CANADA-NEWFOUNDLAND and LABRADOR OFFSHORE PETROLEUM BOARD
CEAA SCREENING REPORT

PART A: General Information

Screening Date	**December 20, 2007**
Project Title	PDI Production Inc. Port au Port Bay Exploration Drilling Program
Physical Activity	Exploration Drilling
Proponent	PDI Production Inc. Suite 201 Baine Johnston Centre 10 Fort William Place St. John's, NL A1C 1K4
Contact	Mick Hibbert General Manager
C-NLOPB File No	7705 P35-1
CEAR No.	07-01-27358
Location	Port au Port Bay, Newfoundland and Labrador 5389192.133 N, 364249.278 E (UTM Zone 21, NAD27)
Referral Date	March 09, 2007
EA Start Date	April 03, 2007
CEAA Law List Trigger	Section 138(1)(b) *Canada Newfoundland Atlantic Accord Implementation Act* (Accord Act)

Part B: Project Information

On March 09 2007, PDI Production Inc. (PDIP) submitted a project description to the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) for a proposed exploration drilling program in Port au Port Bay. A Request for Information was sent to PDIP and a revised project description was submitted on April 02, 2007. The proposed drilling site is situated on Shoal Point, a promontory extending into Port au Port Bay, on the Port au Port Peninsula in western Newfoundland. The program will be conducted within offshore Exploration License EL-1070 in the offshore area under the jurisdiction of the C-NLOPB. The information in this screening report has been summarized from the following reports submitted by PDIP on behalf of Shoal Point Energy Ltd. and Canadian Imperial Venture Corporation in support of their

application: *"Port au Port Bay Exploration Drilling Program Environmental Assessment"* (LGL Limited 2007) (the EA Report) and "*Port au Port Bay Exploration Drilling Program Environmental Assessment Addendum*" (LGL Limited 2007) (the EA Addendum).

1. Description of Project

PDI Production Inc., the project proponent, is proposing to conduct exploration drilling in the Port au Port Bay area. The proposed drilling area is located within the area of EL1070. The two options for exploration drilling at Shoal Point are a sidetrack well from the existing (abandoned) K-39 well; or to drill a new deviated well from an onshore location near K-39. The total vertical depth of the well is expected to be approximately 1816 m at the target, with about a 2200 m deviation from the surface. Over the next three to five years, PDIP may drill up to a maximum of four more deviated wells (either exploration or production) into EL1070 from various onshore locations (e.g. Shoal Point or Long Point) around Port au Port Bay. The first well is tentatively planned for the fourth quarter of 2007. It is anticipated that drilling (or drilling/re-entry combination) will take approximately 90-120 days to complete all four phases of the first well. Drilling will be conducted using conventional onshore drilling techniques utilizing a triple cantilever mobile drilling unit (MDU). Activities will be supported by office accommodation modules, power generating modules, mud and cement mixing systems, bottom hole assembly tools and drill bits, wellhead and well casing materials. There will be no other offsite facilities to support the drilling program. Vertical seismic profiling (VSP) will also be conducted in conjunction with the drilling.

2. Description of Environment

The EA Report describes the Valued Ecosystem Components (VECs) that have a potential to be affected by drilling activities as marine macroinvertebrate/fish habitat, marine macroinvertebrates/fish, marine commercial fisheries, marine-associated birds, marine mammals and sea turtles, rare terrestrial vegetation, freshwater fish and fish habitat, and species at risk. For the purposes of this screening report, only marine related VECS will be included. The following sections provide a summary of the environmental factors described in the EA Report and EA Addendum. A complete description of the biological and physical environment can be found in the EA Report and EA Addendum.

2.1. Physical Environment

A detailed description of the physical environment is presented in the EA Report and EA Addendum. The Study Area includes the Port au Port Peninsula as well as marine areas with water depths ranging from the intertidal zone to 200 m. West Bay and Piccadilly Bay is relatively shallow at depths typically less than 20 m below sea level. East Bay reaches depths of over 40 m.

