment on Indigenous People and Community Values Section 10.4.1: Effects of Changes to the Environment that are Directly Linked or necessarily Incidental to Federal Decisions
The EIS should also discuss the potential to encounter unexploded ordnance (UXOs), based on consultation with the Department of National Defence.	Section 4.3.6: Department of National Defence Operations
6.2. Predicted changes to the physical environment	
The EA will include a consideration of the predicted changes to the environment as a result of the project being carried out or as a result of any powers, duties or functions that are to be exercised by the federal government in relation to the project.	Section 10.1: Changes to Components of the Environment within Federal Jurisdiction (CEAA, 2012 section 5(1)(a))
The EIS will include stand-alone sections that summarise those changes that may be caused by the project on the components of the environment listed in paragraph 5(1)(a) of CEAA 2012, namely fish and fish habitat, aquatic species and migratory birds.	Section 10.1: Changes to Components of the Environment within Federal Jurisdiction (CEAA, 2012 section 5(1)(a))

EIS Guidelines	EIS Reference
The EIS will include a stand-alone section that summarises any change the project may cause to the environment that may occur on federal lands or lands outside the province in which the project is to be located (including outside of Canada).	Section 10.2: Changes to the Environment that Would Occur on Federal or Transboundary Lands (CEAA, 2012 section 5(1)(b))
In situations where the project requires one or more federal decisions identified in section 5(2), the EIS will also include a stand-alone section that describes any change that may be caused by the project on the environment that is directly linked or necessarily incidental to these decisions (e.g. changes to commercial fishing).	Section 10.4.1: Changes to the Environment that are Directly or Necessarily Incidental to Federal Decisions
6.3. Predicted effects on valued components	
6.3.1. Fish and fish habitat	
– the identification of any potential adverse effects to fish and fish habitat as defined in subsection 2(1) of the *Fisheries Act*, including the calculations of any potential habitat loss (temporary or permanent) in terms of surface areas (e.g. spawning grounds, fry-rearing areas, feeding), and in relation to availability and significance. The assessment will include a consideration of: ✓ effects on water quality including changes to chemical composition, temperature, oceanographic conditions, etc.;	Section 6.1: Fish and Fish Habitat
✓ the geomorphological changes and their effects on hydrodynamic conditions and fish habitats (e.g. modification of benthic habitat including corals and sensitive habitat, area affected by drilling waste, disturbance to water column);	Section 6.1: Fish and Fish Habitat
✓ the modifications of hydrological and hydrometric conditions on fish habitat and on the fish species' life cycle activities (e.g. reproduction, juvenile, rearing, and feeding, movements);	Section 6.1: Fish and Fish Habitat
✓ any potential imbalances in the food web in relation to baseline conditions;	Section 6.1: Fish and Fish Habitat
✓ underwater noise and vibration emissions from project activities (i.e. drilling, vertical seismic profiling, offshore supply vessel operation, well abandonment) and how it may affect fish health and behaviour;	Section 6.1: Fish and Fish Habitat
✓ effects on the primary and secondary productivity of water bodies and how project-related effects may affect fish food sources;	Section 6.1: Fish and Fish Habitat
– the effects of changes to the aquatic environment on fish and their habitat, including:	Section 6.1: Fish and Fish Habitat
✓ the anticipated changes in the composition and characteristics of the populations of various fish species, including shellfish and forage fish including mortality of fish, eggs and larvae; environment and species (e.g. corals, plants);	Section 6.1: Fish and Fish Habitat
✓ any modifications in migration or local movements during and after project activities (e.g. vertical seismic profiling, drilling);	Section 6.1: Fish and Fish Habitat

EIS Guidelines	EIS Reference
✓ any modifications and use of habitats by federally or provincially listed fish species;	Section 6.1: Fish and Fish Habitat
– a discussion of the effects of drilling waste disposal on marine benthos and other components of the aquatic environment, recognizing that the disposal of these wastes is expected to be a primary cause of effect on benthos;	Section 6.1: Fish and Fish Habitat
– a discussion of the length of time it would take for the benthic environment to return to baseline conditions in water depths within which the Project would occur;	Section 6.1: Fish and Fish Habitat
– a discussion of how project timing correlates to key fisheries windows and any potential effects resulting from overlapping periods; and	Section 6.1: Fish and Fish Habitat
– a discussion of how data examining the deposition of drilling-related wastes (e.g. fluid, mud residues, cuttings) and acoustic monitoring data would be collected during and after drilling operations and how this would be used to verify effects predictions.	Section 6.1: Fish and Fish Habitat
6.3.2. Marine plants	
– effects on marine plants, including all benthic and detached algae, marine flowering plants, brown algae, red algae, green algae and phytoplankton.	Section 6.1: Fish and Fish Habitat
6.3.3. Marine mammals	
– effects on marine mammals, including but not limited to: ✓ mortality and other effects from vessel collisions or disturbance; and	Section 6.3: Marine Mammals and Sea Turtles
✓ direct and indirect effects caused by increased disturbance (e.g. noise, light, vibrations) including mortality, physical injury and behavioural changes (e.g. habitat avoidance, disruption to feeding behaviour, deviation in migration routes, communication masking, discomfort and behavioural disturbance).	Section 6.3: Marine Mammals and Sea Turtles
6.3.4. Marine turtles	
– effects on marine turtles, including but not limited to: ✓ mortality and other effects from vessel collisions or disturbance; and	Section 6.3: Marine Mammals and Sea Turtles
✓ direct and indirect effects caused by increased disturbance (e.g. noise, light, vibrations) including mortality, physical injury and behavioural changes (e.g. habitat avoidance, disruption to feeding behaviour, deviation in migration routes, communication masking, discomfort and behavioural disturbance).	Section 6.3: Marine Mammals and Sea Turtles
6.3.5. Migratory birds	
– direct and indirect adverse effects on migratory birds, including population level effects that could be caused by all project activities, including but not limited to:	Section 6.4: Migratory Birds

