

# **Norsk Hydro Canada Oil & Gas Inc.**



## **Project Description Seismic Survey Program for Jeanne d'Arc Basin Area, 2008 – 2016**



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## 1.0 Introduction

Norsk Hydro Canada Oil & Gas Inc. (Hydro) proposes to undertake a seismic survey program including localized geohazard surveys in the Jeanne d'Arc Basin area (see Figure 1.1) from 2008 through 2016. Hydro anticipates carrying out an initial 3-D seismic survey during 2008 and subsequent surveys, including geohazard surveys, over the remaining eight years.

This project description provides the information necessary 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*. The technical and scoping advice received as a result of the review of this project description by the C-NLOPB, other Federal and Provincial Agencies and other stakeholders will guide the preparation of a Screening Level Environmental Assessment for the proposed program.

In accordance with its mandate under the *Atlantic Accord Implementation Acts* the C-NLOPB may issue an *Authorization to Conduct a Geophysical Program* to allow Hydro to carry out the seismic survey program described herein.

Offshore geophysical surveys (including geohazard surveys) on federal lands are subject to screening under the *Canadian Environmental Assessment Act (CEA Act)*. In addition, The CEA Act identifies a marine seismic survey with an output level of 275.79 kPa at a distance of one metre from the seismic energy source (i.e., ~ 228.69 dB/1μPa@1m), as requiring an EA. The seismic survey activities described in this project description typically exceed the defined threshold level (if considering instantaneous levels).

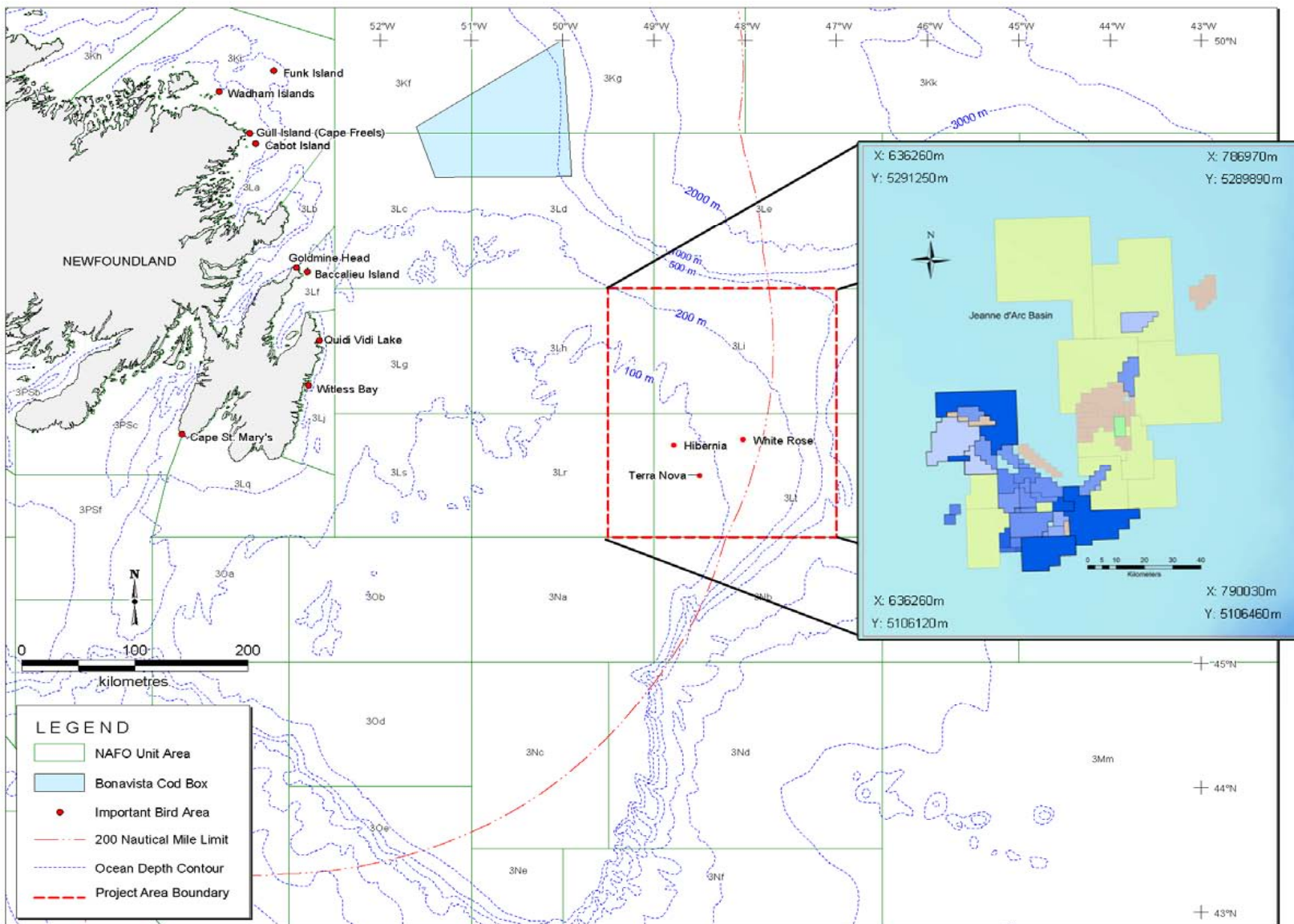
The C-NLOPB acts as the federal environmental assessment coordinator in this context. Because seismic survey activities have the potential to affect seabirds, marine mammals, and fish and fisheries, both Fisheries and Oceans and Environment Canada are the primary federal agencies with interests and expertise in the environmental aspects of the proposed program. Legislation that is relevant to the environmental aspects of this project include:

