



REPORT TITLE

Labrador Shelf Seismic Program - Project Description

SUBMITTED TO

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HDMS No.:	004050674	Report No.:	EC-HSE-RP-0039	Version No.:	
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1.0 Introduction

Husky Energy proposes to undertake 2-D and 3-D seismic and follow-up geo-hazard surveys on its recently acquired exploration acreage on the Labrador Shelf (Figure 1.1). Husky Energy foresees a 2-D seismic survey in the summer of 2009 while other surveys – 2-D, 3-D or geo-hazard – may occur at various times between 2010 and 2017.

This document provides a Project Description to allow the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) to fulfill its responsibilities under the Canadian Environmental Assessment Act Federal Coordination Regulations. This Project Description together with the technical and scope advice received from the C-NLOPB and other Federal Agencies through the Federal Coordination Regulations and from other stakeholders consulted by Husky Energy will guide the preparation of a Screening-level Environmental Assessment.

Figure 1.1 General Location of Exploration Leases on the Labrador Coast to be subject to Seismic Surveys

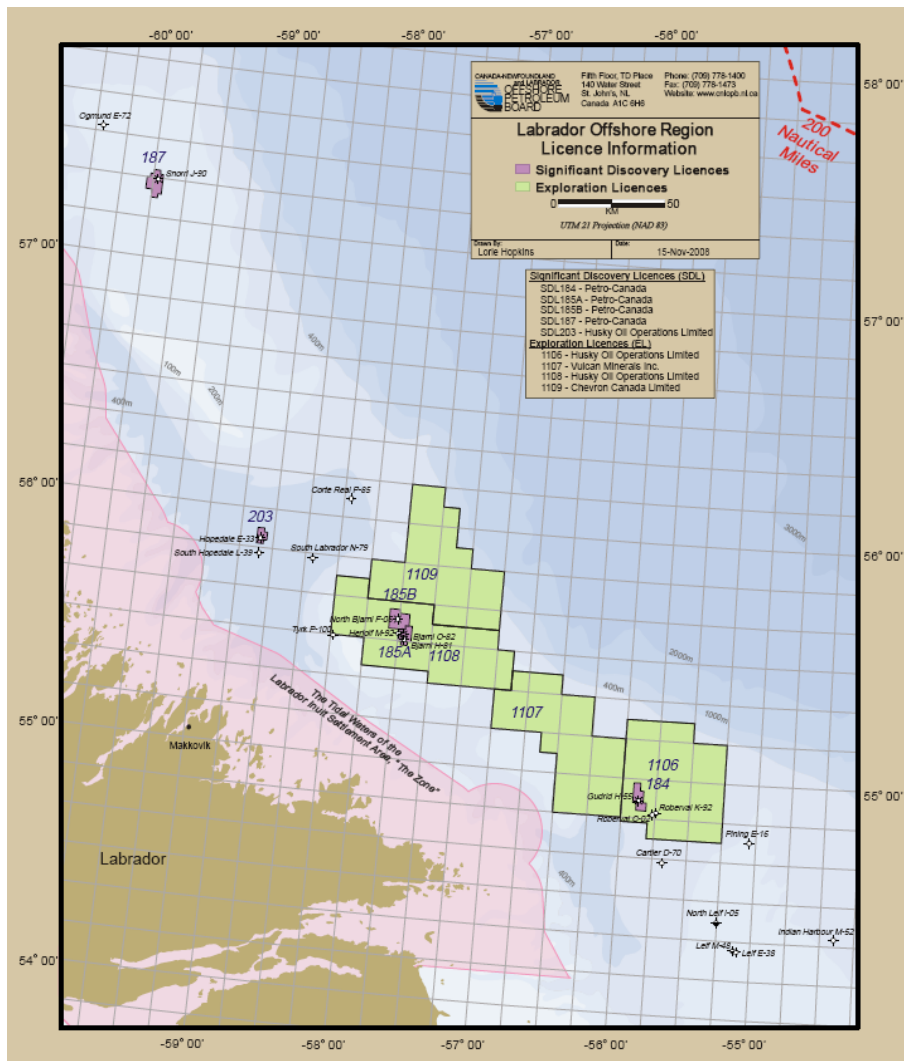
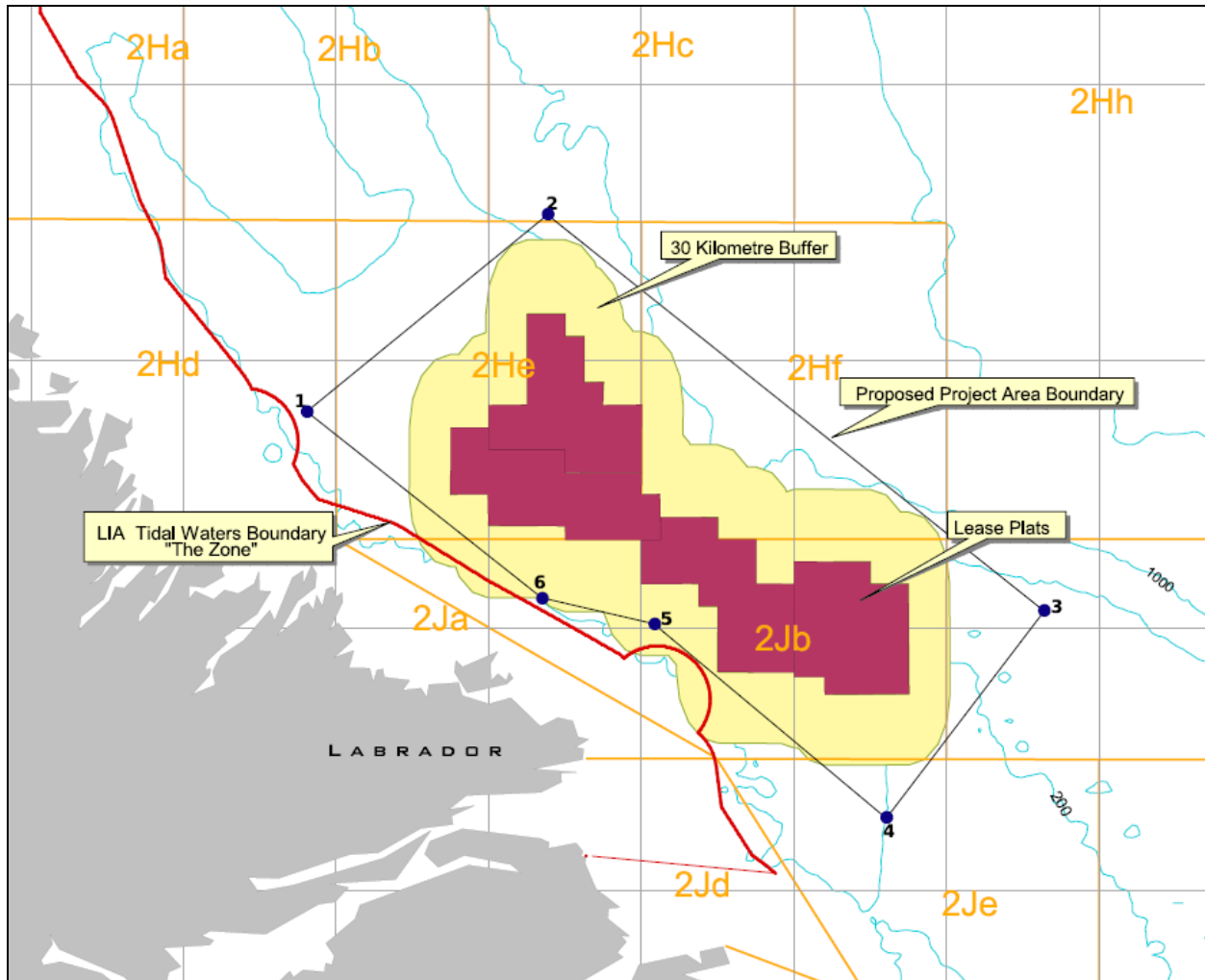