EIS Guidelines	EIS Reference
✓ noise disturbance from seismic equipment including both direct effects (physiological), or indirect effects (foraging behaviour of prey species);	
✓ physical displacement as a result of vessel presence (e.g. disruption of foraging activities);	Section 6.4: Migratory Birds
✓ night-time illumination levels from lights and flares during different weather conditions and seasons and during different project activities (e.g. drilling, well testing) and associated nocturnal disturbance (e.g. increased opportunities for predators, attraction to the drilling unit and vessels and subsequent collision or exposure to vessel-based threats, incineration in flares, disruption of normal activities);	Section 6.4: Migratory Birds
✓ exposure to spilled contaminants (e.g. fuel, oils) and operational discharges (e.g. deck drainage, gray water, black water);	Section 6.4: Migratory Birds
✓ attraction of, and increase in, predator species as a result of waste disposal practices (i.e. sanitary and food waste) and the presence of incapacitated/dead prey near the Mobile Offshore Drilling Unit or support vessels;	Section 6.4: Migratory Birds
✓ physical harm or mortality from flaring on the drilling unit or other vessel-based threats;	Section 6.4: Migratory Birds
✓ collision risk with the drilling unit and other project infrastructure;	Section 6.4: Migratory Birds
✓ the effects of oil spills in the nearshore or that reach land on landbird species;	Section 6.4: Migratory Birds Section 7.3.4: Migratory Birds (Accidental Events)
✓ change in marine habitat quality from drill muds and cuttings and sedimentation; and	Section 6.4: Migratory Birds
✓ indirect effects caused by increased disturbance (e.g. noise, light, presence of workers), relative abundance movements and changes in migratory bird habitat.	Section 6.4: Migratory Birds
6.3.6. Species at risk	
– the potential effects of the project on federally listed species at risk and those species listed by the Committee on the Status of Endangered Wildlife in Canada classified as extirpated, endangered, threatened or of special concern (flora and fauna) and their critical habitat, including: ✓ alteration of habitat (including critical habitat) features;	Section 6.1: Fish and Fish Habitat Section 6.3: Marine Mammals and Sea Turtles Section 6.4: Migratory Birds Section 7.3.1: Fish and Fish Habitat (Accidental Events) Section 7.3.3: Marine Mammals and Sea Turtles (Accidental Events) Section 7.3.4: Migratory Birds (Accidental Events) Section 10.1.4: Species at Risk/Species of Conservation Concern

EIS Guidelines	EIS Reference
✓ direct and indirect effects from noise, vibrations and increased exposure to contaminants of concern;	Section 6.1: Fish and Fish Habitat Section 6.3: Marine Mammals and Sea Turtles Section 6.4: Migratory Birds Section 7.3.1: Fish and Fish Habitat (Accidental Events) Section 7.3.3: Marine Mammals and Sea Turtles (Accidental Events) Section 7.3.4: Migratory Birds (Accidental Events)
✓ a discussion of migration patterns of federal species at risk and related effects (e.g. displacement, increased risk of collision); and	Section 6.1: Fish and Fish Habitat Section 6.3: Marine Mammals and Sea Turtles Section 6.4: Migratory Birds Section 7.3.1: Fish and Fish Habitat (Accidental Events) Section 7.3.3: Marine Mammals and Sea Turtles (Accidental Events) Section 7.3.4: Migratory Birds (Accidental Events)
✓ direct and indirect effects on the survival or recovery of federally listed species (list species).	Section 6.1: Fish and Fish Habitat Section 6.3: Marine Mammals and Sea Turtles Section 6.4: Migratory Birds Section 7.3.1: Fish and Fish Habitat (Accidental Events) Section 7.3.3: Marine Mammals and Sea Turtles (Accidental Events) Section 7.3.4: Migratory Birds (Accidental Events)
6.3.7. Indigenous peoples	
– The underlying changes to the environment will also be described, including, but not limited to: ✓ any changes to resources (fish, birds, or other natural resources) used for traditional purposes (e.g. fishing, use of sacred sites);	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment) Section 7.3.6: Indigenous People and Community Values (Accidental Events)
✓ effects on food, social, ceremonial, and commercial fishing;	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment) Section 7.3.6: Indigenous People and Community Values (Accidental Events)
✓ a discussion of how drilling activities correlates to key fisheries windows, and any potential impacts resulting from overlapping periods;	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment) Section 7.3.6: Indigenous People and Community Values (Accidental Events)

