

Nexen Energy ULC
Eastern Newfoundland Offshore Geophysical, Geochemical,
Environmental and Geotechnical Program, 2018 - 2027

Scoping Document

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1 Purpose

This document provides scoping information for the Environmental Assessment (EA) of geophysical, geochemical, environmental, and geotechnical programs in the eastern Newfoundland offshore and all other related activities (the Project). Nexen Energy ULC (Nexen) is proposing to conduct a ship-borne geophysical program that includes two dimensional (2D), three dimensional (3D), four dimensional (4D) seismic, wellsite, geochemical, geotechnical and environmental survey programs in one or more years within the 2018 to 2027 timeframe. The primary objectives of the Project are to: acquire data to image structural and stratigraphic trends; define and assess prospects for potential drilling and development; and assess overall hydrocarbon potential.

Included in this document is a description of the scope of the project that will be assessed, the factors to be considered in the assessment, and the scope of those factors.

2 Regulatory Considerations

The Project will require authorizations pursuant to Section 138 (1) (b) of the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Act* and Section 134(1) (b) of the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act (Accord Acts)*.

The C-NLOPB formally delegates the responsibility for preparation of an acceptable environmental assessment report and any supporting documents to Nexen Energy ULC, the project proponent.

3 Scope of the Project

The project to be assessed consists of the following components:

- 3.1 The conduct of 2D, 3D, and/or 4D seismic, wellsite, geochemical, geotechnical and environmental surveys between April 1 and November 30 in one or more years between 2018 and 2027 within the Project Area; and
- 3.2 Operation of a program vessel and picket/escort/scout/supply vessel associated with the above activities.

4 Factors to be Considered

The EA shall include a consideration of the following factors:

- 4.1 The purpose of the project;
- 4.2 The environmental effects of the Project, including those due to malfunctions or accidents that may occur in connection with the Project and any change to the

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Project that may be caused by the environment, whether any change occurs within or outside Canada. Environmental effect is defined as: any change that the project may cause in the environment, including any effect of any such change on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by aboriginal persons, or on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance;

- 4.3 Cumulative environmental effects of the Project that are likely to result from the project in combination with other projects or activities that have been or will be carried out;
- 4.4 The significance of the environmental effects described in 4.2 and 4.3;
- 4.5 Measures, including contingency and compensation measures as appropriate, that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project;
- 4.6 The significance of adverse environmental effects following the employment of mitigative measures, including the feasibility of additional or augmented mitigative measures; and
- 4.7 Report on consultations undertaken by Nexen with interested other ocean users who may be affected by program activities and/or the general public respecting any of the matters described above. The One Ocean documents *Fact Sheet for Non-One Ocean Petroleum Members* and *One Ocean Protocol for Consultation Meetings: Recommendations for the Fish and Petroleum Industries in Newfoundland and Labrador* can assist in planning these consultations.

5 Scope of the Factors to be Considered

Nexen will prepare and submit to the C-NLOPB an EA for the above-described physical activity, and as described in “*Eastern Newfoundland Offshore Geophysical, Geochemical, Environmental and Geotechnical Program (2018 - 2027) Environmental Assessment Project Description*” (Amec Foster Wheeler February 1, 2017). The EA will address the factors listed above; the issues identified in Section 5.2 (following), and document any issues and concerns that may be identified by the proponent through regulatory, stakeholder, and public consultation.

Program activities are proposed for the eastern portion of the Canada-Newfoundland and Labrador Offshore Area which has been studied in recent EAs and the *Eastern Newfoundland & Labrador Offshore Area Strategic Environmental Assessment* (August 2014) (Eastern SEA). For the purposes of this assessment, the information provided in the Eastern SEA should support the EA to avoid unnecessary duplication of information. Appropriate references should be included in the EA.

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It is recommended that the “valued environmental component” (VEC) approach be used to focus its analysis. A definition of each VEC (including components or subsets thereof) identified for the purposes of environmental assessment, and the rationale for its selection, shall be provided.

The scope of the factors, to be considered in the EA, will include the components identified in Section 5.2 - Summary of Potential Issues, setting out the specific matters to be considered in assessing the environmental effects of the project and in developing environmental plans for the project, and the “Spatial Boundaries” identified below (Section 5.1). Considerations relating to definition of “significance” of environmental effects are provided in the following sections.

Discussion of the biological and physical environments should consider the data available from recent EAs and the Eastern SEA for the Project and Study Areas. Where data gaps exist, the EA should clearly identify the lack of data available.