Figure 1.2 Proposed Project Area Boundary



Note: Corner Coordinates in decimal degrees (NAD 83) of the Proposed Project Area Boundary are:

1.	-59.1923,55.8095	2.	-57.6151,56.5295	3.	-54.3606,55.0654
4.	-55.3947,54.2780	5.	-56.9188,55.0174	6.	-57.6516,55.1154

2.0 Relevant Legislation and Regulatory Approvals

An Authorization to Conduct a Geophysical Program will be required from the C-NLOPB. The C-NLOPB is mandated by the “*Canada-Newfoundland Atlantic Accord Implementation Acts*”. Offshore geophysical surveys (including geo-hazard surveys) on federal lands are subject to screening under the Canadian Environmental Assessment Act (CEA Act). The C-NLOPB acts as the Federal Environmental Assessment Coordinator (FEAC). Because seismic survey activities have the potential to affect seabirds, marine mammals, and fish and commercial fisheries, the Departments of Fisheries and Oceans Canada and Environment Canada are the federal agencies primarily interested. Legislation that is relevant to the environmental aspects of this Project includes:

- Canada-Newfoundland Atlantic Accord Implementation Acts;
- Canadian Environmental Assessment (CEA) Act;
- Oceans Act;
- Fisheries Act;
- Navigable Waters Act;
- Canada Shipping Act;
- Migratory Bird Act, and
- Species at Risk Act (SARA).

One of the specific C-NLOPB Guidelines relevant to this project is the Geophysical, Geological, Environmental and Geotechnical Program Guidelines (May 2008).

2.1 Canada Newfoundland and Labrador Benefits

Husky Energy is committed to bringing maximum benefits associated with East Coast operations to Canada and in particular Newfoundland and Labrador, where commercially achievable in accordance with our operating philosophy and legislative requirements. In the spirit of the Atlantic Accord, Husky Energy actively seeks to enhance the participation of Newfoundland and Labrador, and Canadian individuals and organizations in offshore oil and gas activity on the East Coast. Husky Energy's commitment to delivering benefits to the Province and to Canada is outlined in the White Rose Development Application Volume One: Canada-Newfoundland and Labrador Benefits Plan.

Husky Energy manages its East Coast operations from St. John's, Newfoundland and Labrador. Canadian, and in particular Newfoundland and Labrador, individuals and organizations are provided with full and fair opportunity to participate in Husky Energy's activities on the East Coast. Husky Energy also supports the principle that first consideration be given to personnel, support and other services that can be provided by Newfoundland and Labrador, and to goods manufactured in Newfoundland and Labrador, where such goods and services are competitive in terms of fair market price, quality and delivery. Contractors and sub-contractors working for Husky Energy on its East Coast operations must also subscribe to and apply these principles in their own operations.

2.2 Contacts

2.2.1 Executive Contact Information

Mr. Trevor Pritchard, General Manager, Husky Energy East Coast Operations
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St. John's, NL A1C 1B6

2.2.2 Geophysical Contact

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2.2.3 Environmental Contact

Mr. Don Williams, HSEQ Manager, Husky Energy East Coast Operations
Husky Oil Operations Limited
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235 Water Street
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3.0 Proposed Project

3.1 Name and Location

The Labrador Shelf Seismic Program application encompasses the following C-NLOPB exploration licenses (ELs) 1106, 1107, 1108 and 1109. Figure 1.2 provides the geographic coordinates (NAD 83 Zone 22) of the area within which seismic survey operations will be conducted.

It is Husky Energy's intention to acquire a 2-D seismic survey over the exploration leases listed above in 2009, or as soon thereafter as possible. The exact dimensions of the 2009 survey area will be determined in early 2009 as a function of vessel availability and cost.

The proposed Project Area for the environmental assessment is defined in Figure 1.2 and includes a thirty (30) km buffer around the exploration leases to accommodate both streamer deployment and seismic vessel turning radius. Seismic survey operations will be carried out such that streamer deployment and end-of-survey line turning operations will not extend into the Labrador Inuit Settlement Area (also known as the "Zone").