- *Canada-Newfoundland Atlantic Accord Implementation Acts*
- *Canadian Environmental Assessment Act*
- *Oceans Act*
- *Fisheries Act*
- *Navigable Waters Act*
- *Canada Shipping Act*
- *Migratory Bird Act*
- *Species at Risk Act*

There is no federal funding for this Project. Federal lands are involved and they are administered by the C-NLOPB, a federal-provincial agency operating under the *Accord Acts*. Authorizations (i.e. *Authorization to Conduct a Geophysical Program*) are required to conduct seismic surveys in the Newfoundland and Labrador Offshore Area.

The Project Activity Area (Figure 1.1) encompasses the geographic area within which Hydro expects to carry out seismic survey and associated activities over the coming 8 years. This work is aimed at evaluating potential oil and gas resources on any current or future Norsk Hydro land holdings within the Project Activity Area. In addition, Hydro anticipates that it may conduct seismic survey activities on behalf of other operators with current or future land holdings in the Project Activity Area should such opportunities arise and commercial agreements and regulatory approvals be in place. It is also possible, should a suitable opportunity arise, that Hydro would opt for another operator to conduct seismic survey activities on its behalf on current or future Hydro land holdings within the Project Activity Area.

This Project Description is based upon information available to Hydro at the time of writing. Not all Project details are presently known because existing seismic survey information has not yet been fully reviewed and interpreted. Furthermore, not all contractors and suppliers have been selected and new leases within the Project Activity Area may be acquired in the coming years. However, all survey operations will be carried out within the scope outlined in this Project Description and subsequent environmental assessment. This document is an accurate reflection of the Operator's present level of knowledge.



**Figure 1.1:** Location of Proposed Project Activity Area

## 2.0 The Operator

Norsk Hydro Canada Oil & Gas Inc. (Hydro) is a wholly-owned subsidiary of Norsk Hydro ASA of Oslo, Norway which established offices in Canada in 1996 in Calgary, Alberta and St. John's, Newfoundland and Labrador (NL).

Hydro is part of a globally active company involved in exploration and development of crude oil and natural gas and is committed to maximizing returns to stakeholders in an ethical, socially responsible and environmentally responsible way.

Hydro has interests in various exploration licenses (EL), significant discovery licences (SDL), and production licences (PL) in the NL Offshore Area. In the Grand Banks area, Hydro is a partner in the Hibernia and Terra Nova producing oilfields, is a partner in the proposed Hebron project, and is operator of one SDL and two EL. Additionally, Hydro may acquire new licenses resulting from a Call for Bids or the acquisition of lands from other operators.

### 2.1 Operator's Objectives

Hydro's long-term goals are to:

- Increase its equity interests in offshore NL
- Plan for and execute Hydro-operated exploration, appraisal/delineation, development, and production activities
- Increase its portion of total global production originating from Canada

Hydro's goals for the seismic survey activities described in this Project Description include the following:

- Execute a cost-effective program from St. John's, while maintaining health, safety and environmental responsibilities and meeting all due diligence requirements.
- Establish and maintain cost-effective relationships with suppliers and contractors, creating long-term mutual benefits and local infrastructure.
- Optimize synergy opportunities with other operators in the area.

