

**CANADA-NEWFOUNDLAND and LABRADOR OFFSHORE
PETROLEUM BOARD
CEA ACT SCREENING REPORT**

PART A: GENERAL INFORMATION

Screening Date	<u>June 22, 2010</u>
EA Title	Sydney Basin Seismic Program – Environmental Assessment
Proponent	Husky Energy Suite 901, Scotia Centre 235 Water Street St. John’s, NL A1C 1B6
Contact	Ms. Francine Wight Environment Lead, East Coast Operations
C-NLOPB File No.	7705 H67
CEAR No.	09-01-49518
Location	Sydney Basin Exploration Licence (EL) 1115
Referral Date	August 11, 2009
EA Start Date	August 13, 2009
CEAA Law List Trigger	Section 134(1) (b) <i>Canada Newfoundland Atlantic Accord Implementation Act</i> (Accord Act)

Part B: Project Information

On 11 August 2009, Husky Energy (Husky) submitted a project description “*2009-2018 Seismic Survey Program for the Sydney Basin Offshore Area – Project Description*” (Husky Energy 2009) to the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB), in support of its application to conduct 2D and 3D seismic surveys on the exploration licence held by the operator in the Sydney Basin area offshore Newfoundland and Labrador. The “*Sydney Basin Seismic Program - Environmental Assessment*” (AMEC 2010) submitted on March 8, 2010, provided an environmental assessment (EA) for a nine year program. On May 11, 2010, the C-NLOPB requested additional information from Husky in order to satisfy the requirements of the CEAA and to complete the Screening Report. Husky provided on May 21, 2010 the “*Addendum to Husky Energy’s Sydney Basin Seismic Program 2010 to 2108 Environmental Assessment Report*” (Husky Energy 2010) as a response to this request. The following information is summarized from the EA report (herein referred to as the EA Report) and Husky’s response to EA review comments.

1 Description of Project

The Sydney Basin Seismic Program, as proposed by Husky, is a multi-survey 2D and 3D seismic, on EL 1115 offshore southern Newfoundland and Labrador during a nine-year (2010 to 2018) time period. The Study Area encompasses EL 1115 and a 30 km buffer around the exploration lease. Seismic activities will be undertaken in this area as required from 2010 to 2018. Husky is proposing to conduct a 2-D survey in 2010 and potentially 3-D seismic surveys up to 2018. Wellsite/geohazard surveys and vertical seismic profiling (VSP) surveys, as required, are proposed by Husky between 2011 to 2018.

Approximately 2,000 to 3,000 km of 2D seismic data will be collected over EL 1115 in 2010. Additional seismic surveys may be conducted within the Study Area between 2010-2018. Wellsite/geohazard surveys will be conducted in anticipation of a potential drilling program. During exploration drilling activities, VSP surveys may be required and will take place within a radius of 2.5 km from each well site.

The temporal boundaries for the project are between March 1 to November 30 of any given year from 2010 to 2018. In 2010, the 2-D seismic survey is anticipated to require 30 days.

2 Description of Environment

The following sections provide a summary of the environmental factors described in the EA report. A complete description of the biological and physical environment can be found in the EA report and Addendum.

2.1 Physical Environment

Most of EL 1115 lies within the Laurentian Channel at 400 m depth. Water depths range from 100 to 400 m and includes the lower regions of Rose Blanche Bank, Burgeo Channel and Burgeo Bank, the St. Pierre Bank, and extends into the Hermitage Channel to the east. The climate of the Study Area over the Cabot Strait, south of Southwestern Newfoundland, is heavily influenced by the Gulf of St. Lawrence and North Atlantic Ocean. Mean temperatures range from -3.3°C in February to 16.5°C in August. The average daily minimum and maximum temperatures are generally within one degree of the mean. Sea surface temperatures for the region range from -2.85°C in February to 20.8°C in August. The biggest factor for reduced visibility in the area is the formation of fog, which becomes quite frequent by mid-spring and remains until late summer. Sea ice extent can be very variable on the Newfoundland coast as both winds and temperatures are effective in changing the location of the edge. The maximum southern extent of the ice generally occurs from the end of February to the middle of March. The melting of the pack ice may also expose any icebergs that may have drifted through the Strait of Belle Isle into the Gulf of St. Lawrence.

Mean wind speeds range from about 8 m/s in April to 6 m/s in the summer and 9 to 10 m/s in the fall. Maximum wind speeds of 29 m/s occur in September, whereas during the summer months maximum winds are in the 20 to 23 m/s range. Winds for the Sydney Basin Region are most frequently from the west from fall through early spring, and from the southwest through the summer. Large winds are possible from virtually any direction. In July, winds are mostly from the southwest (36% of the time) and south (23%), with speeds rarely (less than 0.2%) greater than 15 m/s. By comparison, in November, winds are from the west (24% of the time) and northwest (20%), with speeds greater than 15 m/s 10% of the time.

2.2 Biological Environment

2.2.1 Species at Risk

There are a number of Species at Risk, as defined under Schedule 1 of the *Species at Risk Act* (SARA) that are likely to be within the Study Area. The following table provides a list of the species likely to be

present and their SARA and Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listing.

SPECIES	SARA Status	COSEWIC Status
Blue Whale (<i>Balenoptera musculus</i>)	Schedule 1 - Endangered	Endangered (May 2006)
North Atlantic Right Whale (<i>Eubalaena glaiialis</i>)	Schedule 1 – Endangered (2003)	Endangered (May 2003)
Leatherback Turtle (<i>Dermochelys coriacea</i>)	Schedule 1 - Endangered	Endangered (May 2001)
Northern Bottlenose Whale (<i>Hyperoodon ampullatus</i>) (Scotian Shelf Population)	Schedule 1 – Endangered (2006)	Endangered (Nov 2002)
Ivory Gull (<i>Pagophilia eburnea</i>)	Schedule 1 - Endangered	Endangered (Apr 2006)
Northern Wolffish (<i>Anarhichas denticulatis</i>)	Schedule 1 – Threatened (2002)	Threatened (May 2001)
Spotted Wolffish (<i>Anarhichas minor</i>)	Schedule 1 – Threatened (2002)	Threatened (May 2001)
Beluga Whale (<i>Delphinapterus leucas</i>) St. Lawrence Estuary Population	Schedule 1 - Threatened	Threatened (May 2004)
Atlantic Wolffish (<i>Anarhichas lupus</i>)	Schedule 1 – Special Concern (2002)	Special Concern (2000)
Fin Whale (<i>Balenoptera physalus</i>)	Schedule 1 – Special Concern	Special Concern (May 2005)
Harlequin Duck (<i>Histrionicus histrionicus</i>) Eastern Population	Schedule 1 – Special Concern	Special Concern (2001)
Harbour Porpoise (<i>Phocoena phocoena</i>) Northwest Atlantic Population	Schedule 2 - Threatened	Special Concern (Apr 2006)
Atlantic Cod (<i>Gadus morhua</i>) (Laurentian North Population)	Schedule 3 – Special Concern	Threatened (May 2003)
Atlantic Cod (<i>Gadus morhua</i>) (Maritime Population)	Schedule 3 – Special Concern	Special Concern (May 2003)
Sowerby’s Beaked Whale (<i>Mesoplodon bidens</i>)	Schedule 3 – Special Concern	Special Concern (Nov 2006)
Porbeagle Shark (<i>Lamna nasus</i>) Atlantic Ocean Population		Endangered (May 2004)
White Shark (<i>Carcharodon carcharias</i>) Northern Gulf – Newfoundland Population		Endangered (Apr 2006)
Roundnose Grenadier (<i>Coryphaenoides rupestris</i>) Atlantic Ocean Population		Endangered (Nov 2008)
Cusk (<i>Brosme brosme</i>)		Threatened (May 2003)
American Plaice (<i>Hippoglossoides platessoides</i>) NL Population		Threatened (Apr 2009)
Shortfin Mako (<i>Isurus oxyrinchus</i>) Atlantic Population		Threatened (Apr 2006)