EIS Guidelines	EIS Reference
✓ changes related to species important to Indigenous people's current use of resources, including changes to key habitat;	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment) Section 7.3.6: Indigenous People and Community Values (Accidental Events)
✓ any changes or alterations to access into the areas used for traditional purposes and commercial fishing, including implementation of exclusion zones;	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment) Section 7.3.6: Indigenous People and Community Values (Accidental Events)
✓ any changes to the environment that affect cultural value or importance associated with traditional uses or areas affected by the project (e.g. values or attributes of the area that make it important as a place for inter-generational teaching of language or traditional practices, communal gatherings, integrity of preferred traditional practice areas);	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment) Section 7.3.6: Indigenous People and Community Values (Accidental Events)
✓ how timing of project activities (e.g. drilling, flaring) have the potential to interact with the timing of traditional practices, and any potential effects resulting from overlapping periods;	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment) Section 9.2.8: Assessment of Cumulative Environmental Effects on Indigenous People and Community Values
✓ consideration of the regional context for traditional use and the value of the project area in that regional context, including alienation of lands from traditional use;	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment) Section 7.3.6: Indigenous People and Community Values (Accidental Events)
✓ any changes to environmental quality (e.g. air, water), the sensory environment (e.g. noise, light, visual landscape), or perceived disturbance of the environment (e.g. fear of contamination of water or country foods) that could detract from use of the area or lead to avoidance of the area;	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment) Section 7.3.6: Indigenous People and Community Values (Accidental Events) Section 10.3: Effects of Changes to the Environment on Indigenous People and Community Values (CEAA 2012 section 5(1)(c))
✓ an assessment of the potential to return affected areas to pre-project conditions to support traditional practices;	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment) Section 7.3.6: Indigenous People and Community Values (Accidental Events)

EIS Guidelines	EIS Reference
– human health, focusing on effects on health outcomes or risks in consideration of, but not limited to, potential changes in water quality (recreational and cultural uses), availability of country foods (e.g. marine species), and noise exposure. When risks to human health due to changes in one or more of these components are predicted, a complete Human Health Risk Assessment (HHRA) examining all exposure pathways for pollutants of concern may be necessary to adequately characterize potential risks to human health. Where adverse health effects are predicted, any incidental effects such as effects on current use of lands and resources for traditional purposes will also be assessed. The proponent must provide a justification if it determines that an assessment of the potential for contamination of country foods is not required or if some contaminants are excluded from the assessment;	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment) Section 7.3.6: Indigenous People and Community Values (Accidental Events) (Recommend scoping out of assessment in Table 5.1) Section 10.3: Effects of Changes to the Environment on Indigenous People and Community Values (CEAA 2012 section 5(1)(c))
– socio-economic conditions, including, but not limited to: ✓ the use of navigable waters ✓ commercial fishing (e.g. catch rates, exclusion zones, gear damage or loss, well abandonment, marketability of seafood products) and food security ✓ commercial outfitters ✓ recreational use	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment) Section 7.3.6: Current Indigenous Use of Lands and Resources for Traditional Purposes (Accidental Events) Section 10.3: Effects of Changes to the Environment on Indigenous People and Community Values (CEAA 2012 section 5(1)(c))
– physical and cultural heritage, and structures, sites or things of historical, archaeological, paleontological or architectural significance to groups, including, but not limited to: ✓ the loss or destruction of physical and cultural heritage ✓ changes to access to physical and cultural heritage ✓ changes to the cultural value or importance associated with physical and cultural heritage	Section 10.3: Effects of Changes to the Environment on Indigenous People and Community Values (CEAA 2012 section 5(1)(c))
– other effects of changes to the environment on groups should be reflected as necessary.	Section 6.6: Indigenous People and Community Values (Environmental Effects Assessment) Section 7.3.6: Indigenous People and Community Values (Accidental Events) Section 10.3: Effects of Changes to the Environment on Indigenous People and Community Values (CEAA 2012 section 5(1)(c))

EIS Guidelines	EIS Reference
6.3.8. Other valued components that may be affected as a result of a federal decision or due to effects on federal lands, another province or outside Canada	
If there is the potential for a change to the environment arising as a result of a federal decision(s), for example an authorization under section 138(1) of the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Act* or section 35 of the *Fisheries Act*, the EIS should include a description of the specific project components for which a federal authorisation/decision is required, and an assessment of any other VCs (not already covered in other subsections of these guidelines) that may be affected by the changes to the environment caused by these specific project components.	Section 10.4.1: Changes to the Environment that are Directly Linked or Necessarily Incidental to Federal Decisions
If there is the potential for the project to result in environmental changes on federal lands (or waters), another province, or another country, then VCs of importance not already identified should be included.	Section 10.2: Changes to the Environment that Would Occur on Federal or Transboundary Lands (CEAA, 2012 section 5(1)(b))
6.3.8.1. Air quality and greenhouse gas emissions	
– comparison of anticipated air quality concentration against the *Canadian Ambient Air Quality Standards* (CAAQS) for fine particulate matter or other relevant federal and/or provincial criteria for other contaminants of potential concern;	Section 2.6.3.1: Atmospheric Emissions Section 10.4.1: Changes to the Environment that are Directly Linked or Necessarily Incidental to Federal Decisions
– description of all methods and practices (e.g. control equipment) that will be implemented to minimize and control atmospheric emissions throughout the project life cycle. If the best available technologies are not included in the project design, the proponent will need to provide a rationale for the technologies selected;	Section 2.6.3.1: Atmospheric Emissions
– an estimate of the direct greenhouse gas emissions associated with all phases of the project (i.e. including drilling, well testing and marine and helicopter transportation) as well as any mitigation measures proposed to minimize greenhouse gas emissions. This information is to be presented by individual pollutant and should also be summarized in CO_2 equivalent per year. The proponent is responsible for the following:	Section 2.6.3.1: Atmospheric Emissions Section 10.4.1: Changes to the Environment that are Directly Linked or Necessarily Incidental to Federal Decisions
✓ provide an estimate of the contribution of the project emissions at the local, provincial and federal scale, and indicate the category into which the project falls in terms of the relative magnitude of its contribution to greenhouse gas emissions (project with low, medium or high emission rates); ✓ justify all estimated emissions and emission factors used; ✓ provide the estimation or derivation method, and disclose and describe all assumptions and emission intensity factors used; ✓ compare and assess the level of estimated emissions to the regional, provincial and federal emission targets;	Section 2.6.3.1: Atmospheric Emissions Section 10.4.1: Changes to the Environment that are Directly Linked or Necessarily Incidental to Federal Decisions