Hydro's East Coast activities are managed from its St. John's, NL office and operations will be supported by local logistics infrastructure and resources to the extent possible.

Hydro is committed to conducting its operations in a manner that respects the environmental characteristics of the immediate area. Hydro will comply with all applicable laws, regulations, guidelines, and codes of practice as well as particular commitments made during the application and review process for which this project description is submitted.

## **2.2 Social Responsibility & Canada-Newfoundland & Labrador Benefits**

Hydro is committed to improving the communities in which it operates, including supporting charitable, cultural, and community organizations.

Hydro is committed to supporting research and development, education and training, and technology transfer.

Hydro is committed to employing qualified individuals without regard to race, religion, gender, national origin, or disability.

Hydro is committed to the industrial and employment benefits objectives of the Canada-Newfoundland Atlantic Accord Implementation Act (the Act) and C-NLOPB guidelines dated February 2006 including full and fair opportunity and first consideration.

In the spirit of the Act, Hydro actively seeks to enhance the participation of individuals and organizations from NL and elsewhere in Canada in offshore oil and gas activity on the East Coast.

Hydro encourages its suppliers and service providers to implement these principles.

## **2.3 Operator Contacts**

Operator Contacts concerning this application are:

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## **2.4 Hydro / Statoil Merger**

The Oil and Gas portion of Norsk Hydro is in the process of merging with Statoil. The merger is scheduled to be complete by late 2007. Following the merger, all Hydro's Newfoundland and Labrador assets will become part of the merged company.