Blue Shark (<i>Prionace glauca</i>)		Special Concern (Apr 2006)
Killer Whale (<i>Orcinus orca</i>) Northwest Atlantic/Arctic Population		Special Concern (Nov 2008)
Basking Shark (<i>Cetorhinus maximus</i>) Atlantic Population		Special Concern (Nov 2009)

Atlantic wolffish populations have been declining over the past 20 years, with the population in Newfoundland waters declining approximately 91% since 1978. Numbers, mean size and the number of locations where Atlantic wolffish are found have also declined. The numbers of Northern and Spotted wolffish have declined over 90% in three generations, and the number of places this fish is found has also decreased. The species is still relatively widespread, and therefore exists in considerable numbers. Threats to these species include by-catch mortality and habitat alteration by bottom trawling

The Blue Whale is the largest and one of the rarest marine mammals in the North Atlantic. A recently proposed Recovery Strategy (DFO 2009) for blue whales is available with a long-term recovery goal to reach a total of 1000 mature individuals through the achievement of three 5-year objectives. A recovery action plan will be developed by 2014. Current threats to the population include ship strikes, disturbance from whale watching activities, fish gear entanglement, and pollution.

The North Atlantic Right Whale, found only in the North Atlantic, was heavily reduced by whaling. The total population currently numbers about 325 individuals. The Recovery Strategy noted a goal “to achieve an increasing trend in population abundance over three generations” via seven recovery objectives. Critical areas for the North Atlantic right whale include the Roseway Basin and part of the Bay of Fundy.

The Leatherback Sea Turtle is the only sea turtle considered at risk under SARA and COSEWIC reported within the Regional Area. There has been a severe global decline of leatherback sea turtles, with roughly a 70% decline over 15 years. A major cause of mortality and risk to the population is entanglement in fishing gear. Characteristics of this species that make it vulnerable to even small increases in mortality rates include long lifespan, very high rates of egg and hatchling mortality, and late age of maturity. Although there are no estimates available for the number of leatherback turtles in the western Newfoundland offshore region, they are potentially a regular part of the marine fauna in the Study Area.

The Gully population of Northern Bottlenose Whales totals approximately 163 individuals and appears to be currently stable. Bottlenose whales occur elsewhere along the Scotian slope. Northern bottlenose whales produce low amplitude social sounds that may be affected by noise from shipping, fishing, or seismic vessels. It is for that reason and their low population that COSEWIC upgraded the status of this species to endangered in November 2002. Critical area for this species includes The Gully and other underwater canyon features. The proposed Recovery Strategy for the Northern Bottlenose Whale is specific for the Scotian Shelf population, with mention of the Davis Strait population (DFO 2009).

The Ivory Gull is a rare gull species that is associated with polar pack ice at all time of the year. It is hypothesized that Ivory Gull occurrences in the southern Labrador Sea may coincide with periods of above average ice cover, but currently data are insufficient to confirm this. Sightings of Ivory Gull are rare in the Study and Regional Areas in the winter.

The remaining species in the Study Area that are threatened or considered to be of special concern are discussed in detail in the EA Report.

2.2.2 Fish and Fish Habitat

A detailed description of the plankton and benthos communities can be found in the EA Report (AMEC 2010).

The 15 most common demersal species taken (by abundance) in the Study Area are: redfish (*Sebastes spp.*); black dogfish (*Centrosyllium fabricii*), longfin hake (*Urophycis chesteri*), common grenadier (*Nezumia bairdi*), witch flounder (*Glyptocephalus cynoglossus*); common lumpfish (*Cyclopterus lumpus*); American plaice (*Hippoglossoides platssoides*); Greenland halibut (*Reinhardtius hippoglossoides*); haddock (*Melanogrammus aeglefinus*); Pollock (*Polachius virens*); smooth skate (*Malacoraja senta*); longhorn sculpin (*Myoxocephalus octodecemspinosus*); sea raven (*Hemitripterus americanus*); and fourbeard rockling (*Enchelyopus cimbrius*). Commercial pelagic species found in the Study Area include: mackerel (*Scomber scombrus*), Atlantic herring (*Clupea harengus*); Atlantic salmon (*Salmo salar*); swordfish (*Xiphias gladius*), shortfin mako shark (*Isurus oxyrinchus*); white shark (*Carcharodon carcharias*); porbeagle shark (*Lamna nasus*), basking shark (*Cetorhinus maximus*) and blue shark (*Prionace glauca*). Most epipelagic species are migratory and present in the Study Area typically during the summer and fall. Commercially important shellfish in the Study Area includes the sea scallop (*Placopecten magellanicus*); Icelandic scallop (*Chlamys islandica*); American lobster (*Homarus americanus*); squid (*Illex illecebrosus*), shrimp (*Pandalus spp.*) and several species of crab, including snow crab (*Chionoecetes opilio*); Jonah crab (*Cancer borealis*); rock crab (*Cancer irroratus*); red crab (*Chaceon quinqueedens*); and whelk (*Buccinum undatum*). Species known to occur in the Study Area are described in the EA Report.