3-D seismic surveys may also be carried out in later years, within the term of the explorations licenses dependent on the results of 2-D work and/or the availability of survey vessels. Buffer zones and streamer deployment areas similar to a 2-D survey would be required and implemented.

Subsequent geo-hazard surveys may be conducted anywhere on Husky Energy's exploration licenses within the Project Area boundaries (Figure 1.2), depending on the final geophysical interpretation using the 2-D/3-D seismic acquired in the application area.

3.1.1 The Operator

Headquartered in Calgary, Alberta, Husky Oil Operations Limited (the Operator) is a Canadian-based integrated energy company serving global customers, committed to

maximizing returns to its shareholders in an ethical and socially responsible way, through the dedicated effort of its people. It is involved in:

- exploration and development of crude oil and natural gas,
- production, purchase, transportation, refining and marketing of crude oil, natural gas and natural gas liquids and sulfur, and
- transportation and marketing of refined products.

3.2 Project Overview

The proposed Project is a ship-borne geophysical program consisting of approximately 2,000 to 3,000 km of 2-D survey in 2009 or as soon thereafter as possible and yet-to-be-determined areas of 3-D and/or geo-hazard surveys in later in the 2010 to 2017 period. Some adjacent lands are also included as part of the overall Project Area in order to ensure inclusion of ship turning, holding and streamer deployment areas.

The seismic survey vessel(s) will be approved for operation in Canadian waters and will be typical of the worldwide fleet. Specific vessel(s) has not yet been selected through the bidding process.

The 2-D seismic survey ship will tow a sound source (airgun array) and a single streamer up to several kilometers long composed of receiving hydrophones. The geo-hazard surveys will be conducted over a much shorter time frame using a smaller vessel and a combination of smaller scale seismic equipment, sonars, sparkers and boomers.

Mitigation procedures, consistent with the C-NLOPB's guidelines for this activity will include dedicated marine mammal observers (MMOs) and "soft-starts" or "ramp-ups" of the 2-D array and when possible maintenance of single airgun operation during end of line turns to minimize disturbance to marine life, particularly marine mammals and species at risk. In addition, a fisheries liaison officer (FLO) will be on board to ensure that communication procedures to avoid conflicts with the commercial fishery are implemented.

3.2.1 Alternatives to Project and Alternatives within Project

Husky Energy has reviewed the existing, interpreted 2-D seismic information available in the area. This information indicates structures that may contain significant volumes of producible hydrocarbons. Unfortunately this existing seismic information is insufficient to determining exact size and internal complexity of these structures. Therefore acquisition of new 2-D seismic is required to determine if future 3-D seismic and exploration drilling is warranted.

Husky Energy has exploration commitments on exploration licenses 1106 & 1108. A 2-D seismic survey is now a standard precursor to offshore exploratory drilling. Acquisition of this information lessens the chances of expending resources "drilling dry holes" and increases safety. As such, there is no alternative to the 2-D Project other than to incur financial penalties and explore for oil and gas elsewhere.

Viable alternatives within the Project are essentially the choices between different contractors' ships and survey equipment which are presently being evaluated through the bid evaluation process.

3.2.2 Project Phases

The Project will proceed in three phases once activities begin. The actual timing of these activities within the temporal scope will be dependent on economic feasibility, vessel availability and the results of interpretation of survey work from preceding phases. Phase 1 (Year 1) will be a 2-D survey in the area defined in Figure 1.2, Phase 2 foresees a 3-D survey of any areas that may be identified through analyses of existing and acquired 2-D data, and geo-hazard surveys in preparation for a potential drilling program), Phase 3 will see collection of additional 3-D and/or geo-hazard data in anticipation of an potential ongoing drilling program).

3.2.3 Project Scheduling

The surveys may occur between July 1st and November 30th of any given year. The duration of the initial 2-D survey is estimated at 40 to 60 days and the duration of typical a geo-hazard survey in support of a drilling program is approximately 4 days. The estimated duration of a 3-D program, depending on the area to be covered is approximately 30 to 75 days.

3.2.4 Site Plans

Site maps showing the Project Area are provided in Figure 1.2.