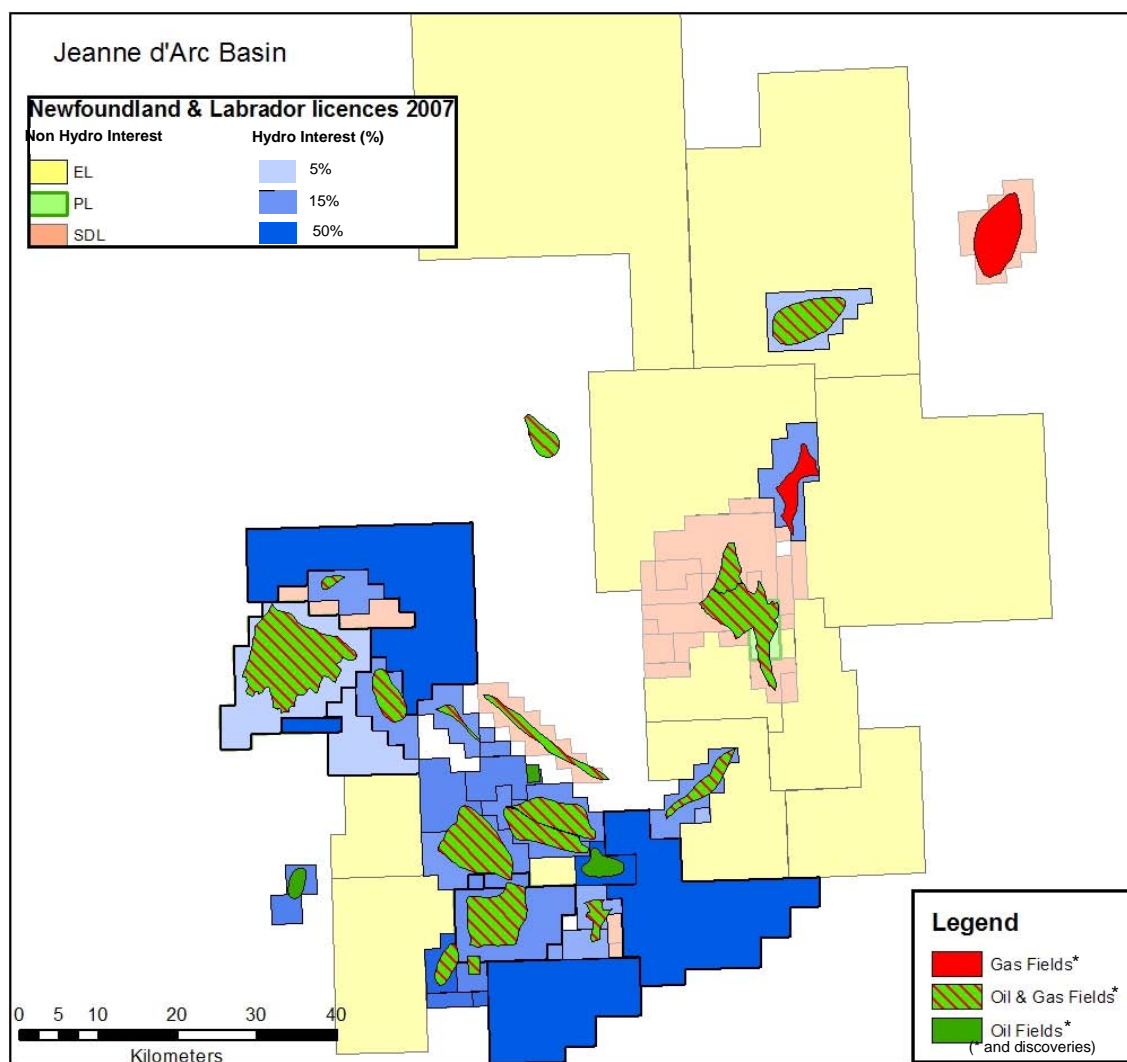
## 3.0 Proposed Project

### 3.1 Name and Location

The official name of the Project is the Hydro Seismic Survey Program for the Jeanne d'Arc Basin Area, 2008-2016. Generally located on the northeastern Grand Banks (Figure 1.1), seismic surveys could be carried out on any current or future land holdings Hydro may acquire in this area from 2008 through 2016.

The current list of licenses held by Hydro exclusively, or in partnership with others, are provided in Figure 3.1 and Table 3.1. Hydro has interests in 28 significant discovery licences (SDL), six (6) exploration licenses (EL), and five (5) production licenses (PL) in the Jeanne d'Arc basin and operates three (3) which are highlighted in the Table 3.1.

As noted previously (Section 1.0) Hydro may participate in arrangements with other operators to conduct seismic exploration on their behalf, or vice versa, within the geographic and temporal scope of this Project Description.



**Figure 3.1** Current Hydro Land Distribution in the Jeanne d'Arc Basin Region



**Table 3.1:** Current Hydro Interests in Jeanne d'Arc Basin Area

License	Development	Operator	Gross Hectares	Hydro %
PL 1001	Hibernia	HMDC	22 285	5.00
PL 1002	Terra Nova	Petro-Can	12 800	15.00
PL 1003	Terra Nova	Petro-Can	355	15.00
PL 1004	Terra Nova	Petro-Can	1 065	15.00
PL 1005	Hibernia South Extension	HMDC	1 416	25.00
SDL 197		ExxonMobil	7 722	3.75
SDL 200A/B		ExxonMobil	8 765	7.50
SDL 208A		Petro-Can	1 424	15.00
SDL 1001		ExxonMobil	3 883	7.50
SDL 1002		ExxonMobil	5 664	7.50
SDL 1003		ExxonMobil	3 894	7.50
SDL 1004		Petro-Can	708	11.27
SDL 1005		ExxonMobil	354	7.50
SDL 1006	Hebron	ExxonMobil	5 325	7.50
SDL 1007	Hebron	Petro-Can	3 195	11.27
SDL 1009	Hebron	Petro-Can	6 390	11.27
SDL 1010	Hebron	Petro-Can	3 550	11.27
SDL 1011		Husky	5 321	7.50
SDL 1012		Husky	355	4.50
SDL 1013		Imperial	2 136	4.73
SDL 1014		Imperial	2 487	4.73
SDL 1017		Imperial	356	5.40
SDL 1031		Husky	7 045	7.50
SDL 1035		Petro-Can	1 420	15.75
SDL 1036		Petro-Can	1 420	15.00
SDL 1037		Petro-Can	1 065	27.40
SDL 1038		Petro-Can	356	27.40
SDL 1039		Petro-Can	2 492	27.80
<b>SDL 1040</b>	<b>West Bonne Bay</b>	<b>Hydro</b>	<b>3 195</b>	<b>65.0</b>
SDL 1041		Chevron	3 883	9.99
SDL 1042		Husky	3 897	15.00
SDL 1046		Husky	5 320	15.00
EL 1092	North Mara	Petro-Can	35 674	50.00
EL 1093	Hibernia south extension	ExxonMo	7,080	5.00
<b>EL 1100</b>	<b>River of Ponds</b>	<b>Hydro</b>	<b>30,572</b>	<b>50.0</b>
<b>EL 1101</b>	<b>L'Anse Aux Meadows</b>	<b>Hydro</b>	<b>21,009</b>	<b>50.0</b>

### **3.2 Project Overview**

The proposed Project is a ship borne seismic program starting with a 3D survey in 2008 and other surveys (3D and potentially 2D) conducted as needed in subsequent years through 2016. This program may include resurvey of some areas to evaluate changes in existing producing reservoirs over time typically called a “4D” survey<sup>1</sup>. In addition, geohazard surveys will be conducted over potential drilling targets on current Hydro exploration licenses and in future, yet-to-be-determined, locations as required during the program.