5.1 Boundaries

The EA shall consider the potential effects of the proposed program within spatial and temporal boundaries that encompass the periods and areas during and within which the project may potentially interact with, and have an effect on, one or more VECs. These boundaries may vary with each VEC and the factors considered, and should reflect a consideration of:

- the proposed schedule/timing of the program and related activities;
- the natural variation of a VEC or subset thereof;
- the timing of sensitive life cycle phases in relation to the scheduling of survey activities;
- interrelationships/interactions between and within VECs;
- the time required for recovery from an effect and/or return to a pre-effect condition, including the estimated proportion, level, or amount of recovery; and
- the area within which a VEC functions and within which a project effect may be felt.

The proponent shall clearly define, and provide the rationale for the spatial and temporal boundaries that are used in its EA. The EA report shall clearly describe the spatial boundaries (e. g. Study Area, Project Area) and shall include figures, maps and the corner-point coordinates. Boundaries should be flexible and adaptive to enable adjustment or alteration based on field data. The Study Area will be described based on consideration of potential areas of effects as determined by the scientific literature, and project-environment interactions. A suggested categorization of spatial boundaries follows.

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5.1.1 Spatial Boundaries

Project Area

The area in which project activities are to occur, including the area of the buffer zone normally defined for vessel turning activities.

Study Area

The area which could potentially be affected by project activities beyond the “Project Area.”

Regional Area

The area extending beyond the “Study Area” boundary. The “Regional Area” boundary will also vary with the component being considered (e.g., boundaries suggested by bathymetric and/or oceanographic considerations).

5.1.2 Temporal Boundaries

The temporal scope should describe the timing of project activities. Scheduling of project activities should consider, at a minimum, the timing of sensitive life cycle phases of the VECs in relation to physical activities and the timing (and location) of active commercial fishing activities and other marine users.

5.2 Summary of Potential Issues

The EA shall contain descriptions and definitions of EA methodologies employed in the assessment of effects. Where information is summarized from existing EA reports, the sections referenced should be clearly indicated. Effects of relevant Project activities on those VECs most likely to be in the defined Study Area shall be assessed. Discussion of cumulative effects within the Project area and with other relevant marine projects shall be included. Issues to be considered in the EA shall include, but not be limited to, the following:

Physical Environment

5.2.1 The Eastern SEA provides information on the Newfoundland and Labrador offshore physical environment. Only new information for the Study Area that has become available since the publication of the above noted document, and that is relevant to the consideration of environmental effects, should be provided in the EA. The EA shall provide a description of:

- Meteorological and oceanographic characteristics, including extreme conditions; and
- Submarine landslide potential.

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Biological Environment

5.2.2 The Eastern SEA provides information on the Newfoundland offshore biological environment. The Eastern SEA provides descriptions of: marine birds; fish and fish habitat; marine mammals and sea turtles; species at risk; sensitive areas; and human activities, including marine fisheries. Only relevant new information for the Study Area that has become available since the publication of the above noted document should be provided in the EA, in particular species at risk, sensitive areas, and marine fisheries. The project EA shall note/acknowledge data gaps identified in the Eastern SEA relative to marine fish/fish habitat, species at risk, sensitive areas, and marine fisheries, and describe the relevance of such gaps for the conduct of the project EA.

5.2.3 Marine and/or Migratory Birds

The EA shall provide only new or updated information, where applicable, to address any changes to the following and any data and/or information gaps noted with respect to marine and/or migratory birds within the Eastern SEA:

- Spatial and temporal species distributions (observations from prior programs should be included);
- Species habitat, feeding, breeding, and migratory characteristics of relevance to the Study Area;
- Noise disturbance from equipment, including both direct effects (physiological), or indirect effects (foraging behaviour or prey species);
- Physical displacement as a result of vessel presence (e.g. disruption of foraging activities);
- 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 behind the vessel;
- Nocturnal disturbance from light (e.g. increased opportunities for predators, attraction to vessels and subsequent collision, disruption of incubation);
- Procedures for handling birds that may become stranded on survey vessels;
- Means by which bird mortalities associated with project operations may be documented and assessed;
- Exposure to contaminants from accidental spills (e.g., fuel, oils) and operational discharges (e.g. deck drainage, gray water, black water);
- Means by which potentially significant adverse effects upon birds may be mitigated through design and/or operational procedures; and
- Environmental effects due to the Project, including cumulative effects.