EIS Guidelines	EIS Reference
✓ provide information related to the project's electrical demand and sources of electrical power for equipment, i.e. the project's main source and any other additional sources (generators, etc.), as appropriate;	
– changes in ambient noise levels; and	Section 2.6.3.2: Noise Emissions Section 6.3: Marine Mammals and Sea Turtles
– changes in night-time light levels.	Section 2.6.3.3: Light Emissions
6.3.8.2. Commercial fisheries	
– effects of changes to the environment on commercial fishing activities (e.g. effects on fished species affecting fisheries success, displacement from fishing areas (e.g. exclusion zones), gear loss or damage);	Section 6.2: Commercial Fisheries Section 7.3.2: Commercial Fisheries (Accidental Events)
– a discussion of how drilling activities correlates to key commercial fisheries windows, and any potential impacts resulting from overlapping periods;	Section 6.2: Commercial Fisheries Section 7.3.2: Commercial Fisheries (Accidental Events) Section 9: Cumulative Effects
– effects from subsea infrastructure that could be left in place (e.g. wellheads) following abandonment; and	Section 6.2: Commercial Fisheries
– changes to habitat of commercial fish species (e.g. noise, water and sediment quality).	Section 6.2: Commercial Fisheries Section 7.3.2: Commercial Fisheries (Accidental Events)
6.3.8.3. Special areas	
– effects on special areas, including, but not limited to:	6.5: Special Areas 7.3.5: Special Areas (Accidental Events)
✓ use of dispersants, and	Section 7.1 3.2: Net Environmental Benefit (Response Strategy) Section 7.3.5.3: Assessment of Residual Environmental Effects on Special Areas (Accidental Events)
✓ change to habitat quality (e.g. noise, light, water, sediment quality).	Section 6.5: Special Areas Section 7.3.5: Special Areas (Accidental Events)
6.3.8.4. Human environment	
– effects of changes to the environment on health and socio-economic conditions, physical and cultural heritage and any structure, site or thing that is of historical, archaeological, paleontological, or architectural value, including, but not limited to the following, as applicable: ✓ recreational activities; ✓ other ocean uses; ✓ socio-economic conditions; ✓ human health; ✓ physical and cultural heritage (e.g. shipwrecks); ✓ rural and urban settings that could be affected by routine activities and/or accidents and malfunctions.	Section 5.2.2: Selection of Valued Components Section 10.4.2: Effects of Changes to the Environment that are Directly Linked or Necessarily Incidental to Federal Decisions

EIS Guidelines	EIS Reference
6.4. Mitigation measures	
Every EA conducted under CEAA 2012 will consider measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project.	Section 11.2: Summary of Mitigation Commitments Section 11.4: Monitoring and Follow-up
The EIS will describe mitigation measures in relation to species and/or critical habitat listed under the *Species at Risk Act*. These measures will be consistent with any applicable recovery strategy and action plans.	Section 6.1.10.2: Mitigation (Fish and Fish Habitat Section 6.3.10.2 Mitigation (Marine Mammals and Sea Turtles) Section 6.4.10.2: Mitigation (Migratory Birds)
The EIS will specify the actions, works, minimal disturbance footprint techniques, best available technology, corrective measures or additions planned during the project's various phases to eliminate or reduce the significance of adverse effects. The EIS will also present an assessment of the effectiveness of the proposed technically and economically feasible mitigation measures.	Section 6.1.10.2: Mitigation (Fish and Fish Habitat Section 6.2.10.2: Mitigation (Commercial Fisheries) Section 6.3.10.2 Mitigation (Marine Mammals and Sea Turtles) Section 6.4.10.2: Mitigation (Migratory Birds) Section 6.5.10.2: Mitigation (Special Areas) Section 6.6.10.2: Mitigation (Indigenous People and Community Values)
The EIS will indicate what other technically and economically feasible mitigation measures were considered and explain why they were rejected. Trade-offs between cost savings and effectiveness of the various forms of mitigation measures will be justified.	Section 2.9: Alternative Means of Carrying out the Project
The EIS will identify who is responsible for the implementation of these measures and the system of accountability.	Section 2.7: Husky's Environmental Management System and Environmental Compliance Plan
Where mitigation measures are proposed to be implemented for which there is little experience or for which there is some question as to their effectiveness, the potential risks and effects to the environment should those measures not be effective will be clearly and concisely described.	Section 7.1: Spill Prevention and Response Section 7.3: Accidental Events Environmental Effects Assessment
In addition, the EIS will identify the extent to which technological innovations will help mitigate environmental effects. Where possible, it will provide detailed information on the nature of these measures, their implementation, management and the requirements of the follow-up program.	Section 7.1: Spill Prevention and Response