2.2. Biological Environment

2.2.1Fish and Commercial Fisheries

The EA report provides a general description of habitat requirements and areas of occurrence for the following commercially important species – American lobster (*Homarus americanus*), snow crab (*Chionoecetes opilio*), northern shrimp (*Pandalus borealis*), Iceland scallop (*Chlamys islandicus*), Atlantic cod (*Gadus morhua*), Atlantic mackerel (*Scomber scombrus*), Atlantic herring (*Clupea harengus harengus*), capelin (*Mallotus villosus*), redfish (*Sebastes* spp.),

Greenland halibut (*Reinhardtius hippoglossoides*), Atlantic halibut (*Hippoglossus hippoglossus*), witch flounder (*Glyptocephalus cynoglossus*), lumpfish (*Cyclopterus lumpus*), American plaice (*Hippoglossoides platessoides*), and white hake (*Urophycis tenuis*). The Study Area occurs in the southeastern portion of North Atlantic Fishery Organization (NAFO) Unit Area 4Rc.

The EA Report notes that of the species listed above, the pelagic species catches (herring, mackerel and capelin) accounted for over 91% by quantity of the landed catch in 2006 with just 3% of the harvest made up of groundfish. The following provides a brief description of the six principal commercially important species.

Lobsters are distributed nearshore around the island of Newfoundland, including the Port au Port Peninsula area. Lobsters mate during the summer after the female molts but eggs are not fertilized until the following summer. Pre-hatch larvae are released during the next summer. Larvae remain plankton in near surface waters for 3 to 10 weeks before they settle to the bottom. Lobster larvae can be present in waters near the coast between June and mid-October, depending on the area and the annual variation in water temperatures. The lobster fishery occurs during the spring. The inshore area located between the outer portion of Port au Port Bay and northward to Shag Island, the northeastern part of the Project Area, has been identified as a prime lobster spawning area. Lobster nursery areas can also be found near Shoal Point (within the Project Area) and Outer Bay of Islands above North Head (north of the Study Area). The fishery is pursued by small open boats with pots (traps) set close to shore, usually at depths less than 20 m.

Snow crab (*Chionoecetes opilio*) occurs over a broad depth range (50 to 1,300 m) in the Northwest Atlantic. They have a tendency to prefer water temperatures ranging between -1.0 and 4.0^{o}C. Mating occurs in early spring with the females carrying the fertilized eggs for up to two years. The larvae hatch in late spring or early summer. During recent years, a large proportion of snow crab catches on the west coast of Newfoundland have occurred in Unit Area 4Rc. In 2005, the crab fishery remained strong in both inshore and offshore areas in the region of Bay of Islands (North of the Study Area).

The majority of the northern Gulf of St. Lawrence cod stock (3Pn4RS) undertake extensive annual migrations along western Newfoundland in the fall and spend the winter in the area of the Cabot Strait off southern and southwestern Newfoundland. Cod move inshore to the Port au Port Peninsula (Unit Areas 4Red) where spawning commences. Fertilized eggs rise through the water column and can be concentrated at water depths between 50 and 100 m. The incubation period is between 14 and 40 days. Newly hatched larvae remain pelagic and settle out to substrates in shallow nearshore areas where they reach 25 to 50 mm in length. The Cape St. George Cod Spawning Area was established off the west coast of the Port au Port Peninsula in 2002. The designated area is closed to all groundfish fishing between April 1 and June 15. The commercial fishery has been conducted by fixed gear only (longlines, gill nets and handlines). The 2004 cod catches were distributed primarily to the north of the Study Area, from nearshore to the extreme offshore.