2.2.3 Commercial Fisheries

The proposed seismic program overlaps NAFO areas 3Pn, 3Psa, 3Psd and 4Vn. Groundfish is the most significant fishery, by landed weight, in the Study Area (an average of >15,000 kg over 4 years of catch data). The most important groundfish species are redfish, cod, monkfish, turbot/Greenland halibut, white hake, skate and pollock. Redfish landings in the Study Area accounts for 28.4 to 63.1% of the total catch in NAFO UAs 3Pn, 3Psa, 3Psd, and 4Vn. Study Area cod landings were between 8.8 and 16.8% of the total catch in the four unit areas. Study Area monkfish landings were between 32.6 and 83.0% of the total catch in the four unit areas. Turbot landings in the Study Area were between 7.1 to 48.3% of the total catch in the four unit areas. White hake landings in the Study Area were between 11.9 and 35.4% of the total catch in the four unit areas. Study Area landings of skate were between 15.0 and 61.9% of the total catch in the four unit areas. Landings of pollock in the Study Area were between 43.0 and 80.9% of the total catch in the four NAFO UAs. For the four NAFO UAs as a whole, the largest fisheries (by catch yearly catch weight) includes redfish (average 1.8 million kilos), snow crab (average 836 000 kilos), cod (average 600,000 kilos), greysole/witch (average 230 000 kilos), and scallop (average 430 000 kilos). The Study Area accounted for 0.1 to 0.4% of snow crab, 0.2 to 4.1% grey sole/witch, and 0 to 15% of scallop by weight across 2004, 2005, 2006, and 2007.

The Study Area fisheries use both fixed (e.g., gill nets, longlines) and mobile (e.g., seines and trawls) fishing gear. The majority of the fisheries in the Study Area use trawling gear.

2.2.4 Marine Mammals and Sea Turtles

Cetaceans are common in the Study Area, especially in the summer months, when whales, porpoises and dolphins migrate north through the area. The EA Report listed 19 species of cetacean and four species of pinniped that are known or likely to occur in the area. Fin (*Balaenoptera physalus*), blue (*Balaenoptera musculus*), humpback (*Megaptera novaeangliae*), minke (*Balaenoptera acustorostrata*) and North Atlantic right (*Eubalanea glacialis*) whales are the most common baleen whales. Toothed whales include the beluga (*Delphinopterus leucas*) sperm (*Physeter macrocephalus*), northern bottlenose (*Hyperoodon ampullatus*), Sowerby's beaked (*Mesoplodon bidens*), killer (*Orcinus orca*), and long-finned pilot whales

(*Globicephala melas*), the bottlenose dolphin (*Tursiops truncatus*), short-beaked common (*Delphinus delphis*), Atlantic white-sided (*Lagenorhynchus acutus*), white-beaked common (*Lagenorhynchus albirostris*), Risso's (*Grampus griseus*) and striped dolphins (*Stenella coeruleoalba*) and the harbour porpoise (*Phocoena phocoena*). The four most common species of seal are the harp (*Pagophilus groenlandicus*), hooded (*Cystophora cristata*), grey (*Halichoerus grypus*) and harbour (*Phoca vitulina concolor*). Occasional sightings of walrus (*Odobenus rosmarus*) are still reported from the southern Gulf of St. Lawrence, but these are likely vagrant animals.

Most sightings of cetaceans occur during the summer (June to September) and spring (April to May). The overall seasonal migration is northwards in the spring and southwards in the fall. Harp and hooded seals are seasonal visitors to the Study Area, as they move into the Gulf and Estuary in December to January, with most individuals leaving the area in April to May. Grey seals are primarily summer residents to the area, but some animals occupy the Gulf region year round. Harbour seal colonies are found in several areas of the Estuary and Gulf of St. Lawrence and reside there throughout the year.

Species of turtles that may be found in the Study Area include the leatherback (*Dermochelys coriacea*) and the Atlantic loggerhead (*Caretta caretta*). It is reported that they can occasionally be found in Atlantic Canada waters between June and October, with numbers peaking in September. The Atlantic loggerhead is the most common sea turtle in North American waters, and is the largest hard-shelled sea turtle in the world. They are found in both coastal waters and offshore areas, more than 200 km from shore. In this area, loggerhead captures correspond closely with fishing effort, as the oceanographic features near the 200-m isobath results in a concentration of loggerhead prey species, such as jellyfish and crustaceans. There are no critical breeding habitats for sea turtles in the North Atlantic.

2.2.5 Marine Birds

The marine coast and waters of southern Newfoundland support considerable numbers of pelagic seabirds, due to the abundance of breeding habitat and the high productivity of adjacent waters. Seabird families reported to be present include: shearwaters, fulmars, petrels, jaegers, skuas, gannets, cormorants, alcids, kittiwakes and gulls, though most do not breed in the area. Phalaropes, although a shorebird, are included as they are a pelagic seabird during the non-breeding season but do not breed in the Study Area.

Species of gull such as Herring Gulls (*Larus argentatus*), Greater Black-Backed Gulls (*Larus marinus*), Ring-billed Gulls (*Larus delawarensis*) and Black-legged Kittiwakes (*Rissa tridactyla*), occur in the Study Area throughout much of the year. Other seabirds such as Northern Fulmars (*Fulmarus glacialis*), Double-Crested Cormorants (*Phalacrocorax auritus*), and Black Guillemots (*Cepphus grylle*) are common in the Study Area year-round. Coastal waterfowl species are not known to breed within the Study Area's boundaries. While the south coast of Newfoundland has not been systematically searched for coastal waterfowl, nesting areas of many species are well documented. Common Eider (*Somateria mollissima*) are considered the most common coastal waterfowl species year-round along the coast of Newfoundland. Several nesting colonies are known to occur along Newfoundland's south shore, in Rose Blanche, La Poile, Grand Bruit, Wreck Island, Ramea Island, and the Penguin Islands.

During the migration and winter seasons, waterfowl species such as American Black Duck (*Anas rubripes*), Common Goldeneye (*Bucephala clangula*), Greater Scaup (*Aythya marila*), and Red-breasted Mergansers (*Mergus serrator*) are common along the south coast of Newfoundland. Considerable numbers of scoters (*Melanitta spp.*) and Long-tailed Ducks (*Clangula hyemalis*) are also reported to occur along the coast during spring and fall. Other species, which are reported to occur in coastal waters of southern Newfoundland during winter, include Red-throated Loon (*Gavia stellata*), Common Loon (*G. immer*), Pied-billed Grebe (*Podilymbus podiceps*), Common Goldeneye (*Bucephala clangula*), Common Merganser (*Mergus merganser*), and Red-necked Grebe (*Podiceps grisegena*).

The eastern population of Harlequin Duck (*Histrionicus histrionicus*) was listed as endangered in 1990, and is currently listed by the Species at Risk Act (SARA) as a species of concern. Birds from this population are known to winter along the southern coast of Newfoundland near Ramea, Burgeo, Connoire Bay, and the Penguin Islands.

2.2.6 Sensitive and Special Areas

Potential sensitive areas include: important bird areas (IBA.); important coral areas; ecologically and biologically significant areas (EBSAs); national marine conservation areas (NMCA); areas of interest (AOI); and marine protected areas (MPAs).

