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Environmental Project Description
Eastern Newfoundland Offshore
Geophysical, Geochemical, Environmental and
Geotechnical Programs 2015-2024

Submitted to:

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Submitted by:

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1 INTRODUCTION

On December 12, 2014, Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) accepted ExxonMobil Canada Ltd. (ExxonMobil) and co-venturers bids on NL13-01 (EL1135), NL13-02 (EL1136) and NL14-01(EL1137). Ministerial approval was granted and the C-NLOPB issued exploration licences for all three parcels effective January 15 2015. Over the next nine year period of the licence (2015-2024), ExxonMobil plans to conduct exploration survey activities over these licenses and other areas of interest in the “Project Area” (Figure 1). Exploration surveys in this Project Area could include 2D, 3D, wellsite geohazard, geochemical, geotechnical and environmental survey programs.

This Environmental Project Description has been prepared for the C-NLOPB to provide an overview of potential 2015-2024 exploration survey activities.

The Project Area encompasses the area in which ExxonMobil expects to conduct exploration surveys. Figure 1 indicates newly acquired licenses, EL1135, EL1136 and EL1137 locations in relationship with the Newfoundland Shoreline and other land interest in the area. Note that the entire Project Area is located within the C-NLOPB (2014) Eastern Newfoundland Strategic Environmental Assessment (SEA) area.

ExxonMobil is the representative for these licenses. The breakdown of interests in these licenses is as follows. EL1135 Flemish Pass Parcel 1 (266,139 ha) co-venturers are ExxonMobil Canada Ltd. 40%, Suncor Energy Inc. 30% and ConocoPhillips Canada Resources Corp. 30%. EL1136 Carson Basin Parcel 2 (288,800 ha) co-venturers are ExxonMobil Canada Ltd. 50% and Suncor Energy Inc. 50%. EL1137 Jeanne d’Arc Region Parcel 1 (108,938 ha) is ExxonMobil Canada Ltd. 100%.

ExxonMobil and co-venturers are committed to current Canada-Newfoundland and Labrador Benefits policies and are committed to providing opportunity for Canadians and in particular Newfoundland and Labrador participation.

2 CONTACTS

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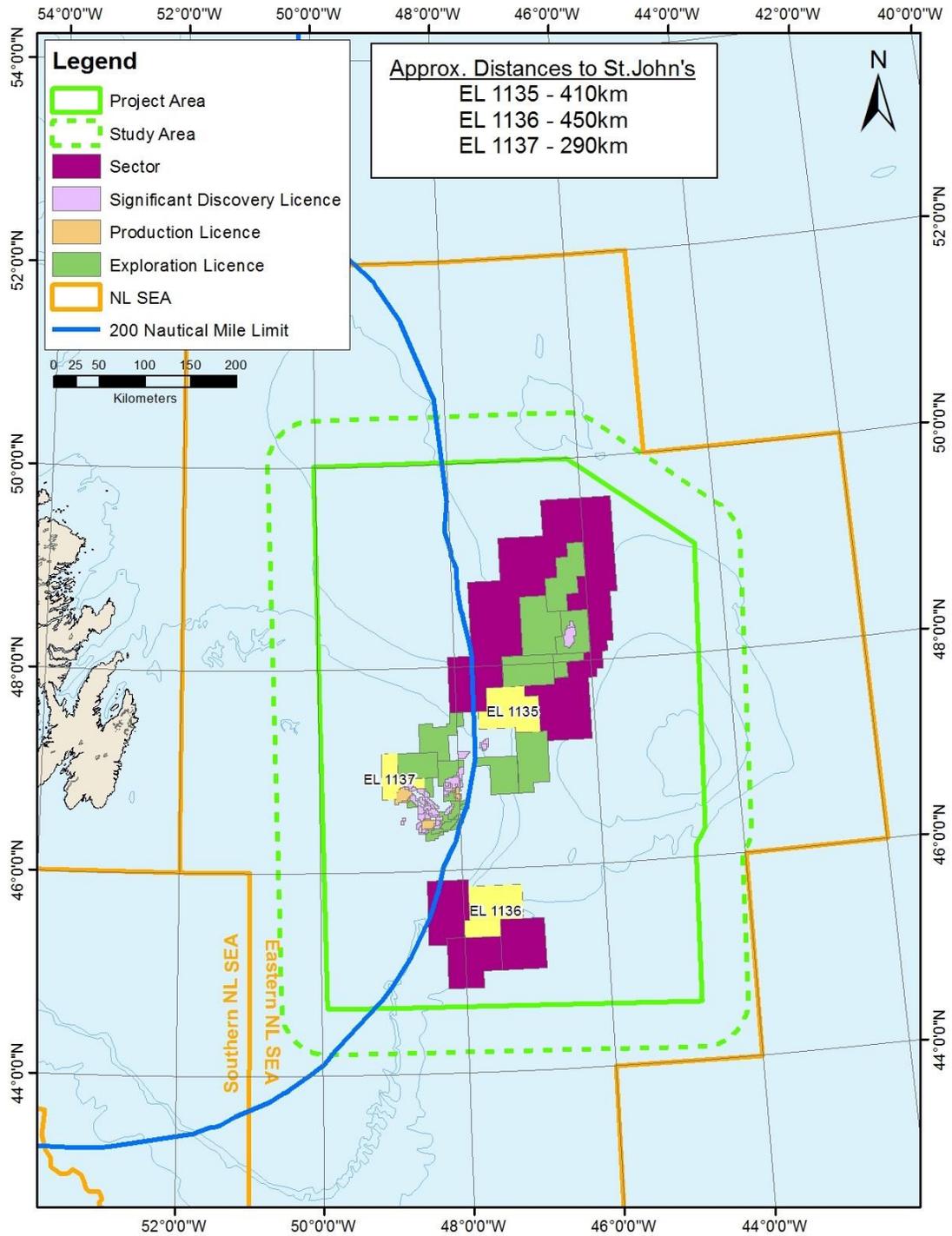


