



## **Electromagnetic Geoservices Canada, Inc.**

### **Controlled Source Electromagnetic Survey, 2014 to 2018**

#### **Scoping Document**

**Prepared by:**

**Canada-Newfoundland and Labrador Offshore Petroleum Board  
Environmental Affairs Department  
St. John's, NL**

**For more information, contact:**

**C-NLOPB  
5<sup>th</sup> Floor, TD Place, 140 Water Street  
St. John's, NL, A1C 6H6  
Tel: (709) 778-1400  
Fax: (709) 778-1473**

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**1 Purpose**

This document provides scoping information for the Environmental Assessment (EA) of the proposed controlled source electromagnetic (CSEM) survey in the eastern portion of the Newfoundland and Labrador Offshore Area and all other related activities (the Project). Electromagnetic Geoservices Canada, Inc. (EMGS) is proposing to undertake CSEM surveys in one or more years within the 2014 to 2018 timeframe. The primary objective of the Project is to acquire data to assess the presence of geological structures suitable for the containment and accumulation of hydrocarbons and to determine the hydrocarbon characteristics.

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.

This document has been developed by the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) in consultation with federal and provincial fisheries and environmental departments<sup>1</sup>.

**2 Regulatory Considerations**

The Project will require authorizations pursuant to Section 138 (1) (b) of the *Canada-Newfoundland 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 Electromagnetic Geoservices Canada, Inc., the project proponent.*

**3 Scope of the Project**

The project to be assessed consists of the following components:

- 3.1 EMGS is proposing to conduct one or more CSEM surveys between 2014 and 2018, starting as early as May 2014, anywhere within its proposed Project Area. An array of receivers will be deployed on the seabed commonly 1-3 km apart. An electromagnetic source is then deployed and towed behind the survey vessel, roughly 30 m above the seabed. The electromagnetic signal propagates through the subsurface and is recorded by receivers sitting on the sea bed.
- 3.2 Operation of support craft associated with the above activities, including but not limited to standby/picket vessels and helicopters.

**4 Factors to be Considered**

The EA shall include a consideration of the following factors:

- 4.1 The purpose of the project;

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<sup>1</sup>Appendix 1 contains a list of the departments and agencies consulted during the preparation of the document.

- 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 Project that may be caused by the environment. 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; and any change to the project that may be caused by the environment, whether any such change occurs within or outside Canada;
- 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 EMGS with interested other ocean users who may be affected by program activities and/or the general public respecting any of the matters described above.

## **5 Scope of the Factors to be Considered**

EMGS will prepare and submit to the C-NLOPB an EA for the above-described physical activity, and as described in “*Project Description East Canada CSEM Survey 2014-2018*” (LGL December 11, 2013). 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 Newfoundland and Labrador Offshore Area which has been studied in a number of recent EAs. For the purposes of this assessment, the information provided in the EA documents can be used in support of the EA for the proposed CSEM program.

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 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 CSEM survey 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 CSEM survey program;
- the natural variation of a VEC or subset thereof;
- the timing of sensitive life cycle phases in relation to the scheduling of CSEM 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.

### **5.1.1 Spatial Boundaries**

#### **Project Area**

The area in which CSEM survey 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 the timing of sensitive life cycle phases of the VECs in relation to physical activities.

### **5.2 Summary of Potential Issues**

The EA report for the proposed CSEM surveys should contain descriptions of the biological and physical environments, as identified below. Where applicable, information may be summarized from existing environmental assessment reports for the eastern portion of the Newfoundland and Labrador Offshore Area. The EA report should provide only summary descriptions of those biological and physical parameters. However, where new information is available, (e.g., fisheries data) for any of the following factors, the new data and/or information should be provided. If information is not updated, justification must be provided. Where information is summarized from existing EA reports, it should be properly referenced; with specific reference to those sections of the existing EA report summarized.

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 EA shall provide a brief summary description of the meteorological and oceanographic characteristics, including extreme conditions, and any change to the Project that may be caused by the environment.

#### **Marine Resources**

##### **5.2.2 Marine and/or Migratory Birds**

The EA shall provide a summary description, where applicable, of the information presented in existing environmental reports for the eastern portion of the Newfoundland and Labrador Offshore Area. New or updated information should be provided, where applicable, to address any changes to the following:

- 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 CSEM equipment including both direct effects (physiological), or indirect effects (foraging behaviour, prey species, adult attendance at the nest);
- 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);
- Nocturnal disturbance from light (e.g. increased opportunities for predators, attraction of birds to vessel lighting 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;
- Effects of hydrocarbon spills from accidental events, including 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.

