

## 1 Purpose

This document provides scoping information for the environmental assessment of the proposed 3D seismic survey and all other related activities (the Project) in the Jeanne d’Arc Basin. Petro-Canada, the Proponent, is proposing to collect seismic data in the Jeanne d’Arc Basin in an area shown in Figure 1, and as described in the project description “3-D Marine Seismic Program in and near EL 1092 Project Description” (LGL 2006). It is proposed to collect 3D seismic data over a 4 year period commencing in 2006. For all years, data collection may begin in 01 May through to 30 November of each year to account for weather or technical delays.

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 Atlantic Accord Implementation Act* and Section 134(1)(a) of the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act*.

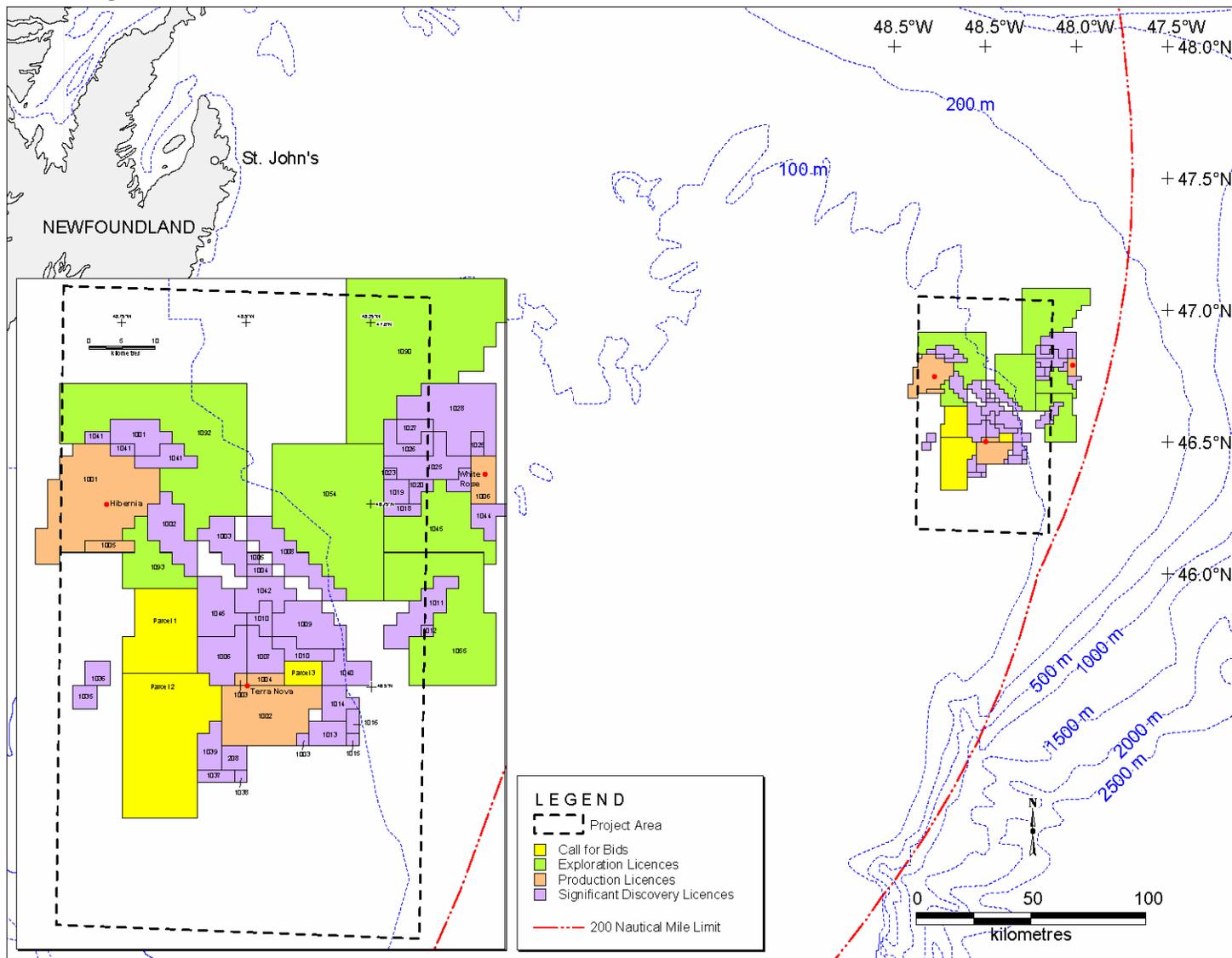
Subject to Section 5(1)(d) of the *Canadian Environmental Assessment Act* (CEA Act), the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) is a responsible authority (RA) and must undertake an environmental assessment of the Project. The project as proposed is listed in the *Inclusion List Regulations* and therefore is subject to a screening level of assessment under CEA Act.