Figure 1. EL1135, EL1136 and EL1137 locations in relation to the Newfoundland Shoreline and other land interest in the area. Note that the entire EA Project Area and Study Area fall within the C-NLOPB (2014) Eastern Newfoundland SEA area.

3 PROJECT OVERVIEW

Over the next nine years (2015-2024), ExxonMobil plans to conduct exploration survey activities over these licenses and other areas of interest in the Project Area (Figure 1). Exploration surveys in this Project Area could include 2D, 3D, wellsite geohazard, geochemical, geotechnical and environmental survey programs. Planned activities for 2015 are indicated in Appendix 1. ExxonMobil plans to commence data acquisition in the 2015 summer survey season dependent upon the ability to contract a qualified seismic operator, vessel availability, successful completion of a Project Environmental Assessment (PEA), C-NLOPB Geophysical Program Authorization, and all co-venturer funding. Pending C-NLOPB approval, the Project could commence as early as early-mid summer 2015 and conclude by the end of October, 2015. Depending upon the final coverage area selected, the survey could continue in 2016. The planned activity consists of an initial 3D Seismic Survey in the EL1135 area. Detailed Program Description will be provided with the Geophysical Program Application.

3.1 Project Purpose

ExxonMobil's primary objectives are to:

1. acquire data to image structural and stratigraphic trends;
2. define and assess prospects for potential drilling and development; and
3. assess overall hydrocarbon potential

3.2 Project Location

The Study Area for the PEA and the Project Area are shown on Figure 1. Note that the entire Project Area and Study Area fall within the C-NLOPB (2014) Eastern Newfoundland SEA area.

3.3 Project Schedule

ExxonMobil plans to conduct exploration survey activities starting as early as the 2015 survey season. Exploration surveys are weather and seastate dependent with 2D and 3D seismic acquisition usually scheduled for the May to November timeframe. More weather sensitive

wellsite geohazard and seabed sampling surveys would preferably be acquired during the June to early October timeframe.

4 PROJECT SURVEY COMPONENTS

4.1 2D and 3D Seismic Survey

Acquisition of 2D and 3D seismic surveys duration usually ranges from 30-100 days. The components of 2D and 3D seismic surveys include:

- seismic acquisition vessel;
- towed seismic air source array;
- towed receiver streamer(s);
- guard vessel(s);
- logistics supply vessel; and
- a shorebase.

4.1.1 Seismic Vessel

The seismic acquisition vessel will be a fully equipped, modern vessel suited to the environment and task.

4.1.2 2D and 3D Towed Seismic Air Source Array

Seismic Source Towed Arrays sources which will be used during the 2D and 3D Seismic Surveys are contractor and vessel dependent. A typical 3D seismic source towed array consists of air source arrays, ranging in volume from 3,000 in³ to 5,500 in³, which operate at towed depths between 5 m and 9 m. The seismic source towed array operates on compressed air at pressures 1,800 to 2,500 psi, and produce approximate peak-to-peak pressures 100 to 180 bar-m.