There are three designated IBAs within the Regional Area: Big Barasway; Grand Bay West to Cheeseman Provincial Park; and Green Island. Big Barasway and Grand Bay West to Cheeseman Park are considered important habitat for the globally vulnerable and nationally endangered Piping Plover. Green Island is considered important bird habitat due to the large number of pairs of Leachs Storm-Petrels. The Placentia Bay Extension is also an IBA that is located within Placentia Bay. These IBA areas are not within the Study Area, but are within the Regional Area of the Project.

Corals are widely distributed throughout the Study and Regional Areas. One of the highest concentrations of coldwater corals in the North Atlantic is on the Southwest Shelf Edge and slope. This area is not in the Study Area.

DFO NL Region has identified 11 ecologically and biologically significant areas (EBSAs) within the Placentia Bay Grand Banks Large Ocean Management Area (PBGB LOMA) as potential areas of interest (AOIs) for Marine Protected Area (MPA) designation that may require some level of protection. Three EBSAs that are within the Study Area are: the Laurentian Channel; the St. Pierre Bank; and the Burgeo Bank. Part of the Laurentian Channel and St. Pierre Bank are located within the Study Area and approximately half of Burgeo Bank is located with the Study Area. The Placentia Bay Extension and Southwest Shelf Edge and Slope EBSAs are also located within the Regional Area. It was announced on June 9, 2010 that the Laurentian Channel has been tabbed for designation as a MPA. Once a site is classified as an AOI, it must undergo a detailed evaluation and public consultation process before earning the MPA designation. The area within the Laurentian Channel is a spawning, nursery and feeding area for a number of species, including the porbeagle shark. Marine mammals also migrate through the corridor while moving in and out of the Gulf of St. Lawrence.

There are no MPAs currently identified in the Study Area. The St. Anns Bank is a candidate AOI. The key ecological features include: migration route for fish and marine mammals in and out of the Gulf of St. Lawrence and Estuary; important wolfish habitat; summer foraging area for leatherback turtles; over wintering habitat for Sydney Bight and southern Gulf of St. Lawrence cod populations; sensitive bottom habitats and species; and it is the only major bank on the inner Scotian Shelf.

There are also two potential Parks Canada National Marine Conservation Areas (NMCAs) along the coastline and beyond the Study Area, the South Coast Fjord Area and a Coastal and Inshore Area between Gran Bruit and Francois. These marine areas are managed for sustainable use and containing smaller zones of high protection. NMCAs are established to represent a marine region and to demonstrate how protection and conservation practices can be harmonized with resource use in marine ecosystems.

2.2.7 Research Surveys, Vessel Traffic, Recreation and Tourism

Information regarding DFO vessel research surveys is provided in the EA Report. There are four annual fisheries surveys conducted through the Study and Regional Areas. Three surveys are conducted by DFO in the Regional Area on an annual basis. The RV survey is a multi-species survey that occurs in 3Ps between April and May in the Regional Area. DFO also completed a Hagfish Survey between August

and September in 3Ps south of the Study Area. A sea cucumber survey is also conducted prior to the sea cucumber harvest (April to October) in 3Ps south of the Study Area. Two redfish surveys are conducted by the Groundfish Enterprise allocation Council (GEAC) in Unit 2 (3Pn, 3Ps, 4Vn, 4Vs) in August and in Unit 1 (4RST, 4Vn, 3Pn) in June. There will not be a survey in Unit 1 in 2010. A Notice to Shipping and the CBC Fisheries Broadcast will be issued by Husky. Husky will maintain contact with DFO to determine research vessel locations and times.

Vessel traffic with respect to fishing vessels is discussed in terms of amount of commercial fishing activity. There is also extensive shipping activity that occurs along the southwest coast of Newfoundland, both nationally through ports in Port Aux Basques and St. John's and internationally through the entrance to the Gulf of St. Lawrence for ships coming from Europe. Local commercial ship traffic near the Study Area also consists of the Marine Atlantic Ferry between North Sydney and Port aux Basques.

The Route Halifax-Saint Pierre race 2010 is a race held every two years from Halifax, Nova Scotia to Saint Pierre. There is an average of 30 boats. The race starts on July 10 and finishes on July 14. Commercial cruise lines have the potential to transit through the Study Area. A Notice to Mariners will post the schedule and location of survey vessels related to the proposed program.

Part C: Environmental Assessment Process

3. Procedures

On August 11, 2009, Husky submitted a project description “*2009-2018 Seismic Survey Program for the Sydney Basin Offshore Area – Project Description*” (Husky Energy 2009) to the C-NLOPB, in support of its application to conduct 2-D and 3-D seismic surveys. The Project will require an authorization 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. The C-NLOPB, as Responsible Authority (RA), forwarded the Federal Coordination Regulations (FCR) Section 5 Notification on August 13, 2009 to: Fisheries and Oceans Canada (DFO) Environment Canada (EC); Department of National Defence (DND); Transport Canada (TC); Natural Resources Canada (NRCan); Health Canada; and the Newfoundland and Labrador Departments of Environment and Conservation, Fisheries and Aquaculture, and Natural Resources; as well as the Canada Nova Scotia Offshore Petroleum Board (CNSOPB).

The Canada Nova Scotia Offshore Petroleum Board (CNSOPB) responded on August 19, 2009 and indicated that an authorization pursuant to Section 142(1)(b) of the *Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act* will be required. The seismic surveys will extend across the jurisdictional boundary between the Canada-Newfoundland and Labrador and the Canada-Nova Scotia Offshore Petroleum Boards. Therefore, the C-NLOPB and the CNSOPB are RAs for the environmental assessment. Pursuant to Section 12.2(2) of the *Canadian Environmental Assessment Act* (CEA Act), and the *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements*, the C-NLOPB assumed the role of the Federal Environmental Assessment Coordinator (FEAC) for the screening and in this role will be responsible for coordinating, in consultation with the CNSOPB, the review activities by the expert government departments and agencies that participate in the review.

On September 4, 2009, the C-NLOPB notified Husky that a screening level of assessment was required and the proponent was provided with a Scoping Document.

On March 8, 2010, Husky submitted the “*Sydney Basin Seismic Program – Environmental Assessment*” (AMEC 2010). The C-NLOPB forwarded the EA Report on March 9, 2010 to the CNSOPB, DFO, EC,

Department of National Defence (DND), and the provincial Departments of Environment and Conservation, Fisheries and Aquaculture, and Natural Resources. The Fish, Food, and allied Workers Union (FFAW) and One Ocean were provided a copy of the EA Report to review.

Comments on the EA Report were received from the CNSOPB, DFO, EC, DND, and the FFAW. In order to address deficiencies in the EA Report, Husky was required to provide a response to the EA Report comments. Husky responded on May 21, 2010 and the C-NLOPB forwarded the response to the CNSOPB, DFO, EC, DND and the FFAW.