The C-NLOPB will be the Federal Environmental Assessment Coordinator (FEAC) respecting the assessment and in this role will be responsible for coordinating the review activities of the other responsible authorities as well as those of other expert government departments and agencies that participate in the review.

***The C-NLOPB intends the environmental assessment submitted with any supporting documents as may be necessary will fulfill the requirements for a Screening. The C-NLOPB, therefore, pursuant to Section 17 (1) of the CEAA, formally delegate the responsibility for preparation of an acceptable Screening environmental assessment to Petro-Canada, the Project proponent. The C-NLOPB will prepare the Screening Report, which will include the determination of significance.***

Petro-Canada Seismic Program – Jeanne d’Arc Basin Area  
 Scoping Document

Figure 1 (from Petro-Canada 2006)



### **3 Scope of the Project**

The Project to be assessed consists of the following components:

A single seismic vessel will be used to collect seismic data in the survey area. The vessel will tow a multi-streamer configuration between 6 to 10 streamers, 8000 m long, at an approximate depth of 8 m. The array will be approximately 3500 to a maximum 5800 cu in. in size with an air pressure of up to 2500 psi. Up to 490 km<sup>2</sup> area will be surveyed in 2006. Additional 3D seismic data may be collected in 2007 through to 2009, depending on the requirement for additional data to support potential exploration programs. The temporal scope of the Project is from 01 May through 30. November in 2006 to 2009. The 3D program in 2006 will take approximately 22-35 days to complete.

### **4 Factors to be Considered**

The environmental assessment shall include a consideration of the following factors in accordance with Section 16 of CEA Act:

- 4.1 The purpose of the Project;
- 4.2 The environmental effects<sup>1</sup> of the Project, including those due to malfunctions or accidents that may be reasonably expected to occur in connection with the Project and any change to the Project that may be caused by the environment;
- 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 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;
- 4.7 The need for, and the requirements of, any follow-up programs in respect of the Project consistent with the requirements of the CEA Act and the SARA. (Refer to the Canadian Environmental Assessment Agency’s 2002 “Operational Policy Statement” regarding Follow-up Programs<sup>2</sup>); and
- 4.8 Report on comments undertaken by Petro-Canada with interested parties who may be affected by program activities and/or the general public respecting any of the matters described above that are received.

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<sup>1</sup> The term “environmental effects” is defined in Section 2 of the CEAA and Section 137 of the *Species at Risk Act*.

<sup>2</sup> CEA Agency Guidance documents and Operational Policy Statements are available on its web site:  
[http://www.ceaa-acee.gc.ca/012/newguidance\\_e.htm#6](http://www.ceaa-acee.gc.ca/012/newguidance_e.htm#6).

## 5 Scope of the Factors to be Considered

Petro-Canada will prepare and submit to the C-NLOPB an environmental assessment for the above described physical activity, and as described in the project description “3-D Marine Seismic Program in and near EL 1092 Project Description” (LGL 2006). The environmental assessment will address the factors listed above, the issues outlined below, and document any issues and concerns that may be identified by the proponent through regulatory, stakeholder, and public consultation.

This survey is proposed for the Jeanne d’Arc Basin, which has been studied extensively in a number of recent environmental assessments. The Terra Nova development underwent a joint Accord Act-CEA Act Panel review. In addition, over the last few years Petro-Canada completed environmental assessments for wellsite/geohazard surveys and VSP programs all within the Jeanne d’Arc Basin area. For the purposes of this assessment, the information provided in the environmental assessments completed by Petro-Canada<sup>3</sup> can be used in support of the environmental assessment for the proposed seismic survey.

If the “valued ecosystem component” (VEC) approach is used to focus the analysis in the environmental assessment, 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 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 March 1999 CEAA operational policy statement “*Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act*,”. It will 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:

- other seismic activities;
- fishing activities (including Aboriginal fisheries)
- other oil and gas activities
- marine transportation

The scope of the factors to be considered in the environmental assessment will include the components identified in the “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 and Temporal Boundaries” identified below. Considerations relating to definition of “significance” of environmental effects are provided in the following sections.