EIS Guidelines	EIS Reference
6.5. Significance of residual effects	
After having established the technically and economically feasible mitigation measures, the EIS will present any residual environmental effects of the project on the VCs identified in Section 6.3 above. The residual effects, even if very small or deemed insignificant, will be described.	Section 6.1.10.3: Characterization of Residual Project-related Environmental Effects (Fish and Fish Habitat) Section 6.2.10.3: Characterization of Residual Project-related Environmental Effects (Commercial Fisheries) Section 6.3.10.3: Characterization of Residual Project-related Environmental Effects (Marine Mammals and Sea Turtles) Section 6.4.10.3: Characterization of Residual Project-related Environmental Effects (Migratory Birds) Section 6.5.10.3: Characterization of Residual Project-related Environmental Effects (Special Areas) Section 6.6.10.3: Characterization of Residual Project-related Environmental Effects (Indigenous People and Community Values) Section 7.3: Accidental Events Environmental Effects Assessment
The EIS will then provide a detailed analysis of the significance of the residual environmental effects that are considered adverse following the implementation of mitigation measures, using guidance described in Section 4 of the Agency's Operational Policy Statement, Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects under the Canadian Environmental Assessment Act, 2012.	Section 6.1.10.3: Characterization of Residual Project-related Environmental Effects (Fish and Fish Habitat) Section 6.2.10.3: Characterization of Residual Project-related Environmental Effects (Commercial Fisheries) Section 6.3.10.3: Characterization of Residual Project-related Environmental Effects (Marine Mammals and Sea Turtles) Section 6.4.10.3: Characterization of Residual Project-related Environmental Effects (Migratory Birds) Section 6.5.10.3: Characterization of Residual Project-related Environmental Effects (Special Areas) Section 6.6.10.3: Characterization of Residual Project-related Environmental Effects (Indigenous People and Community Values)

EIS Guidelines	EIS Reference
The EIS will identify the criteria used to assign significance ratings to any predicted adverse effects. It will contain clear and sufficient information to enable the Agency, technical and regulatory agencies, Indigenous groups, and the public to review the proponent's analysis of the significance of effects. The EIS will document the terms used to describe the level of significance.	Section 6.1.7: Significance Definition (Fish and Fish Habitat) Section 6.2.7: Significance Definition (Commercial Fisheries) Section 6.3.7: Significance Definition (Marine Mammals and Sea Turtles) Section 6.4.7: Significance Definition (Migratory Birds) Section 6.5.7: Significance Definition (Special Areas) Section 6.6.7: Significance Definition (Indigenous People and Community Values)
In assessing significance against these criteria, the proponent will, where possible, use relevant existing regulatory documents, environmental standards, guidelines, or objectives such as prescribed maximum levels of emissions or discharges of specific hazardous agents into the environment. The EIS will contain a section which explains the assumptions, definitions and limits to the criteria mentioned above in order to maintain consistency between the effects on each VC.	Section 6.1.2: Regulatory and Policy Setting (Fish and Fish Habitat) Section 6.2.2 Regulatory and Policy Setting (Commercial Fisheries) Section 6.3.2: Regulatory and Policy Setting (Marine Mammals and Sea Turtles) Section 6.4.2: Regulatory and Policy Setting (Migratory Birds) Section 6.5.2: Regulatory and Policy Setting (Special Areas) Section 6.6.2: Regulatory and Policy Setting (Indigenous People and Community Values)
Where significant adverse effects are identified, the EIS will set out the probability (likelihood) that they will occur and describe the degree of scientific uncertainty related to the data and methods used within the framework of this environmental analysis.	Section 6.0: Environmental Effects Assessment Section 7.3: Accidental Events Environmental Effects Assessment
6.6. Other effects to consider	
6.6.1. Effects of potential accidents or malfunctions	
The proponent will therefore conduct an analysis of the risks of accidents and malfunctions, determine their effects, and present preliminary emergency response measures.	Section 7: Accidental Events
Taking into account the lifespan of different project components, the proponent will identify the probability of potential accidents and malfunctions related to the project, including an explanation of how those events were identified, potential consequences (including the environmental effects as defined in section 5 of CEAA 2012), the plausible worst case scenarios for each accident and malfunction type and the environmental effects of these scenarios. The EIS will identify the measures to be put in place to prepare, prevent for and respond to all such scenarios (e.g. contingency and emergency procedures). The EIS will also describe the existing mechanisms and arrangements with response organizations for emergency response within the spatial extent of the project.	Section 7.1: Spill Prevention and Response Section 7.2.1: Oil Spill Risk and Probabilities

EIS Guidelines	EIS Reference
This assessment will include an identification of the magnitude of an accident and/or malfunction, including the quantity, mechanism, rate, form and characteristics of the contaminants and other materials likely to be released into the environment during the accident and malfunction events and would potentially result in an adverse environmental effect as defined in section 5 of CEAA 2012. The spatial boundaries will identify the areas that could potentially be affected by a worst-case scenario for each accident type.	Section 7.3: Accidental Events Environmental Effects Assessment
The EIS will describe the safeguards that have been established to protect against such occurrences and the contingency and emergency response procedures that would be put in place if such events do occur.	Section 7.1: Spill Prevention and Response
The effects of accidental spills and blowouts will therefore require assessment in the EIS, including fate and behaviour modelling, and hydrologic trajectory modelling for worst-case large-scale spill scenarios that may occur, including any assumptions, limitations, and formulated hypotheses, accompanied by supporting documentation of methodologies and the cumulative results of the modelling. Pre-SCAT (Shoreline Clean-up Assessment Technique) surveys and mapping for shorelines likely to be affected by a worst-case scenario spill or blowout shall also be provided in the EIS.	Section 7: Accidental Events
A discussion on water depth and its effect on blow-out rate and spill trajectory modelling assumptions must be provided. Where well locations have not yet been identified, points of origin selected for spill trajectory models should be conservative (e.g. selecting a potential location within the proposed drilling area that is closest to a sensitive feature or that could result in greatest effects).	Section 7.2: Accidental Event Probabilities and Models
Based on the results of the spill modelling and analysis in the EIS, an emergency response plan (e.g. oil spill contingency plan) for spills (small and large) and blowouts will be required. At a minimum, an outline of the emergency response plan along with key commitments is required in the EIS. Depending on the outcomes of the effects analysis, specific detail on key components of the plan will be required in the EIS. The proponent should commit to finalizing the plan in consultation with regulators prior to the application of permits.	Section 7.1: Spill Prevention and Response
The EIS shall include a discussion on the use, availability (including nearest location), timing (testing and mobilizing) and feasibility of a capping stack to stop a blowout and resultant spills.	Section 7.1: Spill Prevention and Response
If dispersants are to be used, the proponent shall consider associated environmental effects in the EIS (e.g. effects on marine life) and provide a plan for their use.	Section 7.1.3.2 Net Environmental Benefit