4.1.3 2D and 3D Towed Seismic Streamer(s)

2D seismic survey will use a single towed streamer, with a length ranging from 6,000m - 10,000 m and deployed at a depth of approximately 6 to 30 m. The streamer will be solid or gel-filled to minimize the environmental impact in the case of breaks or tears. Streamer configurations may vary dependent upon contractor selected and vessel availability.

3D seismic survey will use up to 14 towed streamers, with lengths 6,000m - 10,000 m and deployed at a depth of approximately 6 to 30 meters. The streamers will be separated by 50/75/100 meters. The streamers will be solid or gel-filled to minimize the environmental impact in the case of breaks or tears. Streamer configurations may vary dependent upon contractor selected and vessel availability.

4.1.4 Logistics / Support

Details of logistical operations to support the 2D and 3D seismic surveys will largely depend on the contracted seismic acquisition company. The seismic vessel will use shorebase facilities in or near St. John's, NL for initial clearance into Canadian waters. Resupply of the seismic vessel during the survey will be accomplished with a chartered supply vessel from a Newfoundland port, most likely the Port of St. John's. A shore based representative will be located in St. John's for the duration of the project.

A standby or guard vessel will be used to scout for hazards and for interacting and communicating with other users of the area about the survey and associated trailing gear, and assist in working with fishers in the area (if any). The guard vessel will also provide a means for towing the seismic vessel in the case of a loss of propulsion. This will help avoid a major loss of equipment and potential environmental impact.

Due to varying weather conditions and long distance from shore, the contractor will use a supply vessel for crew changes rather than a helicopter. Helicopters would only be used in case of medical and other emergencies.

4.1.5 Personnel

A typical seismic vessel can accommodate approximately 50-100 personnel depending on size and capabilities of the contractor's vessel. Personnel on a seismic vessel includes individuals representing the Operator (ExxonMobil or its affiliate), the vessel owner/operator (ship's officers and marine crew), and technical and scientific personnel from the main seismic contractor. The seismic vessel will have a Fisheries Liaison Officer (FLO) and Marine Mammal Observer(s) (MMO) on board, as well as an Operator representative(s). The representative serves as Client Quality Control, Navigation Data Processing Quality Control, and Health, Safety, and

Environment oversight. All project personnel will have all of the required certifications as specified by relevant Canadian legislation and the C-NLOPB.

4.2 Wellsite Geohazard, Geochemical and Environmental Survey

Acquisition of wellsite geohazard seismic surveys duration usually ranges from 4-10 days. The components of a wellsite geohazard, geochemical and environmental survey include:

- site-survey acquisition vessel;
- engineering geophysical equipment;
- seabed sampling equipment; and
- geotechnical sampling equipment.

The typical wellsite survey vessel can accommodate 20-40 personnel. The crew is made up of technical personnel and the maritime crew. All on-board personnel will have the required certifications specified by Canadian legislation and the C-NLOPB. Wellsite survey vessel could be either a purpose built vessel or a vessel of opportunity.

Wellsite geohazard and engineering geophysical data will be collected using 2D high-resolution (2DHR) reflection seismic, deeptow sub-bottom profiler, hull-mounted sub-bottom profiler, side-scan sonar, multi-beam echosounder, and magnetometer. Core, grab and seabed samples will be acquired to determine seabed sediment characteristics.

Geochemical and environmental data acquisition will be collected using a towed seabed camera/video system, gravity or piston core, box corer and water sampler.

4.3 Geotechnical Survey

Pre-development geotechnical surveys can range from seabed sampling from a vessel of opportunity to in-situ sampling up to hundreds of meters below seabed using a dedicated geotechnical drillship.

5 PROJECT ENVIRONMENTAL ASSESSMENT (PEA)

The C-NLOPB completed the Eastern Newfoundland SEA in August 2014. Numerous operators and seismic contractors have completed project specific environmental assessments in the project area. These previous PEAs provide detailed information on valued ecosystem components (VECs), fish and fish habitat and species at risk. These data will be incorporated into the PEA for this Project.

Throughout the Project Area there are a variety of commercial fisheries which have been described in the previous PEAs and the Eastern Newfoundland SEA. These data will be summarized in the Project PEA. In consultation with the fishing industry, C-NLOPB, Fisheries and Oceans Canada (DFO), North Atlantic Fisheries Organization (NAFO), and OneOcean Corporation a plan will be developed to improve communications.

In addition to fishing vessels; naval, oil and gas activity, commercial, and passenger vessels all navigate through the Project Area. 2D and 3D seismic vessels will engage the services of a FLO to communicate with the fishing vessels and an onshore single point of contact (SPOC) will be established to address problems. Simultaneous operations protocol with the oil and gas industry vessels will be compiled and submitted to the C-NLOPB. Marine communication protocol and NOTSHIP notifications will provide detailed information to all vessels.