Atlantic mackerel migrates in spring and summer to the Gulf of St. Lawrence to spawn in the Magdalen Shallows (outside the Study Area). Spawning typically occurs between mid-June and Mid-July in open water, resulting in a concentration of fertilized eggs in the upper 10 m of the

water column. Highest catches of mackerel in the Study Area typically occur in September and October. They are fished mainly inshore using gillnets, jiggers, handlines, purse seines and traps. Mackerel catches commonly occur in the nearshore areas of northern 4Rc.

Atlantic herring may spawn in any month between April and October, but spawning is concentrated in May and September. In the Newfoundland region, Atlantic herring spawn in coastal waters. Herring eggs attach to the hard bottom substrate nearshore or to kelp leaves. Larvae hatch after about 30 days at 5°C and after 10 days at 15°C. The amount of time the larval stage remain pelagic is temperature dependent. Recent Fisheries and Oceans Canada (DFO) data show that Gulf of St. Lawrence herring more recently have been discovered spawning in Port au Port Bay. In 2005, some of the most significant herring landings on the west coast of Newfoundland occurred in the Study Area (Unit Area 4Rc). In the Study Area, herring catches are made primarily with purse seiners. Gill nets are also used after the seine fishery.

Capelin overwinter in offshore waters, move shoreward in early spring to spawn on beaches throughout the region in the spring-summer, and return to offshore waters in autumn. In the Newfoundland region, beach spawning may occur over a wide range of temperatures from 2.5 to 10.8°C. Surveys of inshore waters between Port au Port Bay and Bonne Bay (northern Study Area and north of Study Area) in July 2004 and July 2005 indicated that capelin larvae were among the most notable fish larvae collected. The capelin fishery is primarily a purse seine fishery along with some catches by trap. The most intensive capelin fishery in 4R occurs in June and July. Between 2000 and 2004, the most highly concentrated capelin catches occurred in Port au Port Bay and between Bay of Islands and Bonne Bay, north of the Study Area.

2.2.2 Marine Mammals and Sea Turtles

The EA Report listed 13 species of cetaceans (baleen whales, dolphins, and toothed whales) that could potentially occur in the Study Area. They are: North Atlantic right whale (*Eubalaena glacialis*), humpback whale (*Megaptera novaeangliae*), blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), minke whale (*Balaenoptera acutorostrata*), sperm whale (*Physeter macrocephalus*), Northern bottlenose whale (*Hyperoodon ampullatus*), killer whale (*Orcinus orca*), long-finned pilot whale (*Glopicephala melas*), beluga whale (*Delphinapterus leucas*), Atlantic white-sided dolphin (*Lagenorhynchus acutus*), white-beaked dolphin (*Lagenorhynchus albirostris*), harbour porpoise (*Phocoena phocoena*). Of these species, North Atlantic right whale, blue whale, fin whale, Northern bottlenose whale, and the St. Lawrence Estuary population of beluga whale are listed under Schedule 1 of the *Species at Risk Act* (SARA). These will be discussed in Section 2.2.4. The four species of pinnipeds that could potentially occur in the Study Area are harbour seal (*Phoca vitulina*), harp seal (*Phoca groenlandica*), hooded seal (*Cystophora cristata*), and grey seal (*Halichoerus grypus*). The EA Report and EA Addendum provide a general description of habitat requirements and areas of occurrence.

The leatherback (*Dermochelys coriacea*), loggerhead (*Caretta caretta*) and Kemp's ridley (*Lepidochelys kempii*) turtles could potentially occur in the Study Area. A description of the leatherback turtle can be found in Section 2.2.4. The EA Report indicates that both loggerheads and Kemp's Ridley can be found in Atlantic Canada waters during the summer and fall. Less is known about the distribution of Kemp's ridley turtles in eastern Canada. Their distribution is

largely determined by water temperatures. Loggerheads have been regularly caught in the pelagic longline fishery along the edge of the Newfoundland and Scotian Shelves.

2.2.3 Marine Birds

A list of the marine birds commonly found in the Study Area and information regarding their distribution and foraging strategies can be found in the EA Report and EA Addendum. The density of seabirds in the Study Area is lower than along southern, northern or eastern coastal Newfoundland areas. This is probably due to less influence of major coastal currents on the west coast compared to other areas, resulting in lower productivity, as well as to a smaller amount of breeding habitat.