EIS Guidelines	EIS Reference
The environmental effects of other measures outlined in the emergency response plan should also be considered (e.g. effects from burns). A pre-incident Net Environmental Benefit Analysis (NEBA) shall be undertaken to help guide the development of the response methods and plans. The EIS shall include the means by which design and/or operational procedures, including follow-up measures, will be implemented to mitigate significant adverse effects from malfunctions and/or accidental events.	Section 7.3: Accidental Events Environmental Effects Assessment
The potential to encounter shallow gas pockets, and associated implications, should also be discussed.	Section 7.2.1.3: Shallow Gas versus Deep-well Blowout
The EIS should also consider effects of accidents in the near-shore environment (e.g. spills and ship groundings, as applicable) and of spills reaching shore; including effects on species at risk and their critical habitat, colonial nesters and concentrations of birds, and their habitat. The proponent will also demonstrate what long-term actions it would be prepared to undertake to remediate spill-affected lands and waters.	Section 7.3: Accidental Events Environmental Effects Assessment
The EIS should include a summarization of the nature, extent and magnitude of spills, and accidental releases related to existing production installations and past exploration drilling programs in the Newfoundland and Labrador offshore.	Section 7.2.1: Oil Spill Risk and Probabilities
6.6.2. Effects of the environment on the project	
The EIS will take into account how local conditions and natural hazards, such as severe and/or extreme weather conditions and external events (e.g. icebergs, seismic events and submarine landslide potential), could adversely affect the project and how this in turn could result in effects to the environment (e.g. extreme environmental conditions result in malfunctions and accidental events). These events will be considered in different probability patterns (e.g. 5-year event vs. 100-year event). The EIS will provide details of planning, design and construction strategies intended to minimize the potential environmental effects of the environment on the project.	Section 8: Effects of the Environment on the Project
6.6.3. Cumulative effects assessment	
In its EIS, the proponent will: – Identify and provide a rationale for the VCs that will constitute the focus of the cumulative effects assessment, focussing the cumulative effects assessment on the VCs most likely to be affected by the project and other project and activities. To this end, the proponent must consider, without limiting itself thereto, the following components likely to be affected by the project: ✓ fish and fish habitat, ✓ migratory birds, ✓ marine mammals and marine turtles, ✓ species at risk, ✓ marine plants, ✓ special areas, ✓ commercial fisheries, ✓ Indigenous peoples,	Section 9.1.1.1: Valued Components (Cumulative Effects - Scope)

EIS Guidelines	EIS Reference
✓ air quality and greenhouse gases, and ✓ human environment.	
– Identify and justify the spatial and temporal boundaries for the cumulative effect assessment for each VC selected. The boundaries for the cumulative effects assessments will generally be different for each VC considered. These cumulative effects boundaries will also generally be larger than the boundaries for the corresponding project effects.	Section 9.1.1.2: Spatial and Temporal Boundaries (Cumulative Effects - Scope)
– Identify the sources of potential cumulative effects. Specify other projects or activities that have been or that are likely to be carried out that could cause effects on each selected VC within the boundaries defined, and whose effects would act in combination with the residual effects of the project. This assessment may consider the results of any relevant study conducted by a committee established under section 73 or 74 of CEAA 2012.	Section 9.2.1: Context for Cumulative Environmental Effects in the Study Area
– Assess the cumulative effects on each VC selected by comparing the future scenario with the project and without the project. Effects of past activities (activities that have been carried out) will be used to contextualize the current state of the VC. In assessing the cumulative effects on current use of lands and resources for traditional purposes, the assessment will focus on the cumulative effects on the relevant activity (e.g. fishing).	Section 9.2: Cumulative Environmental Effects Assessment
– Describe the mitigation measures that are technically and economically feasible. The proponent shall assess the effectiveness of the measures applied to mitigate the cumulative effects. In cases where measures exist that are beyond the scope of the proponent's responsibility that could be effectively applied to mitigate these effects, the proponent will identify these effects and the parties that have the authority to act. In such cases, the EIS will summarize the discussions that took place with the other parties in order to implement the necessary measures over the long term.	Section 9.2: Cumulative Environmental Effects Assessment
– Determine the significance of the cumulative effects; and	Section 9.2: Cumulative Environmental Effects Assessment
– Develop a follow-up program to verify the accuracy of the assessment or to dispel the uncertainty concerning the effectiveness of mitigation measures for certain cumulative effects.	Section 9.2: Cumulative Environmental Effects Assessment
7. SUMMARY OF ENVIRONMENTAL EFFECTS ASSESSMENT	
The EIS will contain a table summarizing the following key information: – potential environmental effects on valued components; – proposed mitigation measures to address the effects identified above; and	Section 11.1: Summary of Potential Effects Table 11.1: Potential Project-VC Interactions and Effects