The 3-D seismic survey ship will tow a sound source (airgun array) and streamer (s) composed of receiving hydrophones. The possible survey in 2008 will likely have survey lines running east-west and spaced between 200 and 400-m apart. The geohazard 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 will include dedicated Marine Mammal Observer(s) (MMO), “soft-starts” or “ramp-ups” of the 3-D array in order to avoid disturbance to marine life, particularly marine mammals and species at risk, a Fisheries Liaison Officer (FLO), and communication procedures to avoid conflicts with the fishery. The need for dedicated MMOs and FLOs for the more limited temporal and geographically scoped geohazard surveys in areas of limited fishing activity will be evaluated and addressed in the environmental assessment.

#### **3.2.1 Alternatives to Project & Alternatives within Project**

The existing 2-D seismic on EL 1100 and 1101 indicates structures that may contain significant volumes of producible hydrocarbons. This existing seismic data, while useful, is insufficient in determining exact structural size and internal complexity. Acquisition of new 3-D seismic is required to determine if exploration drilling is warranted.

Hydro has made commitments to pursue exploration activities on its exploration licenses in the Jeanne d’Arc Basin area. A 3-D seismic survey is a standard precursor to offshore exploratory drilling. It better defines the target subsurface geological formations believed to contain hydrocarbon resources, lessens the chances of expending resources “drilling dry holes” and increases the overall safety of the drilling activity. Accordingly, there is no alternative to the proposed 3D survey program other than to incur the financial penalties attendant on not fulfilling Hydro’s exploration commitments and to explore for oil and gas elsewhere.

Viable alternatives within the programs surveys are essentially the choices between different contractor’s ships and survey equipment which will be evaluated through the bid evaluation process.

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<sup>1</sup> A 4D survey means that successive 3D survey data sets are interpreted to determine the changes that have taken place over time. A typical application of this technique is using a previous 3D data set and comparing it with a recently acquired 3D survey to try and detect changes in, and hence, the behaviour of a reservoir in the production phase. Obviously this requires precise survey location control to ensure accurate comparison of the two seismic survey data sets.

### 3.2.2 Program Phases and Scheduling

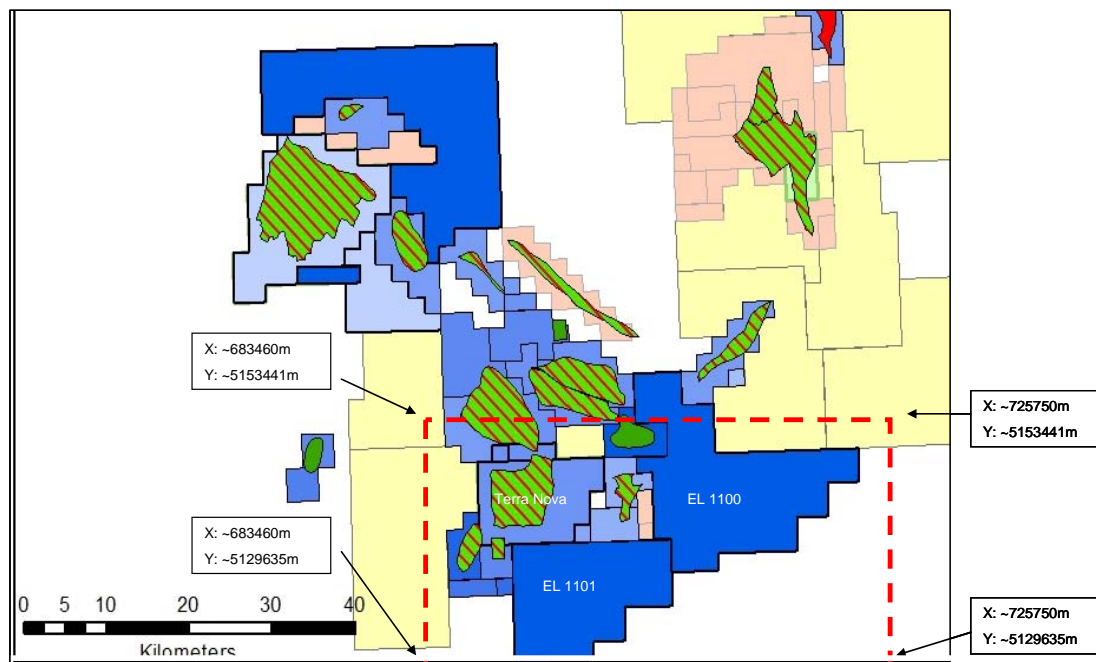
Within the overall program it can be assumed that there are two general phases. Initially 3D surveys would be conducted over exploration license areas that were previously subject to 2D surveys in order to further delineate potential drilling targets. If during the life of the program, areas without 2D coverage are of interest, then Hydro would consider carrying out 2D surveys to determine if the higher resolution 3D surveys are warranted. Once prospective drilling targets are identified the more localized geohazard surveys are carried out in advance of drilling operations.