The main species likely to occur include fulmars, shearwaters, storm-petrels, gannets, skua, jaeger, phalaropes, cormorants, alcids, kittiwakes, and various gulls. A small number of species of marine-associated birds have been found nesting in the Study Area. At least six species of cormorants, gulls and terns nest in the Study Area, mostly in scattered, small colonies on the Port au Port Peninsula and coastal islands. Only the Black-legged Kittiwake has large colonies in the Study Area. Additional data regarding observed species can be found in the EA Report.

There are no designated Important Bird Areas (IBAs) in the Study Area.

2.2.4 Species at Risk

There are several species at risk (SAR) listed under the *Species at Risk Act* (SARA) that may occur in the Project Area. These include:

Species	SARA Status
Blue Whale (*Balaenoptera musculus*) Atlantic population)	Schedule 1 – Endangered
North Atlantic Right Whale (*Eubalaena glacialis*)	Schedule 1 – Endangered
Northern Bottlenose Whale (*Hyperoodon ampullatus*) Scotian Shelf population	Schedule 1 - Endangered
Leatherback Sea Turtle (*Dermochelys coriacea)*	Schedule 1 – Endangered
Piping Plover (*Charadrius melodus melodus*)	Schedule 1 – Endangered
Beluga Whale (*Delphinapterus leucas*) (St. Lawrence Estuary population)	Schedule 1 – Threatened
Northern Wolffish (*Anarhichas denticulatus)*	Schedule 1 – Threatened
Spotted Wolffish (*Anarhichas minor)*	Schedule 1 – Threatened
Atlantic Wolffish (*Anarhichas lupus)*	Schedule 1 – Special Concern
Fin Whale (*Balaenoptera physalus*)	Schedule 1 – Special Concern
Harlequin Duck (*Histrionicus histrionicus*)	Schedule 1 – Special Concern
Sowerby's Beaked Whale (*Mesoplodon bidens*)	Schedule 3 – Special Concern

The blue whale migrates seasonally between high and low latitudes. It is found in the Gulf of St. Lawrence from January to November but is most common from August to October. Most are found along the Quebec north shore of the Gulf between Saguenay River and the Strait of Bell Isle. Sighting of this species anywhere within its range, including the western Newfoundland offshore region, are uncommon. A Recovery Strategy for this population of the blue whale is not yet available.

Right whales are usually found in 100 to 200 m water and are only occasionally sighted in the Gulf of St. Lawrence. The EA Report indicates that the North Atlantic right whale could occur in the Study Area from late spring to early fall but is unlikely. A Recovery Strategy is not yet available.

The Scotian Shelf population of the Northern bottlenose whale can be found in and around the Gully, a submarine canyon off the southeast coast of Nova Scotia and is not likely to be found off the western coast of Newfoundland.

Leatherback sea turtles are likely to be a part of the marine fauna in the Study Area but uncommon. There are no estimates of the population size in Canada, but this species is occasionally sighted off Quebec in the Gulf of St. Lawrence. The final recovery strategy is available for Leatherback Sea Turtles (Atlantic population).

Piping Plover are found on beaches of the southwest coast of Newfoundland, typically off the Port au Port peninsula. There are fewer than 50 adult Piping Plovers nesting in Newfoundland. There have been recent sightings in the West Bay/Piccadilly Bay area but there is still no confirmed breeding.

The beluga whale is generally limited to seasonally ice-covered Arctic and sub-Arctic waters. The St. Lawrence population of beluga whales is at the southern limit of distribution of this species. It has occasionally been sighted off Newfoundland or Nova Scotia outside its usual habitat. Therefore, it could potentially occur in the western Newfoundland offshore area, but rare.