#### **5.2.3 Marine Fish and Shellfish**

The EA shall provide a summary description, where applicable, of the information presented in existing environmental reports for the eastern portion of the Newfoundland and Labrador Offshore Area. New or updated information should be provided, where applicable, to address any changes to the following:

- 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.

#### **5.2.4 Marine Mammals and Sea Turtles**

The EA shall provide a summary description, where applicable, of the information presented in existing environmental reports for the eastern portion of the Newfoundland and Labrador Offshore Area. New or updated information should be provided, where applicable, to address any changes to the following:

- Spatial and temporal distribution;
- Description of marine mammal and sea turtle life stages/life histories relevant to the Study Area;
- Disturbance to/displacement of marine mammals and sea turtles due to noise and the possibility of ship strikes;

- Means by which potentially significant adverse effects upon marine mammals and 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.

#### **5.2.5 Species at Risk (SAR)**

Provide a summary description, where applicable, of the information presented in existing environmental reports for the eastern portion of the Newfoundland and Labrador Offshore Area. New or updated information should be provided, where applicable, to address any changes to the following:

- 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.

#### **5.2.6 “Sensitive” Areas**

The EA shall provide a summary description, where applicable, of the information presented in existing environmental reports for the eastern portion of the Newfoundland and Labrador Offshore Area. New or updated information should be provided, where applicable, to address any changes to the following:

- 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;
- 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*

##### **5.2.7 Noise/Acoustic Environment**

The EA shall provide a summary description, where applicable, of the information presented in existing environmental reports for the eastern portion of the Newfoundland and Labrador Offshore Area. New or updated information should be provided, where applicable, to address any changes to the following:

- Disturbance/displacement of VECs and SAR associated with CSEM survey activities;

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

**5.2.8 Presence of CSEM Survey Vessel(s)**

The EA shall provide a summary description, where applicable, of the information presented in existing environmental reports for the eastern portion of the Newfoundland and Labrador Offshore Area. New or updated information should be provided, where applicable, to address any changes to 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.

**5.2.9 Fisheries and Other Ocean Users**

Provide a summary description, where applicable, of the information presented in existing environmental reports for the eastern portion of the Newfoundland and Labrador Offshore Area. New or updated information should be provided, where applicable, to address any changes to the following:

- A description of fishery activities (including traditional, existing and potential commercial, recreational and aboriginal/subsistence and foreign fisheries) in the Project 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 fishers, 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 CSEM activity on invertebrate species, 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.



**5.2.10 Accidental Events**

- Environmental effects of any accidental events arising from accidental releases from the CSEM and/or support vessels. 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

**5.2.11** The EA shall outline EMGS'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

**5.2.12** Discuss the need for and requirements of a follow-up program (as defined in Section 2 of the CEA Act) and pursuant to the SARA. The discussion should also include any requirement for compensation monitoring (compensation is considered mitigation).

Details regarding the monitoring and observation procedures 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*" (January 2012).

**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 1994 CEAA reference guide "*Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects*", 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 February 1999 CEAA "*Cumulative Effects Assessment Practitioners' Guide*" and in the November 2007 CEAA operational policy statement "*Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act*". 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.cnlopb.nl.ca](http://www.cnlopb.nl.ca)); other CSEM activities; fishing activities, including Aboriginal fisheries; other oil and gas activities; and marine transportation. The C-NLOPB website list all current and active offshore petroleum activity within the NL offshore area.

**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.

<b>ACTIVITY</b>	<b>TARGET</b>	<b>RESPONSIBILITY</b>
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	

## **APPENDIX 1**

### **Departments and Agencies Consulted by C-NLOPB**

#### **Federal Departments**

Department of National Defence  
Environment Canada  
Fisheries and Oceans Canada  
Health Canada  
Natural Resources Canada  
Transport Canada

#### **Other Departments/Agencies**

Canadian Environmental Assessment Agency

#### **Provincial Departments (Government of Newfoundland and Labrador)**

Department of Environment and Conservation  
Department of Fisheries and Aquaculture  
Department of Natural Resources