Surveys may occur between 1 April and 31 October of any given year. The typical duration of a 2D or 3D survey, depending on the area to be surveyed could vary from 40 to >100 days within that temporal scope. The duration of a geohazard survey in support of a drilling program is about 4 to 5 days depending on weather. The option of carrying out geohazard surveys outside the April through October time frame noted above for 3D surveys will be considered in the environmental assessment to follow.

### 3.2.3 Site Specific Plans for 2008

Hydro's intends to apply to the C-NLOPB for authorization to acquire a 3-D seismic survey on EL(s) 1100 and 1101 during 2008 in support of its proposed exploration and delineation drilling program. Geohazard surveys would be conducted in subsequent years. There is also potential to acquire 3-D seismic in the Terra Nova field in support of a 4-D data analysis, as described previously.

While the final dimensions of the 2008 survey area are subject to final survey planning, a provisional map of the area to be subject to survey in 2008 is provided in Figure 3.2 below.



**Figure 3.2: Potential 3D Seismic Survey areas for 2008**

The specific locations of the geohazard surveys will depend on the selection of drilling targets that will arise from the final geophysical interpretations of the information from existing and future 3-D survey data to be acquired in the Project Activity Area.

### **3.2.4 3-D Seismic Survey & Vessels**

Hydro may charter a vessel specifically for its use or utilize a seismic vessel already operational in East Coast waters.

The seismic vessel will typically operate two 5085 cu. in<sup>3</sup> airgun arrays of 24 airguns per array. The largest airgun used will typically be 290 cu. in<sup>3</sup> and the smallest 105 cu. in<sup>3</sup>. Each array will consist of three strings of eight guns adding to about 1695 cu. in<sup>3</sup> pr. sub-arrays. The overall dimensions of the array are 15 m long by 16 m wide and the sub-arrays strings are spaced 8 m apart. The two 5085 in<sup>3</sup> airgun arrays will fire alternately (flip-flop arrangement) along the survey lines. The centre of the array is deployed about 250 m behind the vessel and at approximately 7 m below the water surface. Airguns will be operated at 2000 – 2500 psi and the estimated source level of the array is about 106.4 bar-m (~255 dB re 1 µPa (0-peak)). The airguns in the array are strategically arranged to direct most of the energy vertically rather than horizontally.

Vessels presently approved and operating on the East Coast on other programs will likely be utilized. 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.

The largest seismic vessels under consideration could potentially accommodate up to 140 personnel. Personnel on seismic vessels typically include individuals from the Operator (i.e. Hydro), the vessel owner/operator (ship's officers and crew), and the various technical and scientific personnel from a variety of contractors and subcontractors.

### **3.2.5 Well Site/Geohazard Surveys & Vessels**

Once a potential drilling site is located it is standard offshore industry procedure, and a requirement of the C-NLOPB, that a well site/geohazard 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".

Typically such a program involves acquisition of high resolution seismic, side scan sonar, sub-bottom profile, and bathymetric data over defined area (s) where jack-up and semi-submersible drilling rigs may potentially be used. These surveys use closer line spacings, smaller equipment and lower pressures, and over a shorter time period (i.e. several days) compared to 3-D seismic programs. Survey speed will be on the order of four to five knots.

For potential jack-up rig sites, geohazard data will be acquired along transects spaced 50 m apart. Transects will be spaced 250 m apart with tie lines at 500 m at potential semi-

submersible drill rig sites. Survey grids (typically 10 km x 10 km) will be centered at potential drill sites.