The EA Report indicates that northern, spotted, and Atlantic wolffish may be found in the Study Area. Of the three wolffish species, northern is the deepest residing species and Atlantic is the shallowest residing species. Based on DFO trawl surveys in Newfoundland and Labrador waters between 1971 and 2003, northern wolffish were most concentrated during December to May in areas where depths ranged from 500 to 1,000 m, shifting to slightly shallower areas from June to November. Spotted wolffish concentrations were highest in areas with water depths ranging from 200 to 750 m at all times of the year, peaking in 300 m areas from June to November. Atlantic wolffish are most concentrated in areas with depths of 250 m at all times of the year. It is not known with certainty if any of the wolffish species spawn in the Study Area but if spawning does occur in the Study Area, it would most likely take place along the slope region. DFO commercial catch statistics state that 1,462 wolffish were caught in NAFO Division 4R between 1999 and 2004, mostly in 4Rb and in the Study Area in 4Rd. A Recovery Strategy for both the spotted and northern and a Management Plan for the Atlantic was released in June 2007.

Fin whales are most common in temperate and polar seas. It occurs in coastal and shelf waters, as well as in oceanic waters. Aerial surveys of the Gulf of St. Lawrence from late August to early September of 1995 and from late July to early August of 1996 found fin whales located predominantly along the margins of the Laurentian Channel. Fin whales are less common off the west and southwest coasts of Newfoundland than elsewhere off Newfoundland.

The population size of the Harlequin Duck is relatively small and it has a tendency to congregate in large groups. There were three sighting in 2003 of Harlequin Duck at Cape St. George near the Study Area.

Sowerby's Beaked whales are considered rare in the Study Area given that this species typically occurs in deep waters, including continental shelf edges and slopes. There are no records of sightings or stranding along the Gulf of St. Lawrence coastlines of Newfoundland (including the Study Area) (EA Addendum).

2.2.5 Special Places

The EA Report and EA Addendum identified several areas in and proximate to the Study Area.

Local fishers identified the area between outer Port au Port Bay and Shag Island in the Study Area as a location with large female lobsters carrying sizeable egg clutches.

The Cape St. George Spawning Area has been closed to groundfish fishing between 1 April and 23 June because of the occurrence of spawning by 4RS/3Pn cod.

The West Coast of Newfoundland Ecologically and Biologically Significant Area (EBSA) (10) overlaps outside of Port au Port Bay on the west side of the Port au Port Peninsula. This EBSA includes main concentration areas for juvenile cod, redfish, American plaice and Atlantic wolfish in the Estuary and Gulf of St. Lawrence. The overlap area may also represent important migration corridors for particular species including Atlantic cod and redfish. It is also known for cod spawning, and an abundance of capelin and Atlantic herring larvae. The southern part of EBSA 10 has been identified as important for marine mammals, especially around St. George's Bay, a potentially important feeding area for many species of marine mammals.

Two Black-legged Kittiwake colonies (501-1,000 birds and >1,000 birds) were identified in the vicinity of Cape St. George in June 2002.

Three tern colonies were identified at various locations in East Bay (Port au Port Bay) in June 2002.

Important shorebird concentrations in the Project Area occur at Point au Mal, Piccadilly Lagoon, West Bay, and Black Duck Brook.

The northern tip of the peninsula (The Bar) is a regularly used haul-out site for harbour seals. Forty to 60 individuals often use this area in August and September. Grey seals have also been known to use this area during the same period.

2.2.6. Research Surveys and Vessel Traffic

Vessel traffic with respect to fishing vessels is discussed in terms of the amount of commercial fishing activity. Information regarding DFO vessel research surveys is provided in the EA Report.

There are two annual Mobile Gear RV surveys in 3Pn, 4R(ST): the DFO RV Survey in August and the FFAW's Mobile Gear Sentinel Survey, which usually starts around July 1. Neither of these research programs actually goes into the Port au Port Bay. As well, in some years there are one or two survey sets located just to the north of Port au Port Bay. The DFO survey is conducted to about 36 m and the industry survey is conducted as shallow as 18 m.