EIS Guidelines	EIS Reference
– potential residual effects and the significance of the residual environmental effects.	
In a second table, the EIS will summarize all key mitigation measures and commitments made by the proponent which will more specifically mitigate any significant adverse effects of the project on VCs (i.e. those measures that are essential to ensure that the project will not result in significant adverse environmental effects).	Section 11.2: Summary of Mitigation Commitments Table 11.2: Summary of Commitments
8. FOLLOW-UP AND MONITORING PROGRAMS	
Considerations for developing a follow-up program include: – whether the project will impact environmentally sensitive areas/VCs or protected areas or areas under consideration for protection; – the nature of Indigenous and public concerns raised about the project; – the accuracy of predictions; – whether there is a question about the effectiveness of mitigation measures or the proponent proposes to use new or unproven techniques and technology; – the nature of cumulative environmental effects; – the nature, scale and complexity of the program; and – whether there was limited scientific knowledge about the effects in the EA.	Section 11.2: Summary of Mitigation Commitments Section 11.4: Monitoring and Follow-up
8.1. Follow-up program	
The EIS shall present a preliminary follow-up program and shall include: – objectives of the follow-up program and the VCs targeted by the program; – list of elements requiring follow-up – number of follow-up studies planned as well as their main characteristics (list of parameters to be measured, planned implementation timetable, etc.); – intervention mechanism used in the event that an unexpected deterioration of the environment is observed; – mechanism to disseminate follow-up results among the concerned populations; – accessibility and sharing of data for the general population; – opportunity for the proponent to include the participation of Indigenous groups and stakeholders on the affected territory, during the development and implementation of the program; and – involvement of local and regional organizations in the design, implementation and evaluation of the follow-up results as well as any updates, including a communication mechanism between these organizations and the proponent.	Section 11.2: Summary of Mitigation Commitments Section 11.4: Monitoring and Follow-up

EIS Guidelines	EIS Reference
The discussion / description of follow up and monitoring programs relative to the currently proposed drilling program should include a short summary of the design and results/outcomes of monitoring programs that have been undertaken for previously assessed and/or completed offshore exploration drilling programs in similar environments and how these will be factored into the verification of impact predictions and design of the follow up and monitoring for the current exploration drilling program.	Section 2.7.5: Environmental Effects Monitoring Section 4.2.2.1: Environmental Effects Monitoring Results Section 4.2.2.2: Most Recent (2014) Environmental Effects Montioring Results Section 6.1.8: Summary of Existing Conditions for Fish and Fish Habitat Section 6.2.10.3: Characterization of Residual Project-related Environmental Effects (Commercial Fisheries)
8.2. Monitoring	
The proponent will prepare an environmental monitoring program for all phases of the project.	Section 11.2: Summary of Mitigation Commitments
Specifically, the environmental impact statement shall present an outline of the preliminary environmental monitoring program, including the: – identification of the interventions that pose risks to one or more of the environmental and/or valued components and the measures and means planned to protect the environment; – identification of regulatory instruments that include a monitoring program requirement for the valued components; – description of the characteristics of the monitoring program where foreseeable (e.g. location of interventions, planned protocols, list of measured parameters, analytical methods employed, schedule, human and financial resources required); – description of the proponent's intervention mechanisms in the event of the observation of non-compliance with the legal and environmental requirements or with the obligations imposed on contractors by the environmental provisions of their contracts; – guidelines for preparing monitoring reports (number, content, frequency, format) that will be sent to the authorities concerned; and – plans to engage Indigenous groups in monitoring, where appropriate.	Section 11.2: Summary of Mitigation Commitments Section 11.4: Monitoring and Follow-up

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Abbreviations and Acronyms

$	dollars (Canadian)
°C	degree Celsius
µg/m^3	microgram per cubic metre
µPa	micropascal
2D	2-dimensional
3D	3-dimensional
4D	4-dimensional
ADCP	Acoustic Doppler Current Profiler
ASP	Atlantic Seafood Producers
bbl	barrel of oil
BLM	Bureau of Land Management
BOEMRE	Bureau of Ocean Energy Management, Regulation and Enforcement
BOP	blow-out preventer
bopd	barrels of oil per day
BP	British Petroleum / BP Canada Energy Group ULC
CBC	Canadian Broadcasting Company
CCG	Canadian Coast Guard
CEA	cumulative effects assessment
CEA Agency	Canadian Environmental Assessment Agency
CEAA 2012	*Canadian Environmental Assessment Act, 2012*
CEPA, 1999	*Canadian Environmental Protection Act, 1999*
CETAP	Cetacean and Turtle Assessment Program
CH_4	Methane
Chevron	Chevron Canada Resources
CIS	Canadian Ice Service
CGS	Concrete gravity structure
cm	centimetre
cm/s	centimetre per second
CMA	Crab Management Area
C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board
CNSOPB	Canada-Nova Scotia Offshore Petroleum Board
CO	carbon monoxide
CO_2	carbon dioxide
CO_{2eq}	carbon dioxide equivalents
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
cP	centipoise (non-SI unit of dynamic viscosity)
CPAWS	Canadian Parks and Wilderness Society