It is the obligation of the RAs to consider which physical works and undertakings, in relation to the proposed Project, fall within the scope of the Project. First, there are no associated physical works that should be included in the scope of the Project. Second, if the proposed Project were to proceed, as set out in the application, it would constitute a single Project for the purposes of subsection 15(2) of *CEAA*. For the purposes of subsection 15(3) of *CEAA*, the scoping exercise is complete because an assessment was conducted in respect of every construction, operation, modification, decommissioning, abandonment, or other undertaking proposed by Husky that is likely to be carried out in relation to their proposed Project.

3.1 Scope of Project

Seismic data will be collected on and around EL 1115 offshore southern Newfoundland in the Sydney Basin, as described in “2009-2018 Seismic Survey Program for the Sydney Basin Offshore Area – Project Description” (Husky 2009). Seismic surveys will extend across the jurisdictional boundary between the Canada- Newfoundland and Labrador and the Canada-Nova Scotia Offshore Petroleum Boards. The proposed Study Area includes a thirty (30) km buffer around the EL to accommodate both streamer deployment and seismic vessel turning radius. It is estimated that the survey vessel will require a turning radius of 10 to 15 km between lines.

Approximately 2,000 to 3,000 km of 2D seismic data will be collected in 2010. The 2D seismic survey vessel will tow a sound source, an airgun array approximately 4,000 to 7,000 cubic inches in total volume and towed at depths 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 (2030 psi) to 165 (2393.1 psi) bar-m. There will be one towed streamer, 8,000 to 10,000 m in length, which will be towed behind the vessel at depths of approximately 8 to 30 m. In the subsequent years, 2D, 3D and/or geohazard surveys will be undertaken in the area covered in this assessment. Geohazard surveys are proposed on areas of drilling interest in advance of exploration drilling and during drilling operations, Wellsite/geohazard surveys typically take 36 to 48 hours to complete. VSPs may also be conducted once drilling has commenced. VSP surveys are typically acquired using a cluster of small to medium size air sources (total volume of 450 to 1500 in³) and a peak pressure of 240 to 250 dB re 1uPa @ 1m. No streamers are deployed. They are usually a one-time event and take place within one day.

The timing of seismic survey activities will be between March 1 and November 30 of any given year up to 2018. Geohazard and VSP surveys could occur any time between 2010 and 2018.

3.2 Boundaries

The boundaries of the Project are defined in the seismic EA as follows and are acceptable to the C-NLOPB.

<i>Boundary</i>	Description
<i>Temporal</i>	2D and 3D Surveys - March to November 2010-2018 Geohazard/Wellsite and VSP Surveys – Year round 2010 - 2018
<i>Study Area</i>	Defined as EL 1115 plus 30 km outside the EL to accommodate

	vessel turning.
<i>Regional Area</i>	Varies according to specific vertical and horizontal distributions and sensitivities of each VEC and with the project component; defined as the area within which effects have been reported to occur. Includes NAFO Unit Area 3Pn, 3Ps, and 4Vn

There may also be an area of influence from the sound array. However, depending on the marine species present, this area of influence will vary in size. Hearing thresholds have been determined for a number of species (seals and odontocetes), but the threshold is not known for others (baleen whales). The sound that is actually received by the marine species depends on the energy released from the source and its propagation (and loss) through the water column. Therefore, the hearing ability of the species and background noise will affect the amount of noise from an airgun array detected.

3.3 Scope of Assessment

For the purpose of meeting the requirements of the *CEAA*, the factors that were considered to be within the scope of the environmental assessment are those set out in subsection 16(1) of the *CEAA*, and those listed in the “*Husky Energy Sydney Basin Offshore Area EL 1115 and Adjacent Areas Seismic Program 2009-2018 Scoping Document*” (C-NLOPB 2009).

4. Consultation

4.1 Consultation carried out by Husky Energy

Husky consulted with the following organizations and agencies:

- Town of Burgeo;
- Regional Economic Development Board, Marine and Mountain Zone Corporation (MMZC), Port aux Basques; ;
- One Ocean;;
- Natural History Society; ;
- Ocean Choice International; ;
- Fish, Food and Allied Workers Union (FFAW); ;
- Ivy Fisheries Ltd ;;
- Sambro Fisheries Ltd ;;
- Clearwater Seafoods Limited Partnership; ;
- Ka’ Le Bay Fisheries/Louisbourg Seafoods; ;
- Maritime Fishermen’s Union, local 6;
- Eastern Fishermen’s Federation;
- North of Smokey Sealers Association;
- Fisheries Advisory Committee;
- 4Vn Groundfish management Board;
- Groundfish Enterprise Allocation Council;
- Scotia-Fundy Mobile Gear Association;
- Union of Nova Scotia Indians;
- Kwilmu’kw Maw-klusuaqn (Mi’kmaq Rights Initiative);
- Atlantic Policy Congress of First Nations Chiefs Secretariat; and
- Mawpukek First Nation.

All consultations were held to inform stakeholders about the proposed program. This was done in the form of telephone interviews, face-to-face meetings, and email correspondence. Public meetings were held in Burgeo and Port aux Basques.

The results of those consultations and issues that were identified are documented in the EA Report, however the key issues raised during the public meetings included:

- the need for ongoing discussions and information as the project planning proceeds;
- the need for maximizing local opportunities for employment and supply of services and supplies;
- very recent fishing history is important for determining where the fishing effort is likely to occur in the near future (the exploration licenses are areas for fishing shrimp, crab and turbot, which areas change from year to year);
- fishers need to receive factual and scientifically sound information to allay fears of negative effects on the fishing industry;
- communication is critical if fishers and oil and gas activities are to work in harmony; and
- the potential effects of the associated noise on whales and other marine mammals.

The C-NLOPB are satisfied that the consultations carried out by Husky and reported on in the EA Report and Addendum, during the preparation of the EA included all elements of the Project, and that Husky addressed any concerns in the EA. The C-NLOPB are not aware of any public concerns with respect to the environmental effects of the project, and does not require that further consultation be undertaken.

4.2 Consultation with other Federal Authorities and Other Government Departments

The C-NLOPB forwarded the EA Report on March 9, 2010 to the CNSOPB, DFO, EC, DND, and the provincial Departments of Environment and Conservation, Fisheries and Aquaculture, and Natural Resources. The Fish, Food, and allied Workers Union (FFAW) and One Ocean were provided a copy of the EA Report to review.