The following summarizes the systems to be used during a typical geohazard survey.

- **Surficial data** are collected using a broad band (i.e. 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.
- **High-resolution multichannel seismic data** will be acquired with a suite of four sleeveguns (160 in<sup>3</sup> total volume), a 96-channel streamer with an approximately 600 m active length. The multi-channel seismic source will typically be comprised of four or more separate sleeveguns, each of 40 in<sup>3</sup> capacity. These are driven by controlled bursts of compressed air to produce an acoustic pulse. They will typically be deployed within a ladder array, approximately 30 m off the stern of the vessel, and at a depth of 3 m. The compressed air is provided by a diesel-powered compressor on deck. The maximum output from this array has a peak to peak value of 17.0 Bar-metres. This equates with decibel notation of 244.6 dB (peak to peak)//1μPa@1m, or 238 dB (zero to peak)//1μPa@1m.
- **Seabed imagery**, for the clearance survey, will be acquired with a digital, dual frequency side scan sonar system. Data will be logged to tape and printed in hard copy for on-board assessment. Geo-referenced data will be utilized to create a digital side scan sonar mosaic for inclusion in survey reports. Output power of this system is extremely low, equivalent to an echo sounder in magnitude.

In the event that potential debris is identified by the side scan or multi-beam systems, a proton magnetometer will be deployed. This system is towed behind the vessel, five to 10 m above the seabed, and emits a low power electromagnetic field.

### 3.2.6 Logistics/Support

#### 3.2.6.1 Vessels

As noted above, primary support will be provided by a chartered seismic survey vessel.

To mitigate any potentially adverse effects on marine mammals, species at risk, the 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 for 3D surveys. This vessel would be used as an additional method of obtaining information on fishing activity in the area and in warning off other vessels in order to avoid gear losses for all parties. Stand by or picket vessels are not normally used in the context of geohazard surveys given the small geographic scope of the survey areas and the limited amount of gear towed in comparison to a 3D survey.

### **3.2.6.2 Helicopters**

The larger seismic vessels are usually equipped with a helicopter platform and helicopters are often used for crew changes and light re-supply. Survey contractors will be responsible for all arrangements with respect to helicopter transportation.

### **3.2.6.3 Shore Base**

Hydro maintains an office in St. John's. Seismic contractors may prefer to crew change or re-supply in St. John's or other existing Newfoundland ports, presumably on the Avalon Peninsula because of proximity to the Project Area. No new shore base facilities will be established as part of this Project.

### **3.2.7 Waste Management**

Waste management aboard the seismic vessel will be implemented in a manner consistent with Hydro's waste management policies and its specific plans for operations in the Newfoundland and Labrador Offshore Area and the contracted vessel's policies and procedures.

## **3.3 Project Site Information**

### **3.3.1 Environmental Features**

The physical and biological environment of the northeastern Grand Banks has been described in previous large scale environmental assessments for the Hibernia and Terra Nova projects and most recently the Comprehensive Study for the White Rose project. In addition there have been several recent Screening Level environmental assessments undertaken for Husky Energy in the Jeanne d'Arc Basin area and a Strategic Environmental Assessment commissioned by the C-NLOPB.

The biological environment and resource use patterns of the Project Activity Area (Figure 1.1) will be generally consistent with the descriptions and findings of these previous assessments. Similarly, the physical environmental conditions that will be encountered within the Project Activity Area will be within the range of conditions as described in those assessments. A summary of the biological environment and resource use patterns will be provided in the environmental assessment as will the physical environment including wind, ice, waves, and currents. The potential effects of the project on the environment and the effect of the environment on the project will be addressed.

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



### 3.3.2 Valued Ecosystem Components

The valued ecosystem components (VECs) will encompass, but may not be limited to, Marine Birds, Fish and Fish Habitat, Commercial Fisheries, Marine Mammals and Sea Turtles. In response to recent legislative developments, identification and evaluation of “species at risk” will form part of the assessment as a valued ecosystem component.

### 3.3.3 Fish and Fish Habitat

The fish species that inhabit the Project Activity 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 environmental assessments and will be summarized in the environmental assessment for this Project.