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<sup>3</sup> EA reports and addenda completed include: “Wellsite Geohazard Survey 2005, Environmental Assessment Terra Nova Development” (LGL 2005); “Wellsite Geohazard Survey Environmental Assessment Terra Nova Development (LGL 2004); “Vertical Seismic Profiling Environmental Assessment Terra Nova Development” (LGL 2004) “Terra Nova Environmental Impact Statement” (Petro-Canada 1996);

### **5.1. Boundaries**

The environmental assessment will consider the potential effects of the proposed physical activity 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 VEC. These boundaries may vary with each VEC and the factors considered, and should reflect a consideration of:

- the proposed schedule/timing of the seismic program;
- the natural variation of a VEC or subset thereof;
- the timing of sensitive life cycle phases in relation to the scheduling of seismic 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;
- 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 environmental assessment. A ‘study area’ shall be clearly defined by illustration in a figure. Boundaries should be flexible and adaptive to enable adjustment or alteration based on field data. A suggested categorization of spatial boundaries follows.

#### **5.1.2. Spatial Boundaries**

Project area The area in which seismic activities are to occur, and include the area of the buffer zone normally defined for line changes.

Affected area The area which could potentially be affected by Project activities beyond the project area.

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

#### **5.1.3. 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 Significance of Adverse Environmental Effects**

The Proponent shall clearly describe the criteria by which it proposes to define the “significance” of any adverse effects (i.e., following the employment of mitigative measures) that are predicted by the environmental assessment. This definition should be consistent with the November 1994 CEA Agency 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.

The effects assessment methodology should clearly describe how data gaps are considered in the determination of significance of effects.

### **5.3 Summary of Potential Issues**

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

#### General

- 5.3.1** The methodology that the Proponent uses to assess environmental effects;
- 5.3.2** Identification, where possible, of testable hypotheses associated with the results of the assessment;

#### Air Quality

- 5.3.3** Air emissions associated with Project activities and any implications for health and safety of workers that may be exposed to them;

#### Marine Resources

##### **5.3.4** Marine and/or migratory birds using the Study Area

Provide an update to the information presented in the environmental assessment reports and addenda completed by Petro-Canada for the Jeanne d’Arc Basin area as described above. The information should include:

- spatial and temporal species distributions Study Area (observation/monitoring data collected during ongoing petroleum activities should be discussed)
- species habitat, feeding, breeding, and migratory characteristics of relevance to the environmental assessment;
- effects of petroleum spills from accidental events, including fluid loss from streamers
- procedures for handling birds that may become stranded on seismic vessels
- means by which bird mortalities associated with Project operations may be documented and assessed;
- means by which potentially significant effects upon birds may be mitigated through design, scheduling, and/or operational procedures
- environmental effects due to the Project, including cumulative effects,

##### **5.3.5** Marine finfish and shellfish:

Provide an update to the information presented in the environmental assessment reports and addenda completed by Petro-Canada for the Jeanne d’Arc Basin area as described above. The information should include:

- characterization of existing environment in the Study Area
- distribution and abundance of species utilizing the Study Area with consideration of critical life stages (e.g., spawning areas, overwintering, juvenile distribution, and 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, historical, present or potential fishing activity, and including any critical (e.g. spawning, feeding, overwintering) habitats;
- means by which potentially significant effects upon fish and commercial fisheries may be mitigated through design, scheduling, and/or operational procedures; and
- environmental effects due to the Project, including cumulative effects,

### **5.3.6 Marine Mammals and Sea Turtles**

Provide an update to the information presented in the environmental assessment reports and addenda completed by Petro-Canada for the Jeanne d’Arc Basin area as described above. The information should include:

- Spatial and temporal distribution of marine mammals and sea turtles in Study Area (observation and monitoring data collected during ongoing petroleum activities should be discussed);
- Description of marine mammal lifestyles/life histories relevant to Study Area
- means by which potentially significant effects upon marine mammals/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

### **5.3.7 Traditional, existing and potential commercial, recreational and aboriginal/subsistence fisheries, including foreign fisheries.**

Provide an update to the information presented in the environmental assessment reports and addenda completed by Petro-Canada for the Jeanne d’Arc Basin area as described above. The information should include