DFO provided comments on the EA Report on 05 May, 2010. Their comments focused on use of the most up-to-date information on fisheries data, seismic effects, cumulative effects, species at risk, and the inclusion of all fisheries in the project area. *DFO was satisfied with the response provided by Husky.*

The FFAW provided comments on the EA report on 29 April, 2010. The key issues were: regular communication between the two industries; consistent and up-to-date fisheries data; and the long term effects of multi-year seismic programs. *The FFAW were generally satisfied with Husky's response and reiterated the dynamic nature of the fishery.*

DND reminded Husky to check potential DND activity each season, to promulgate actual work locations as per Navigation to Ships notices (NOTSHIPS), and the existence of potential UXO sites. *It is Husky's intent to provide work locations as part of the NOTSHIPS.*

Environment Canada provided comments on the EA Report on 20 April 2010 and requested that Husky collect seabird data and provided protocol and proper bird-handling advice. *EC are satisfied with the Proponent response. Husky should contact Environment Canada to arrange the meeting to discuss seabird observations.*

The CNSOPB provided comments on the EA Report on 21 April, 2010. *The CNSOPB's comments involved them being a responsible authority (RA), requesting such references be made in the appropriate sections, and the integrity of the acoustic modeling.*

Comments were provided to Husky to be addressed before a Screening Report could be completed. The response to review comments was provided by Husky in the form of an Addendum and forwarded to reviewers to confirm that the comments had been adequately addressed. It was felt that all comments had been addressed.

5. Environmental Effects Analysis

5.1 Methodology

The C-NLOPB reviewed the environmental effects analysis presented by Husky in the EA Report. A Valued Ecosystem Component (VEC) based assessment based on the interaction of project activities on these VECs, was used in assessing environmental effects, including cumulative effects and accidental events. The environmental assessment methodology and approach used by the Proponent is acceptable to the C-NLOPB, the environmental effects analysis uses the information presented by the operator and takes into consideration mitigation proposed by the Proponent to assess the potential for residual environmental effects.

The potential adverse environmental effects, including cumulative effects, were assessed with respect to:

- magnitude of impact;
- geographic extent;
- duration, likelihood, and frequency;
- reversibility; and
- ecological, socio-cultural and economic context;

after taking mitigation measures into account,

- significance of residual impact.

The potential effect significance of residual effects, including cumulative effects, for each VEC is rated in this environmental screening report as follows:

0 = No Detectable Adverse Effect

1 = Detectable Effect, Not Significant

2 = Detectable Effect, Significant

3 = Detectable Effect, Unknown

These ratings, along with the likelihood of the effect, are considered in determining overall significance of residual effects.

In the EA Report, Husky presented information regarding the potential effects of seismic, wellsite/geohazard and VSP activities on marine fish, fish habitat, marine mammals and sea turtles, marine birds, commercial fisheries, species at risk, and sensitive areas. Information regarding hearing effects in fish, sound detection and behavioural changes in invertebrates, and behavioural and disturbance effects in marine mammals was also presented. Upon review of the information and review of the mitigations proposed by Husky, the effects assessment is as follows.

5.2 Valued Ecosystem Components/ Potential Environmental Effects

5.2.1 Fish and Invertebrate

1

In the natural environment, fish show avoidance responses and swim away as the array ramps up or as the survey slowly approaches. The airgun will be ramped up, thereby allowing fish in the area to leave. Other studies referenced in the EA Report indicated that fish mortality did not result from exposure to seismic sound sources. Stress responses to seismic exposure occur in fish but are temporary. AMEC (2010) reports that the temporary nature of these responses varies depending on the fish species and the sound source. Behavioural responses to seismic sound have been documented in a number of studies and reported in the seismic EA. In general, fish show a startle response and a change in direction and speed of swimming. In some studies looking at the effects on commercial catch rates, the change in swimming direction accounted for a decreased catch rate. However, some studies show that this effect was temporary, whereas other studies report that the fish behaviour was altered for a number of days (AMEC

2010).

To date, there are not any documented cases of acute mortality of juvenile or adult fish exposed to seismic sound characteristic of typical field seismic surveys. Taking avoidance behaviour into account, any potential physical impact to finfish is considered negligible to low in magnitude, 1-10 km in geographic extent, from weeks to one month in duration, and would have a low likelihood of occurrence. Therefore, the likelihood of effects on fish is low and **not significant**

The literature covering the effects of seismic sound on invertebrates is limited. In general, marine animals with gas-filled organs are more vulnerable to acoustic impact because of the impedance difference between air and water. Most invertebrates do not have gas-filled organs and are therefore usually considered less vulnerable than fish. Rather than being sensitive to pressure changes, invertebrates appear to be more sensitive to particle displacement.

There is a variety of studies that show some effect of seismic sound on invertebrates and there are others that show little or no effect of seismic sound. It has been shown that seismic pulses can damage scallop shells and cause sea urchin spines to fall off when air guns are close (2 m). Snow crab eggs showed delayed development under similar conditions. Behavioural effects of seismic sound include moving away from the air gun, startle responses and increased swimming speeds. Mussels, periwinkles, crab species and lobster species have shown little to no response to seismic sound. Catch rates of rock lobster and brown shrimp (*Crangon crangon*) have been shown to have not been impacted by seismic sound. Invertebrates without gas-filled organs appear less vulnerable to the effects of air guns than animals with gas-filled organs. Overall, the results indicate that effects are both short-term and most obvious after exposure at close range.

Any potential physical or behavioural impact to invertebrate species is considered to be negligible, immediate in geographic scope, immediate in duration, and would have a low likelihood of occurrence. The likelihood of effects (behavioural and physical) is low and therefore **not significant**.

5.2.3 Commercial Fishing and DFO Research Surveys

1

The proposed seismic program overlaps NAFO areas 3Pn, 3Psa, 3Psd and 4Vn. Groundfish is the most significant fishery, by landed weight, in the Study Area (an average of >15,000 kg over 4 years of catch data). The most important groundfish species are redfish, cod, monkfish, turbot/Greenland halibut, white hake, skate and pollock.

Acoustic behaviour and uses of sound by fish are less documented than the physiology of sound detection by fishes. The effects of intense and potential harmful sound on fish hearing and behaviour are poorly understood. Such noise may disturb fish and may produce temporary or permanent hearing impairment in some individuals, but is unlikely to cause death or life-threatening injury.

Noise levels from geophysical activities and vessel traffic for this Project are predicted to be less than the limits that cause physical effects on fish. The EA Report summarized the following physical effects of noise on fish (worse case within 10 m of a 255 dB re 1 μ Pa source):

- transient stunning of marine fish occurs at noise levels above 192 dB re 1 μ Pa;
- internal injuries at 200 dB re 1 μ Pa;
- egg/larval damage due to noise occurs at 220 dB re 1 μ Pa; and
- fish mortality at 230-240 dB re 1 μ Pa.