Part C: Environmental Assessment Process

3. Procedures

In March 2007, PDIP submitted a project description "*Port au Port Drilling Project Description*" (PDI Production Inc., 2007) to the C-NLOPB, in support of its application to conduct an exploration drilling program. Pursuant to Section 12.2(2) of the 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. Input was sought from federal and provincial regulatory agencies and interested stakeholders respecting the scope of project and environmental assessment review.

A Federal Coordination Regulations (FCR) notification was sent on April 03, 2007 regarding PDIP's proposed program. Environment Canada (EC), Health Canada and DFO responded that they would participate as FAs in the EA review.

On May 15, 2007, the C-NLOPB notified PDIP that a screening level of assessment was required and the proponent was provided with a Scoping Document.

PDI Production Inc. submitted the 2007 EA Report to the C-NLOPB on June 21, 2007. The C-NLOPB, as Responsible Authority (RA), forwarded the 2007 EA Report on June 22, 2007 to the DFO, EC, Health Canada, and the provincial Departments of Environment & Conservation, Fisheries & Aquaculture, and Natural Resources. The FFAWU and One Ocean were provided a copy of the EA report to review. Comments were received from DFO, EC, and Health Canada.

On September 14, 2007, the C-NLOPB requested additional information from PDIP in order to satisfy the requirements of the CEAA and to complete the Screening Report. PDI Production Inc. provided a response to this request by submitting the "*Port au Port Bay Exploration Drilling Program Environmental Assessment Addendum*" on November 28, 2007.

It is the obligation of the C-NLOPB to consider which physical works and undertakings in relation to the proposed project fall within the scope of the Project. First, there are no 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 and supporting EA Report and EA Addendum, 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 C-NLOPB's scoping exercise is complete because an assessment

was conducted in respect of every construction, operation, modification, decommissioning, abandonment, or other undertaking proposed by PDIP that is likely to be carried out in relation to their proposed Project.

4. Environmental Assessment Review

Comments on the EA Report were received from DFO, EC, and Health Canada.

DFO provided comments on 30 August 2007. DFO requested a more thorough coverage of Species at Risk and an evaluation of the Proponents effects assessment. Some of the comments from DFO focussed on clarification of information provided in the EA, and identified more recent data sources to be used in the assessment.

Environment Canada responded on 27 July and 14 August 2007. Some of the comments were editorial; some are to be used in project planning, however, the majority of comments focused on the physical environment description and discussion in the EA report.

Health Canada responded on 10 August 2007. The comments focused mainly on the terrestrial aspect of the project and were therefore outside the scope of the environmental assessment.

Comments were provided to PDIP on 14 September 2007 to be addressed in an addendum before a Screening Report could be completed. The addendum was provided by PDIP to the C-NLOPB on 28 November 2007.

5. Scope of Project

PDI Production Inc. is proposing an exploration drilling program within exploration licence EL 1070. The proposed drilling site is situated on Shoal Point, a promontory extending into Port au Port Bay, on the Port au Port Peninsula in western Newfoundland. The proposed well will be directionally drilled from an onshore surface location to an offshore subsurface target within EL1070. The focus of this Screening Report is on those portions of the offshore area that are under the jurisdiction of the C-NLOPB, as defined in the *Accord Acts*, with consideration to those portions of the land-based project that are linked to the marine drilling program. The total vertical depth of the well is expected to be approximately 1816 m at the target, with about a 2200 m deviation from the surface. Drilling operations are scheduled to commence in the fourth quarter of 2007. Up to four deviated wells may be drilled into EL1070 over the next three to five years. The first well will take approximately 90-120 days to complete. A triple cantilever mobile drilling unit (MDU) will conduct drilling. There will be no offsite facilities to support the drilling program. Drilling activities will be supported at the site by an office accommodation module, power generating module and mud and cement mixing systems. All waste discharges will be disposed onshore. An incident Vertical Seismic Profiling (VSP) program will be undertaken however, this will not involve activities in the marine environment. Following completion of drilling and well testing activities, the well, if determined to be capable of commercial production, will be temporarily suspended while production planning and engineering activities are undertaken. Well abandonment procedures will follow industry standard practices and comply with C-NLOPB requirements.