CPUE	catch per unit effort
CRA	commercial, recreational and Aboriginal
CSEM	controlled source electromagnetic
CTD	conductivity, temperature, and depth
CWS	Canadian Wildlife Service
db	decibel
dB re 1 µPa	decibel relative to a standard reference pressure of 1 µPa
DFO	Fisheries and Oceans Canada
DOM	dissolved organic matter
DP	dynamic positioning
DST	drillstem test
EA	Environmental Assessment
EBSA	Ecologically and Biologically Significant Area
ECCC	Environment and Climate Change Canada
ECRC	Eastern Canada Response Corporation
ECSAS	Eastern Canada Seabirds at Sea
EEM	environmental effects monitoring
EEZ	Exclusive Economic Zone
EIS	Environmental Impact Statement
EL	exploration licence
EMF	electromagnetic field
ENGO	non-government organizations
EPCMP	Environmental Protection and Compliance Monitoring Plan
ExxonMobil	ExxonMobil Canada Ltd.
FAO	Food and Agriculture Organization
FFAW	Fish, Food and Allied Workers
FJGI	Fugro Jacques Geosurveys Inc.
FLO	Fisheries Liaison Officer
FPSO	floating production, storage and offloading
FSC	food, social and ceremonial
ft	feet
g	gram
GBS	gravity-based structure
GEAC	Groundfish Enterprise Allocation Council
GHG	greenhouse gas
GPS	Global Positioning System
GRN	Global Response Network
GT	grosse tonne
HF	high frequency
HFC	high frequency cetaceans

Hibernia	Canada Hibernia Holding Corp.
HMDC	Hibernia Management and Development Company Ltd.
HOIMS	Husky Operational Integrity Management System
Husky	Husky Oil Operations Limited
HP	Horsepower
Hz	Hertz
IBA	Important Bird Area
IIP	International Ice Patrol
IOGP	International Association of Oil and Gas Producers
IPIECA	Industry Environmental Conservation Association and the International Association of Oil
kHz	kilohertz
km	kilometre
km^2	square kilometre
km/hr	kiolmetre per hour
L	litre
LF	low frequency
LFC	low frequency cetaceans
LISA	Labrador Inuit Settlement Area
m	metre
m/s	metres per second
m^2	square metre
m^3	cubic metre
m^3/m^3	gas-to-oil flow ratio
m^3/day	cubic metre per day
MARPOL	*International Convention for the Prevention of Pollution from Ships*
mb	millibar
MBCA	*Migratory Birds Convention Act*
MF	medium frequency
MFC	medium frequency cetaceans
mg/kg	milligram per kilogram
mg/L	milligram per litre
mm	millimetre
MMO	marine mammal observer
MODU	mobile offshore drilling unit
Murphy Oil	Murphy Atlantic Offshore Oil
N_2O	nitrous oxide
NAFO	Northwest Atlantic Fisheries Organization
NAO	North Atlantic Oscillation
NEB	National Energy Board

NEBA	net environmental benefit analysis
NEFSC	Northeast Fisheries Science Center
NL ESA	Newfoundland and Labrador *Endangered Species Act*
nm	nautical mile
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOx	nitrogen oxides
NPA	*Navigation Protection Act*
NRA	NAFO Regulatory Area
OA	Operation Authorization
OBIS	Ocean Biogeographic Information System
OCI	Ocean Choice International
OCSG	Offshore Chemical Selection Guidelines
OPS	Operational Policy Statement
OMA	oil-mineral-aggregates
OSRO	oil spill response organization
OSRL	Oil Spill Response Limited
OSV	offshore supply vessel
OWTG	Offshore Waste Treatment Guidelines
PAH	Polycyclic aromatic hydrocarbon
PBGB-LOMA	Placentia Bay-Grand Banks Large Ocean Management Area
PERD	Program of Energy Research and Development
PIROP	Programme Intégré de Recherches sure les Oiseaux Pélagiques
PL	Production Licence
PLONOR	Pose Little or No Risk
PM	particulate matter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
ppm	parts per million
the Project	Husky Exploration Drilling Project
psi	pounds per square inch
psu	practical salinity unit
PTS	permanent threshold shift
RFMO	Regional Fisheries Management Organization
rms	root mean square
ROV	remotely operated vehicle
RRMT	(Husky) Regional Response Management Team
SAR	Species at Risk
SARA	*Species at Risk Act*
SBA	Significant Benthic Areas

SBM	synthetic-based (drilling) mud
SDL	Significant Discovery Licence
SEA	Strategic Environmental Assessment
SEL	sound exposure level
SFA	Shrimp Fishing Area
SO_2	sulphur dioxide
SOCC	Species of Conservation Concern
SOCP	Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Marine Environment
SPL	sound pressure level
SPOC	single point of contact
SSAC	Special Status Advisory Committee
Statoil	Statoil Canada Ltd.
Suncor	Suncor Energy Inc.
Sv	Sverdrup (non-SI unit of volume transport of ocean currents)
SVSS	Single Vessel Side Sweep
SWRX	South White Rose Extension Drill Centre
UA	Unit area
US GOM	United States Gulf of Mexico
US OCS	United Stated Outer Continental Shelf
UXO	Unexploded ordnance
t	tonnes
TAC	total allowable catch
TNASS	Trans North Atlantic Sighting Survey
TPH	total petroleum hydrocarbon
TPM	total particulate matter
TSP	total suspended matter
TSS	total suspended solids
TTS	temporary threshold shifts
TVD	total vertical depth
VC	valued component
VME	vulnerable marine ecosystem
VOC	volatile organic compound
VSP	vertical seismic profiling
WBM	waster-based (drilling) mud
WREP	White Rose Extension Project