The EA Report refers to conducted trials with captive fish and found that increases in swimming behaviour occurred when seismic sound levels reached 156 dB re 1 μ Pa. In the survey proposed by

Husky, sound is estimated to attenuate to 156 dB re 1 μ Pa @ 1 mrms at a distance of 500 m at 90° from vertical (horizontal from array) and attenuate to 161 to 171 dB re 1 μ Pa @ 1 mrms to the seafloor at 45° emission angle at all water depths in the Study Area. Noise levels should attenuate to ambient levels 50 to 100 km from the survey vessel. The environmental effects on fish and shellfish are predicted to be reversible, of limited duration, magnitude, and geographic extent. Although there are few studies on the effects of seismic surveys on specific fish species in Newfoundland waters, research studies show that mortality or serious injury is unlikely beyond a distance of approximately 2 m from the sound source. Mitigation procedures, consistent with the C-NLOPB's guidelines for this activity, will include an FLO to facilitate information flow between the survey and vessels and fishing vessels near the seismic survey. In addition, Husky will use a picket (or guide vessel) and will provide Notices to Shipping and advertise their activities on the CBC Radio program Fisheries Broadcast. In the event of gear damage, Husky will implement a gear and vessel damage compensation contingency plan.

As identified above, three surveys are conducted by DFO in the Regional Area on an annual basis. To avoid potential conflict with DFO research surveys, Husky will maintain communications with DFO personnel to keep up-to-date on the timing of planned research surveys.

Taking mitigations into account, the impacts to commercial fishery is considered to be minor, sub-local to local geographic extent, short-term in duration, and would have a low likelihood of occurrence and is considered not likely and **not significant**.

5.2.4 Marine Mammals and Turtles

1

A potential effect of the proposed surveys upon marine mammals and sea turtles, which may be present in the area, is that of sound pulses from the survey equipment. The EA Report describes the species of cetaceans that have been observed in, or which are considered likely, to frequent the Study Area. The EA Report provides an assessment, based on available data on the effects of seismic sound on marine mammals and sea turtles. There is a lack of data concerning the potential for sub-lethal effects, with the exception of avoidance behaviour. Several different surveys in other marine areas indicate that avoidance behaviour is usually exhibited in response to airgun seismic surveying.

There are several recommended mitigations which when applied can reduce impacts to marine mammals in the vicinity of a seismic survey (e.g., ramping up of airguns, use of observers, startup and shutdown procedures). A trained EO will be on the seismic vessel and observation data on marine mammals will be collected throughout the program. In addition, the EA Report lists a number of mitigations consistent with the mitigations listed in the *Geophysical, Geological, Environmental and Geotechnical Program Guidelines* (C-NLOPB 2008). Husky has indicated that these mitigations (including ramp up and shut down during ramp up if a marine mammal is spotted in the zone) will be implemented during the survey. In addition to the shutdown procedures during ramp up, the C-NLOPB will require that the airguns be shut down if a marine mammal or sea turtle, listed as endangered (as per SARA Schedule 1) is observed within 500 m of the airgun array.

The effects on marine mammals are predicted to be low to medium magnitude, low (<500 m) geographic extent, intermittent frequency, and short duration (weeks to a month). With the application of mitigation measures, the likelihood of effects will be **not significant**.

For sea turtles, the EA Report indicates that sea turtles may exhibit avoidance behaviour to noise within an unknown area around the array. Sea turtles may experience temporary hearing loss if the turtles are close to the airguns. While the impacts of the arrays would not be lethal, the impulses might disrupt foraging patterns and have other behavioural consequences. However, if sea turtles were present, the mitigation measures identified by Husky should reduce the impact. The effects on sea turtles are predicted to be of low magnitude, low (<500 m) geographic extent, occasional frequency with a duration

of up to two months. With the application of mitigation measures and the low likelihood of sea turtles present in the area, the overall likelihood of effects occurring is low, and the effects will be **not significant**.

5.2.5 Marine Birds

1

The sound created by air guns is focused toward the substrate, below the surface of the water. Sound from the array, above the water, is similar to a muffled shot and should have little or no effect on birds that do not have their heads in the water. Most species of seabirds that may be present in the Study Area spend only a few seconds underwater during a foraging dive; therefore, there would be minimal opportunity for exposure to noise associated with seismic shooting. The EA reports that only the Alcidae (Dovekie, Common Murre, Thick-billed Murre, Razorbill, Black Guillemot and Atlantic Puffin) spend measureable time underwater during forage dives. They typically spend 25 to 40 seconds underwater during each dive, reaching depths of 20 to 60 m, and have the potential to be exposed to the sounds produced by seismic shooting. The effects of seismic noise on Alcids are not well known and there have been no documented adverse effects directly on seabirds as reported by offshore observers..

Seabirds may also be attracted to vessel lighting; they may become disoriented and fly into vessel lights or infrastructure, or continuously fly around the light, consuming energy and delaying foraging or migration. Since the Project operates on a 24-hour basis, lighting is required at night for safety purposes; therefore, mitigative measures will need to be applied (i.e., routine checks for stranded seabirds and implementation of appropriate release procedures). A Live Seabird Handling permit from the CWS has been obtained by Husky. An Environmental Observer (EO) will be assigned on the vessel during seismic surveys and responsible for this activity. Every effort will be made to minimize high-intensity work lights in the evening and lighting may be turned off in inclement weather (low cloud cover, overcast skies, fog and drizzle conditions), if not required. Seabird observations will be recorded and information provided to the CWS.

The seismic vessel is usually supported by another vessel but helicopters are sometimes required to support the seismic vessel. A low flying helicopter could create a startle response in a seabird colony. Husky will ensure that any helicopter supporting the seismic vessel will follow a flight path that avoids the IBAs. The seismic vessel itself (and the picket vessel) will also avoid any bird colonies.

Effects associated with vessel presence and lights will be similar to what marine bird are exposed to now with the considerable commercial and fishing vessel traffic. Husky has indicated that mitigations (EOs on board, handling and release of birds as per CWS handling instructions, ramp up, avoidance of bird colonies) will be implemented during the survey. The magnitude of effects, if likely, is negligible, with a small geographic extent (<1 km² and 1-10 km for lights), and intermittent to continuous frequency, and of short duration (1 to 60 days). Therefore, an environmental effect is not likely and **not significant**.

5.2.6 Species at Risk

1

The EA Report indicates that the area for potential surveys has no unique habitat or spawning areas required by fish species at risk. Mitigation measures include a gradual increase in intensity of air gun discharge to allow fish to avoid the source of sound, and avoidance of seismic activities during known sensitive areas and timeframes for Atlantic cod spawning (April and May). Three species of wolffish are likely to occur in the study area. The recovery strategy for wolffishes identifies oil exploration and production to have negligible impacts on the ability of both spotted and northern wolffish to survive and recover. Effects on wolffish are likely to be not significant, therefore effects on wolffish species at risk are not likely to be adverse and therefore **not significant**.

The Seismic EA indicates that leatherback sea turtles may be occasional or infrequent visitors to the Study Area and the area contains no known critical habitat. A recovery strategy for leatherback sea turtles

is available. With the implementation of mitigations and as indicated above, effects on turtles are likely to be not significant. Therefore, effects on the Leatherback turtles are not likely to be adverse and therefore **not significant**.