3.2.5 Seismic Vessels

Vessel specifics will be provided once the contractors are selected. Most, if not all likely survey vessels have diesel-electric propulsion systems (main and thrusters) and operate on marine diesel.

3.2.6 2-D Surveys

As described above, the 2-D survey sound source will consist of one airgun array, 4,000 to 7,000 cubic inches (in³) in total volume, and towed at depths about of approximately 6 to 15 m. The airguns will be operated with compressed air at pressures of 2,000 to 2,500 psi, and producing peak-to-peak pressures of approximately 140 to 165 bar-m. There will be one towed streamers (strings of hydrophone sound receivers), 6,000 to 10,000 m in length which will be towed behind the vessel at depths of approximately 8 to 30 m. Streamer floatation will be either solid or liquid (Isopar), depending upon availability from specific contractors.

Detailed specifications will be provided when the contractor is selected.

3.2.7 Well Site Geo-hazard Surveys

Once a potential drilling site is located, it is standard offshore industry procedure, and a requirement of the C-NLOPB, that a well site/geo-hazard survey be conducted. The purpose of the survey is to identify, and thus avoid, any potential drilling hazards such as

steep and/or unstable substrates or pockets of “shallow gas”. It involves acquisition of high resolution seismic, side scan sonar, sub-bottom profile, and bathymetric data over the proposed drilling area(s). Typically the seismic data for well site surveys are collected over closer lines (250-m), using smaller equipment and lower pressures, over a shorter time period (e.g., several days) compared to 2-D and 3-D surveys.

Surficial data are collected using a broad band (e.g., 500-Hz to 6-kHz) sparker or boomer as a sound source which provides data as deep as 100-m into the substrate. A single or multi-beam echo sounder is used for bathymetry and a dual frequency side scan sonar system is used to obtain seabed imagery. Seabed video and/or grab samples are used to provide ground truthing information on the character of the seabed and sediments.

Detailed specifications will be provided when the contractor is selected.

3.2.8 Logistics/Support

3.2.8.1 Vessels

As noted above, primary support will be provided by a chartered seismic survey vessel. In order to mitigate any potentially adverse effects on marine animals, the commercial fisheries, and other vessel traffic, a mitigation plan will be developed as part of the Project. A standby or picket vessel may be required as mitigation. This vessel would be used as an additional method of obtaining information on commercial fishing activity in the area and in warning off other vessels in order to avoid gear losses for all parties.

3.2.8.2 Helicopters

The larger seismic vessels are usually equipped with a helicopter platform and helicopters are often used for crew changes and light re-supply. In some cases, survey contractors may prefer to come to shore for crew changes and re-supply.

3.2.8.3 Shore Base, Support and Staging

Husky Energy and its contractors maintain offices and shore facilities in St. John’s. However, some seismic contractors may prefer to crew change or re-supply in other existing Newfoundland and Labrador ports. No new shore base facilities will be established as part of this Project.

3.2.9 Waste Management

Waste management aboard the seismic vessel will be implemented in a manner consistent with Husky Energy’s East Coast Waste Management Plan and the contracted vessels policies and procedures that will be reviewed against this plan. Husky Energy’s East Coast Waste Management Plan is currently on file with the C-NLOPB.

3.3 Project Site Information

Project location is on the Labrador Shelf (Figure 1.1 and Figure 1.2).

3.3.1 Environmental Features

The physical and biological environment of the Labrador Shelf has been described in the C-NLOPB Strategic Environmental Assessment (SEA) (Sikumiut 2008).

3.3.2 Physical Environment and Effects on the Project

The physical environment of the Labrador Shelf has been described in a previous large scale SEA. The physical environmental conditions that will be encountered within the Project Area will be within the range of conditions as described in the C-NLOPB SEA. A brief summary of expected conditions is contained in the Environmental Assessment (EA) (to follow).

Effects of the physical environment on the Project will be described and include those caused by wind, ice, waves, and currents.

3.3.3 Fish and Fish Habitat

The fish species that inhabit the Project Area and the other species and habitats that support them are expected to be typical of the Grand Banks for equivalent depths, substrates, and physical oceanographic conditions. These components of the ecosystem have been described in the previous EAs and will be summarized in the EA (to follow).