5.2.4 Marine Fish and Shellfish

The EA shall provide only new or updated information, where applicable, to address any changes to the following and any data and/or information gaps noted with respect to marine fish and shellfish within the Eastern SEA:

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- Distribution and abundance of marine fish and invertebrate species utilizing the Study Area with consideration of critical life stages (e.g., spawning areas, overwintering, juvenile distribution, migration);
- Description, to the extent possible, of location, type, diversity and areal extent of marine fish habitat in the Study Area. In particular, those indirectly or directly supporting traditional, aboriginal, historical, present or potential fishing activity, and including any essential (e.g. spawning, feeding, overwintering) habitats;
- The means by which potentially significant adverse effects upon fish (including critical life stages) and commercial fisheries may be mitigated through design, scheduling, and/or operational procedures; and
- Environmental effects due to the Project, including cumulative effects.

5.2.5 Marine Mammals

The EA shall provide only new or updated information, where applicable, to address any changes to the following and any data and/or information gaps noted with respect to marine mammals within the Eastern SEA,

- Spatial and temporal distribution;
- Description of marine mammal life stages/life histories relevant to the Study Area;
- Disturbance to/displacement of marine mammals due to noise and the possibility of ship strikes;
- Means by which potentially significant adverse effects upon marine mammals (including critical life stages) may be mitigated through design, scheduling, and/or operational procedures; and
- Environmental effects due to the Project, including cumulative effects.

5.2.6 Sea Turtles

The EA shall provide only new or updated information, where applicable, to address any changes to the following and any data and/or information gaps noted with respect to sea turtles within the Eastern SEA:

- Spatial and temporal distribution;
- Description of sea turtle life stages/life histories relevant to the Study Area;
- Disturbance to/displacement of sea turtles due to noise and the possibility of ship strikes;
- Means by which potentially significant adverse effects upon sea turtles (including critical life stages) may be mitigated through design, scheduling, and/or operational procedures; and
- Environmental effects due to the Project, including cumulative effects.

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5.2.7 Species at Risk (SAR)

The EA shall provide only new or updated information, where applicable, to address any changes to the following and any data and/or information gaps noted with respect to Species at Risk within the Eastern SEA:

- A description of SAR as listed in Schedule 1 of the *Species at Risk Act (SARA)*, and those under consideration by COSEWIC in the Study Area, including fish, marine mammal, sea turtles, and seabird species. It is advised that the SARA Registry and COSEWIC website be referred to for the most recent information;
- A description of critical habitat (as defined under SARA), if applicable, to the Study Area;
- Monitoring and mitigation, consistent with recovery strategies/action plans (endangered/threatened) and management plans (special concern);
- A summary statement stating whether project effects are expected to contravene the prohibitions of SARA (Sections 32(1), 33, 58(1));
- Means by which adverse effects upon SAR and their critical habitat may be mitigated through design, scheduling, and/or operational procedures; and
- Assessment of effects (adverse and significant) on SAR and critical habitat, including cumulative effects.

5.2.8 “Sensitive” Areas

The EA shall provide only new or updated information, where applicable, to address any changes to the following and any data and/or information gaps noted with respect to sensitive areas within the Eastern SEA:

- A description, to the extent possible, of any “Sensitive” Areas in the Study Area deemed important or essential habitat to support any of the marine resources identified, particularly descriptions of Ecologically and Biologically Significant Areas (EBSAs) and NAFO Vulnerable Marine Ecosystems (VMEs) that occur within the project/study area;
- Environmental effects due to the project, including cumulative effects, on those “Sensitive” Areas identified; and
- Means by which adverse effects upon “Sensitive” Areas may be mitigated through design, scheduling and/or operational procedures.

Marine Use

5.2.9 Noise/Acoustic Environment

The EA shall provide information on the following:

- Disturbance/displacement of VECs and SAR associated with survey activities;
- A description of sound levels that may be expected from the source throughout the water column and how these may affect pelagic and benthic fish, shellfish, species at risk and marine mammals.

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- Means by which potentially significant effects may be mitigated through design, scheduling and/or operational procedures; and
- Effects of program activities (direct and indirect) including cumulative effects, on the VECs and SAR identified within the EA. Critical life stages should be included.

5.2.10 Presence of Program Vessel(s)

The EA shall provide information on the following:

- Description of project-related traffic, including routings, volumes, scheduling and vessel types;
- Effects upon access to fishing grounds;
- Effects upon general marine traffic/navigation, including fisheries research surveys, and mitigations to avoid research surveys;
- Means by which potentially significant effects may be mitigated through design, scheduling and/or operational procedures; and
- Environmental effects assessment, including cumulative effects.