6 CONSULTATION

As a component of the environmental assessment process ExxonMobil will conduct a consultation program with the various regulators and stakeholders in preparing the PEA. ExxonMobil will consult DFO, Environment Canada (EC), and Department of National Defence (DND).

ExxonMobil will meet as necessary with the Fish, Food and Allied Workers (FFAW) Petroleum Industry Liaison, NAFO, and One Ocean to provide an overview of the survey programs and to discuss any questions or concerns that these organizations may have with the upcoming programs.

ExxonMobil will also contact the Association of Seafood Producers, Clearwater Seafoods, Ocean Choice International, and Icewater Seafoods to provide an overview of the planned survey programs and to discuss any questions or concerns and determine whether any fishing would be occurring within the vicinity of the survey.

7 ENVIRONMENTAL MANAGEMENT

Recent PEAs by other operators and SEA in the area have been completed, and these assessments have described the physical and biological environment. The physical and biological environment of The Project Area is anticipated to be consistent with the information described within C-NLOPB August 2014 SEA that has been completed for the region. Potential environmental impacts and mitigations of The Project and future projects will be addressed in the EA. At this time, The Project is not expected to have any significant environmental impacts on the receiving environment; however, this will be evaluated through the EA process.

Guidance provided in the C-NLOPB's Geophysical, Geological, Environmental and Geotechnical Program Guidelines (C-NLOPB 2012) will be used as the basis for the management and mitigation of environmental risks associated with the project. These guidelines recommend that operators implement the mitigations listed in the DFO *Statement of Canadian Practice with Respect to the Mitigation of Seismic Sound in the Marine Environment*.

The *Statement of Canadian Practice with Respect to the Mitigation of Seismic Sound in the Marine Environment* recommends the use of a MMO to continuously observe, for a minimum of 30 minutes, a 500 m safety zone (centered on the air source array) prior to start up and to ramp-up the array gradually over a 20 minute period beginning with the activation of a single source element. Further, it recommends the ramp-up to be delayed if a cetacean, sea turtle or Species at Risk Act (SARA) listed (Schedule 1) marine mammal is detected within the safety zone. In addition, the air source array will be shut down any time a marine mammal or sea turtle listed as endangered or threatened on Schedule 1 of the SARA is observed in the safety zone.

A Migratory Bird permit from EC Canadian Wildlife Service will also be obtained to enable the MMO(s) to salvage and release seabirds which may strand on the seismic vessel. A seabird salvage log will be maintained to record all seabird interactions as per the permit conditions.

To mitigate risks to fishers and fishing gear, a FLO will assess risks prior to departure; recommend mitigations while at sea; and communicate directly with fishers as needed. Details on fishers and fisheries in the Project Area will be detailed in the EA. Consultation with the fishing industry will be undertaken and the results of those consultations will be compiled and submitted.

Environmental risks and mitigation will be further evaluated and addressed in the PEA.

8 REFERENCES CITED

C-NLOPB (2012); Geophysical, Geological, Environmental and Geotechnical Program
Guidelines - January 2012 (GGE&GPG)

C-NLOPB (2014); Eastern Newfoundland Strategic Environmental Assessment – August 2014

Department of Fisheries and Oceans Canada; Statement of Canadian Practice with Respect to
the Mitigation of Seismic Sound in the Marine Environment

Appendix 1: 2015 3D Seismic Survey

In 2015, the proponent proposes (subject to management and C-NLOPB approval) to conduct a marine geophysical program consisting of up to 5,000 km² 3D seismic survey over the EL1135 block. This will be a high quality 3D seismic survey, providing initial structural and stratigraphic imaging of geologic features/prospects. Additional follow-on surveys may be proposed and conducted at some time in the future.

The seismic survey vessel used during the program will be a typical state-of-the-art vessel, and approved for operation in Canadian waters. The other components of a seismic survey typically include the towed seismic air source array; the towed receiver (hydrophone) array; a picket vessel; a logistics supply vessel; helicopter; and a shorebase.

The EL1135 Project could range from 2,500 km² to 5,000 km² (Full-Fold). The full-fold area contains information from the entire length of the seismic cable, which is needed to produce the seismic image. In order to achieve proper full-fold recording over the desired area, a run-in of up to 10 km (where the source will not be firing, with the possible exception of a single small mitigation source) and a run-out of 4-8 km (where the source will be firing) must be added to each line. Line heading is still to be determined. Line lengths will be determined once survey line orientation has been established. Total line lengths will include 1.5x active streamer length run-in and a 4-8 kilometer run-out. Up to 5,000 km² full-fold area (see Figure 2) may be acquired to cover all areas of the EL1135 license (note full-fold area does not include run-in/run-out, which will take place within the Project Area).