3.3.4 Species at Risk

The Project Area is not known to contain any sensitive areas or critical habitats for species listed on Schedule 1 of the Species at Risk Act (SARA) but this issue will be examined in the EA (to follow). Notwithstanding this several species listed on Schedule 1 – blue whale, fin whale, ivory gull and three species of wolffish are found in the Project Area. In addition, the potential environmental effects on species currently under assessment by the Committee on the Status of Endangered Species in Canada (COSEWIC) (such as Atlantic Cod) that occur in within the Project Area will be included in the EA (to follow).

3.4 Other Users

3.4.1 Commercial Fisheries

The area of the Labrador Shelf that contains the Project Area supports a variety of commercial fisheries to be described in the EA (to follow) based on latest available DFO data. The most important fisheries, in terms of landed value, in and adjacent to the Project Area, are northern shrimp (mobile trawl fishery) and snow crab (fixed gear fishery).

Plans will be developed to avoid or lessen any potential effects on the commercial fishery. These plans will include elements such as good communications (e.g., fishery broadcast notifications, a dedicated FLO on the vessel(s), avoidance of areas during times of heavy fixed gear use, and a fishing gear damage compensation program. Consultations with the fishing industry will be undertaken through the established ONE OCEAN mechanism and the Fish, Food and Allied Workers (FFAW) and directly with relevant fishing interests in Labrador as necessary.

The presence of any recreational or Aboriginal fisheries in or adjacent to the Project Area will be investigated in the EA (to follow).

3.4.2 Navigable Waters

Other users of the navigable waters on the Labrador Shelf in addition to fishery vessels include other oil industry-related vessels, transport and military vessels and the occasional private yacht.

3.4.3 Consultations

During the course of the assessment, Husky Energy will consult with stakeholders with an interest in the Project. Those consulted and the results of those consultations will be compiled in the EA report.

In order to assist in scoping the effects assessment and mitigation plan and to aid in addressing any issues of concern, Husky Energy and consultants will undertake a consultation program with the interested parties including but not limited to:

- Nunatsiavut Government;
- DFO;
- Environment Canada;
- ONE OCEAN;
- Newfoundland and Labrador Natural History Society;
- FFAW;
- fish processors; and
- other relevant parties as identified .

3.5 Effects of the Project on the Environment

The proposed geophysical Project will be well within the range of other programs routinely conducted on the Grand Banks and elsewhere and is not expected to produce any adverse significant environmental effects on the marine environment in or adjacent to the Project Area. Nonetheless, potential environmental effects will be examined in detail with focus on the commercial fishery, SARA species, marine mammals, and cumulative environmental effects with other users of the area, particularly other seismic programs.

3.5.1 Spatial Boundaries

The regional scale study area boundaries will be addressed in the EA (to follow) and will take into consideration the information compiled in the C-NLOPB's SEA for the Labrador Shelf Offshore Area (Sikumiut 2008). The SEA Study Area boundary encompasses the Project Area boundary shown in Figure 1.2.

3.5.2 Temporal Boundaries

The temporal boundaries for the Project are 2009 to 2017 inclusive, with the timing of actual survey activities between July 1st and November 30th within any particular year.

3.5.3 Valued Ecosystem Components

The valued ecosystem components (VECs) will encompass, but may not be limited to, Marine Birds, Marine Fish and Fish Habitat, Commercial Fisheries, Marine Mammals (including polar bear) and Sea Turtles and species at Risk (both those listed under the SARA Schedule 1 and under consideration by COSEWIC).

Accidental events (such as an unplanned hydrocarbon release) associated with Project activities will also be assessed in the EA (to follow). In addition, the EA (to follow) will also include an analysis of cumulative environmental effects.

3.5.4 Environmental Monitoring

As noted previously MMO(s) will be on board the vessel(s) to provide proper identification of marine mammals and species at risk for mitigation purposes and to collect opportunistic data on marine mammal behaviours and distribution with and without airguns operating. Seabird observations will also be collected.