5.2.11 Fisheries and Other Ocean Users

The EA shall provide only new or updated information, where applicable, to address any changes to the following:

- A description of fishery activities (including traditional, existing and potential commercial, recreational and aboriginal/subsistence, foreign fisheries) in the Study Area;
- Consideration of underutilized species and species under moratoria that may be found in the Study Area as determined by analyses of past DFO research surveys and Industry GEAC survey data, with emphasis on those species being considered for future potential fisheries, and species under moratoria;
- Traditional historical fishing activity, including abundance data for certain species in this area, prior to the severe decline of many fish species (e.g., a general overview of survey results and fishing patterns in the survey areas for the last 20 years);
- An analysis of the effects of Project operations and accidental events upon the foregoing. The analysis should include consideration of recent scientific literature on effects of program activity (e.g. seismic), including identified data gaps;
- Fisheries liaison/interaction policies and procedures;
- Program(s) for compensation of affected parties, including fisheries interests, for accidental damage resulting from project activities;
- Means by which adverse effects upon commercial fisheries may be mitigated through design and/or operational procedures; and
- Environmental effects due to the Project, including cumulative effects.

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5.2.12 Accidental Events

- Environmental effects of any accidental events arising from accidental releases from the program vessels (e.g. seismic, support). Cumulative effects in consideration of other oil pollution events (e.g., illegal bilge disposal) should be included.
- Mitigations to reduce or prevent such events from occurring.
- Contingency plans to be implemented in the event of an accidental release.

Environmental Management

5.2.13 The EA shall outline Nexen's environmental management system and its components, including, but not limited to:

- Pollution prevention policies and procedures;
- Fisheries liaison/interaction policies and procedures;
- Program(s) for compensation of affected parties, including fishery interests, for accidental damage resulting from project activities; and
- Emergency response plan(s).

Biological and Follow-up Monitoring

5.2.14 Discuss the need for and requirements of a follow-up program to verify the accuracy of the EA, to verify the effectiveness of any mitigation measures identified in the EA, or both. The discussion should also include any requirement for compensation monitoring (compensation is considered mitigation).

A review and evaluation of best mitigation practices should be undertaken with the view of incorporating new and/or existing techniques into programs. Discuss how the proposed mitigations in the EA Report will be undertaken. Clearly describe the monitoring and reporting aspects on the implementation and effectiveness of the mitigation measures contained in the EA Report.

Details regarding the monitoring and observation procedures, including others identified during the initial review phase of the project description, to be implemented regarding marine mammals, sea turtles and seabirds (observation protocols should be consistent with the C-NLOPB *"Geophysical, Geological, Environmental and Geotechnical Program Guidelines"* (June 2016).

5.3 Significance of Adverse Environmental Effects

The Proponent shall clearly describe the criteria by which it proposes to define the "significance" of any residual adverse environmental effects that are predicted by the EA. This definition should be consistent with the November 2015 CEAA operational policy statement *"Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the Canadian Environmental*

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Assessment Act, 2012", and be relevant to consideration of each VEC (including components or subsets thereof) that is identified. SARA species shall be assessed independent of non-SARA species. The effects assessment methodology should clearly describe how data gaps are considered in the determination of significance of effects.

5.4 Cumulative Effects

The assessment of cumulative environmental effects should be consistent with the principles described in the December 2014 (Draft) CEAA *Technical Guidance for Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012*" and in the March 2015 CEAA operational policy statement *"Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012"*. It should include a consideration of environmental effects that are likely to result from the proposed project in combination with other projects or activities that have been or will be carried out. These include, but are not limited to: proposed oil and gas activities under EA review (listed on the C-NLOPB Public registry at www.cnlopbc.ca); other seismic activities; fishing activities, including Aboriginal fisheries; and marine transportation. The C-NLOPB website lists all current and active offshore petroleum activity within the Canada-NL offshore area. It should include consideration of how the project will contribute to existing impacts from other activities.

6 Projected Timelines for the Environmental Assessment Process

The following are estimated timelines for completing the EA process. The timelines are offered based on experience with recent environmental assessments of similar project activities.

ACTIVITY	TARGET	RESPONSIBILITY
EA review upon receipt from Proponent	6 weeks	C-NLOPB & Expert Departments and Agencies
Compile comments on EA	1 week	C-NLOPB
Review of EA Addendum/Response Document (<i>if necessary</i>)	2 weeks	C-NLOPB & Expert Departments and Agencies
Determination of Significance of Project Effects	3 weeks	C-NLOPB
Total	12 weeks	