- a description of fisheries in the Study Area (including traditional, existing and potential commercial, recreational and aboriginal/subsistence and foreign fisheries, where practicable)
- traditional historical fishing activity –abundance data for certain species in this area, prior to the severe decline of many fish species (e.g., an overview of survey results and fishing patterns in the survey areas for the last 20 years);
- consideration of underutilized species 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;
- means by which potentially significant effects upon fisheries may be mitigated through design, scheduling, and/or operational procedures;
- fisheries liaison/interaction policies and procedures
- program(s) for compensation of affected parties, including fisheries interests, for accidental damage resulting from project activities

- analysis of environmental effects of project operations, seismic activities and accidental events upon the foregoing; the analysis should include consideration of recent scientific literature on effects of seismic activity on invertebrate species, including identified data gaps
- cumulative effects when combined with other projects and activities;

#### **5.3.8 Species at Risk (SAR):**

Provide an update to the information presented in the environmental assessment reports and addenda completed by Petro-Canada for the Jeanne d’Arc Basin area as described above. The information should include:

- a description to the extent possible of species at risk 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
- a description of critical habitat (as defined under SARA), if applicable, relevant to the study area.
- means by which adverse effects upon SAR and their critical habitat may be mitigated through design, scheduling, and/or operational procedures
- monitoring and mitigation, consistent with recovery strategies/action plans (endangered/threatened) and management plans (special concern)
- assessment of effects (adverse and significant) on species at risk and critical habitat, including cumulative effects.
- A summary statement stating whether project effects are expected to contravene the prohibitions of SARA (Sections 32 (1), 33, 58(1))

#### **5.3.9 “Sensitive” Areas**

Provide an update to the information presented in the environmental assessment reports and addenda completed by Petro-Canada for the Jeanne d’Arc Basin area as described above. The information should include:

- a description, to the extent possible, of any ‘sensitive areas’ in the Study Area, such as 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
- means by which adverse effects upon “sensitive areas” may be mitigated through design, scheduling, and/or operational procedures

### Marine Use

#### **5.3.10 Noise/Acoustic Environment**

- disturbance/displacement of VECs and SAR associated with seismic activities
- means by which potentially significant effects may be mitigated through design, scheduling and/or operational procedures
- effects of seismic activities, direct and indirect, including cumulative effects, on the VECs and SAR identified within the environmental assessment, including critical life stages

#### **5.3.11 Presence of seismic vessel(s):**

- description of project-related traffic, including routings, volumes, scheduling and vessel types;
- effects upon access to fishing grounds;
- cumulative effects when combined with those of other present, past and likely future projects.

**5.3.12** Accidental Events

- Discussion on the potential for spill events related to the use and maintenance of streamers should be provided.
- environmental effects of any accidental events arising from streamers or accidental releases from the seismic and/or support vessels(e.g., loss of product from streamers)
- mitigations to reduce or prevent such events from occurring
- cumulative effects of the above, in consideration of other oil marine pollution sources
- contingency plans to be implemented in the event of an accidental release

**5.3.13** Physical Environment:

Provide an update to the information presented in the environmental assessment reports and addenda completed by Petro-Canada for the Jeanne d’Arc Basin area as described above. The information should include:

- Meteorological and oceanographic characteristics of Project area and region, including extreme conditions and any change to the Project that may be caused by the environment.

*Environmental Management*

**5.3.14** Petro-Canada’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 fisheries interests, for accidental damage resulting from project activities
- emergency response plan(s)

*Biological and Follow-up Monitoring*

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

**5.3.16** Details regarding the monitoring and observations procedures to be implemented regarding marine mammals and seabirds.

## **APPENDIX 1**

### **Departments and Agencies Consulted by the Board**

#### **“Responsible Authorities” under the *Canadian Environmental Assessment Act***

Canada-Newfoundland Offshore Petroleum Board

#### **Potential “Federal Authorities” under the *Canadian Environmental Assessment Act***

Natural Resources Canada

Department of Fisheries and Oceans

Environment Canada

Transport Canada

Department of National Defense

Health Canada

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

Canadian Environmental Assessment Agency

Newfoundland and Labrador Department of Natural Resources

Newfoundland and Labrador Department of Environment and Conservation

Newfoundland and Labrador Department of Fisheries and Aquaculture