Water depths over EL1135 range from 244 m to 1,132 m.

Table 1: EL1135 Seismic Survey Parameters

General Information	
Operating Company:	ExxonMobil Canada Ltd.
Vessel Name(s):	TBD
Location:	Flemish Pass EL1135
Type of Survey:	3D Seismic
Area (full-fold)	Up to 5,000 km ² (Full-Fold) plus optional necessary migration aperture
Average line length (<i>including 4-8 km run-out</i>):	<i>TBD</i>
Line direction:	<i>TBD</i>
Source Parameters	
Source type	<i>TBD</i>
Number of sources	<i>TBD</i>
Shot to shot interval	<i>TBD</i>
Total volume per source	<i>3,000 in³ – 5,500 in³</i>
Source operating pressure	<i>~2,000 psi</i>
Source depth	<i>5 m – 9 m</i>
Output	<i>Approximately 120 bar-meter peak to peak</i>
Streamer Parameters	
Streamer type	<i>Digital 24 bit solid streamers, the stretch sections are gel-filled</i>
Number of active streamers	<i>12 streamers (on 8 streamer pre-plot)</i>
Streamer separation	<i>50 m / 75 m / 100 m</i>
Active streamer length (each nominal)	<i>6,000 – 10,000 m</i>
Steerable streamer device (REQUIRED)	<i>TBD</i>
Separation of steering device	<i>TBD</i>
Streamer depth	<i>6 m – 30 m</i>
Minimum line run-in distance	<i>1.5 x active streamer length (unobstructed areas)</i>

Italized text has the potential to change, it will be updated once finalized

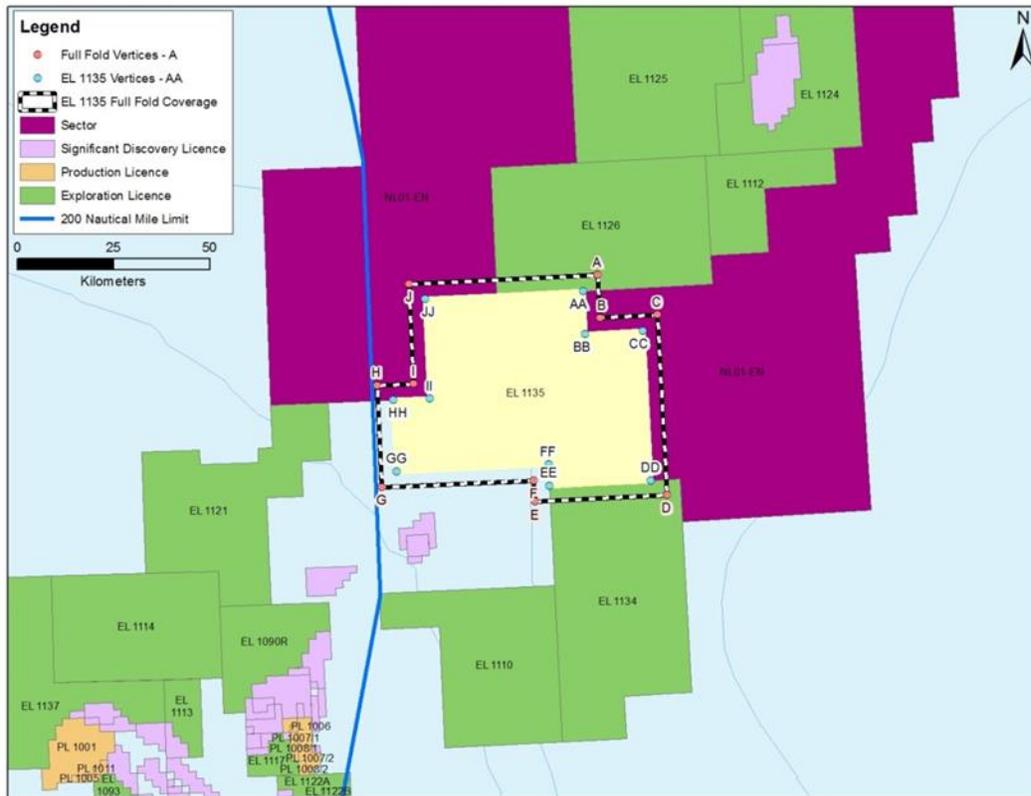


Figure 2. 2015 EL1135 3D Seismic Survey Program Full-fold Area (preliminary)