### 3.3.3 Species at Risk

Table 3.1 summarizes the status of those species likely to be found in the Project Study Area considered to be “at risk” pursuant to the *Species at Risk Act* (SARA) and as currently evaluated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

Those species in Schedule 1 of the Species at Risk Act (SARA) are legally protected under SARA (i.e. Schedule 1 “threatened” or “endangered”). Schedules 2 and 3 of SARA identify those species that were designated “at risk” by prior to October 1999 and must be reassessed using revised criteria before they can be considered for addition to Schedule 1.

## 3.4 Other Users

### 3.4.1 Fisheries

The area of the Grand Banks that contains the Project Activity Area supports a variety of commercial fisheries to be described in the EA 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). A mitigation plan will be developed to avoid, or at least lessen, any potential effects on the commercial fishery. The plan will include such elements as good communications (i.e. fishery broadcast notifications, FLO, etc.), avoidance of areas and times of heavy fixed gear use, a fishing gear compensation program, and so forth. Consultations with the fishing industry will be undertaken through the established ONE OCEAN committee and directly with relevant fishing interests as necessary.

There are no recreational or aboriginal fisheries in or adjacent to the Project Area.

### 3.4.2 Navigable Waters

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



**Table 3.1: SARA-listed and COSEWIC-listed Marine Species that Likely Occur in the Study Area**

SPECIES		SARA <sup>a</sup>			COSEWIC <sup>b</sup>		
Common Name	Scientific Name	Endangered	Threatened	Special Concern	Endangered	Threatened	Special Concern
<b>Marine Mammals</b>							
Blue whale	<i>Balaenoptera musculus</i>	<b>Schedule 1</b>			X		
North Atlantic right whale	<i>Eubalaena glacialis</i>	<b>Schedule 1</b>			X		
Fin whale (Atlantic population)	<i>Balaenoptera physalus</i>			<b>Schedule 1</b>			X
Sowerby's beaked whale	<i>Mesoplodon bidens</i>			<b>Schedule 3</b>			X
Harbour porpoise	<i>Phocoena phocoena</i>						X
<b>Marine Reptiles</b>							
Leatherback sea turtle	<i>Dermochelys coriacea</i>	<b>Schedule 1</b>			X		
<b>Marine Fish</b>							
Northern wolffish	<i>Anarhichas denticulatus</i>		<b>Schedule 1</b>			X	
Spotted wolffish	<i>Anarhichas minor</i>		<b>Schedule 1</b>			X	
Atlantic wolffish	<i>Anarhichas lupus</i>			<b>Schedule 1</b>			X
Atlantic cod	<i>Gadus morhua</i>			<b>Schedule 3</b>			
Atlantic cod (NL <sup>c</sup> population)	<i>Gadus morhua</i>				X		
Porbeagle shark	<i>Lamna nasus</i>				X		
White shark	<i>Carcharodon carcharias</i>				X		
Cusk	<i>Brosme brosme</i>					X	
Shortfin mako shark	<i>Isurus oxyrinchus</i>					X	
Blue shark	<i>Prionace glauca</i>						X
<b>Birds</b>							
Ivory Gull	<i>Pagophila eburnea</i>				X		

Sources: <sup>a</sup> SARA website ([http://www.sararegistry.gc.ca/default\\_e.cfm](http://www.sararegistry.gc.ca/default_e.cfm)) (as of 28 June 2007)

<sup>b</sup> COSEWIC website (<http://www.cosepac.gc.ca/index.htm>) (as of 28 June 2007)

<sup>c</sup> Newfoundland and Labrador

### **3.4.3 Consultations**

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

In order to assist in scoping the effects assessment and mitigation plan and to aid in addressing any issues of concern, Hydro and consultants will undertake a consultation program with the following interested parties:

- Fisheries and Oceans
- Environment Canada
- ONE OCEAN
- Newfoundland and Labrador Natural History Society
- Fish, Food and Allied Workers (FFAW)
- Fishery Products International (FPI)
- Others with relevant information, interests and concerns as appropriate.

### **3.4.4 Environmental Monitoring**

As noted previously Hydro will ensure that qualified MMO are in place on board 3D (and potential 2D) seismic survey vessels for the duration of these surveys to record observations of marine mammals and species at risk and support ramp up and shut down mitigation measures as necessary. In addition, a FLO will be placed on such vessels to assist the survey in avoiding fishing gear conflicts.

For the localized, short-term, geohazard surveys Hydro will ensure that adequately trained observers are in place to comply with any mitigative measures that are required to protect marine mammals and species at risk. The need for FLO on board geohazard survey vessels will be evaluated in the environmental assessment to follow.