Blue, North Atlantic Right, and the Northern Bottlenose whales are reported by AMEC (2010) to be uncommon in the project area and thus, the potential for interaction with project activities is unlikely. However, if this marine mammal were in the project area, the mitigations described above would reduce any impact. A dedicated EO will be onboard the seismic vessel. If a concentration of marine mammals is observed in a particular area, consideration will be given to shifting the survey to another part of the Study Area until the concentration has moved. With the implementation of mitigations, including those outlined in the Geophysical, Geological, Environmental and Geotechnical Program Guidelines (C-NLOPB 2008), including the “*Statement of Canadian Practice on the Mitigation of Seismic Noise in the Marine Environment*” effects on marine mammal species at risk are likely to be **not significant**.

Most of the listed seabirds at risk are thought to be infrequent visitors to the Study Area (AMEC 2010). The Ivory Gull is rare in all areas and unlikely to be found in the survey zone. As indicated above, effects on marine birds are likely to be not significant, therefore, effects on the marine bird species at risk are not likely to be adverse and therefore **not significant**.

5.2.8 Water Quality/Discharges

0

Routine discharges, which are likely to occur during operation, are similar to those associated with many typical vessel operations. The vessels proposed for the survey are equipped with onboard environmental protection equipment, bilge/oily water separator, oily water/sludge holding tanks, and a sewage treatment system for wastewater. Solid waste will be collected and disposed of according to regulations and guidelines. The effect of the seismic operation on marine water quality will be negligible and **not significant**.

5.3 Cumulative Environmental Effects

Potential cumulative environmental effects external to the seismic program include seismic program(s) by other operators, commercial and traditional fishing, marine transportation and tourism/recreation. The potential exists that other seismic survey(s) could occur concurrently, resulting in a temporal overlap with the Project. There would be no spatial overlap as there must be enough distance between streamers as to avoid interfering with data acquisition by individual vessels. Therefore, there is some potential for cumulative environmental effects with the seismic program in this context. Vessels not associated with the seismic program are restricted from being close to the seismic vessel during the seismic survey, the residual cumulative environmental effect with noise and traffic external to the seismic program will be negligible. Compared to existing vessel traffic in the area, the incremental amount of vessel traffic, because of this seismic program, will be negligible. Cumulative environmental effects resulting from any of the seismic program activities will not be additive or cumulative because the seismic program activities are transitory. With the implementation of mitigative measures and the limited spatial, and potentially temporal, overlap with other projects and activities, the cumulative environmental effect of the seismic program in conjunction with other projects and activities is predicted to be **not significant**.

5.4 Accidents and Malfunctions

Accidental discharge of oil into the marine environment may result from improper operational procedures (e.g., improper draining of streamer reel trunks), loss of streamer fluid due to breakage, accidental spills of fuel or lubricants, or as a worst case, because of total vessel loss. There were five incidents of streamer spills off Nova Scotia in 2003. All spill volumes of streamer fluid were less than 1 m³ and ranged from 0.02 to 0.57 m³. Modeling by Husky showed that loss of floatation fluid of 240 L from one streamer section showed that no floatation fluid reached the shore in May and September. Streamer equipment

will be maintained and responsibly managed. If possible Husky will use non-solid streamers with an Isopar M fluid with a 12% thicker wall to further reduce the possibility of a leak or spill. Husky will develop a fuel transfer plan. The vessel is required to carry a “Shipboard Oil Pollution Emergency Plan” pursuant to MARPOL 73/78. The Plan contains a description of procedures and checklists, which govern operations involving hydrocarbons. Adherence to this Plan should prevent unintended “operational” releases. Husky’s Oil Spill Response Plan will be followed in the case of a spill occurrence.

Effects due to accidental spills associated with the proposed operation therefore are considered, overall, to be detectable if they occur, negligible, but neither significant nor likely.

5.5 Follow-up Monitoring Required Yes No

The C-NLOPB does not require follow-up monitoring, as defined in the CEA Act, to be undertaken.

6. Other Considerations

The C-NLOPB are satisfied with the environmental information provided by Husky regarding the potential adverse environmental effects, which may result from the proposed seismic program and are satisfied with the operator’s proposed monitoring and mitigative measures.

The C-NLOPB are of the view that the environmental effects from the project, in combination with other projects or activities that have been or will be carried out, are **not likely** to cause significant adverse cumulative environmental effects.

The C-NLOPB are of the view that if the proposed environmental mitigative measures outlined in the EA Report and Addendum and those listed below are implemented, the seismic program is not likely to cause significant adverse environmental effects.

7 Recommended Conditions and /or Mitigations

The C-NLOPB recommends that the following conditions be included in the authorization if the seismic program is approved:

- *Husky Energy shall implement or cause to be implemented, all the policies, practices, recommendations and procedures for the protection of the environment included in or referred to in the Application and in the “Sydney Basin Shelf Seismic Program – Environmental Assessment” (AMEC 2010) and the Sydney Basin Shelf Seismic Program – Environmental Assessment Addendum (Husky 2010).*
- *Husky Energy, or its contractors, shall shut down the seismic airgun array if a marine mammal or sea turtle listed as **Endangered or Threatened** (as per Schedule 1 of SARA) is observed within 500 m of the safety zone during ramp- up procedures and when the array is active.*

Part D: Screening Decision

8. Decision/Decision Date

The C-NLOPB are of the opinion that, taking into account the implementation of the proposed mitigation measures set out in the conditions above and those committed to by Husky Energy, the Project is **not likely to cause significant adverse environmental effects**. This represents a decision pursuant to Section 20(1)(a) of the CEA Act.

Responsible Officer

Original signed by Elizabeth Young

Date: June 22, 2010

Elizabeth Young

Environmental Assessment Officer

Canada-Newfoundland and Labrador Offshore Petroleum Board

References:

AMEC. 2010. Sydney Basin Seismic Program – Environmental Assessment. 283 pp + appendices.

DFO. 2009a. Recovery Strategy for the blue whale (*Balaenoptera musculus*), Northwest Atlantic population, in Canada [PROPOSED]. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa. 62 pp.

DFO. 2009b. Recovery Strategy for the Northern Bottlenose Whale (*Hyperoodon ampullatus*), Scotian Shelf population, in Atlantic Canadian Waters [PROPOSED]. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada. Vi + 60pp.

Husky Energy. 2009. 2009-2018 Seismic Survey Program for the Sydney Basin Offshore Area – Project Description. 14 pp.

Husky Energy. 2010. Sydney Basin Seismic Program – Environmental Assessment - Addendum. 36 pp.

C-NLOPB. 2009. Husky Energy – Sydney Basin Offshore Area EL 1115 and Adjacent Areas Seismic Program 2009-2018 Scoping Document. 11 pp.