At the time of application for drilling activities to be undertaken beyond 2007 in the Project

Area, the Operator may be required to provide information to the C-NLOPB that outlines the proposed activities, confirms that the proposed program activities falls within the scope of the previously assessed program and indicates if, with this information, the EA predictions remain valid. In addition, the Operator will be required to provide information regarding the adaptive management of requirements of the SARA into program activities (e.g., introduction of new species or critical habitat to Schedule 1, additional mitigations, implementation of recovery strategies and/or monitoring plans). If there are any changes in the scope or information available, which may alter the EA conclusions, then a revised EA will be required at the time of authorization renewal. The Canadian Environmental Assessment Registry will be updated as required.

5.1 Boundaries

The boundaries of the Project are defined in the EA Report and as follows and are acceptable to the RA.

Boundary	**Description**
Temporal	Year-round for the period 2007 to 2012
Project Area	EL 1070
Study Area	The area as determined by the oil spill trajectory modeling
Affected Area	The geographic extent of a specific potential effect on a species or species group. It varies according to the timing and type of Project activity and the sensitivities of the species/habitat being assessed
Regional Area	The Study Area and the Gulf of St. Lawrence

6. Consultation carried out by PDI Production Inc.

PDI Production Inc. undertook consultations with relevant government agencies, representatives of the fishing industry and other interest groups, local area residents and local businesses. The consultations took place in Piccadilly on the Port au Port Peninsula, Stephenville, and St. John's. Consultations and/or information sessions were undertaken with DFO, EC, Natural History Society, One Ocean, Fish, Food and Allied Workers Union (FFAWU), Long Range Regional Economic Development board, Town Council of Cape St. George, Ktaqamkuk Heritage Foundation, local businesses, local area residents. All consultations were held to inform the stakeholders about the survey and to identify issues or concerns, which should be considered in the EA. The results of those consultation sessions, and issues identified are documented in the EA Report. There were no major concerns or issues about the proposed drilling program.

The RA is satisfied that the consultations carried out by PDIP and reported on in the EA Report included all elements of the Project. The RA are not aware of any public concerns with respect to the environmental effects of the project, and does not require that further consultations be undertaken for the 2007 field season.

7. Environmental Effects Analysis

7.1 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 "*PDI Production Inc. Port au Port Drilling Program Scoping Document*" (C-NLOPB 2007). Because the proposed project is a land-based drilling program designed to enter a target in the offshore area, the scope of the environmental assessment will focus on the potential for effects from noise, lights and accidental events. The drilling unit will be located on land, with all waste discharges associated with the drilling activities disposed of in an approved land-based waste disposal site. There will be no discharge to the marine environment. The only potential effect to the marine environment that is under the jurisdiction of the C-NLOPB that may result from the Project is from an accidental event. Therefore, the C-NLOPB has determined that the scope of this assessment will focus on the project-environment interactions associated with hydrocarbons entering the marine environment from accidental events.

7.2 Methodology

The C-NLOPB reviewed the environmental effects analysis presented by PDIP in the 2007 EA Report. A 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 RAs. The following 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 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.

7.3Effects of the Environment on the Project

The effects of the physical environment on the Project include those caused by wind, ice and extreme events. Extreme sea spray icing conditions were calculated to occur 13.4% of the time in February. The majority of significant wave heights (45.4%) lie between 0.0-0.5 m near the Port au Port Peninsula. Waves propagating from the mouth of Port au Port Bay, greater than a metre in height, break no closer than 1 km from shore (EA Addendum). The exposure of the project site and in particular the drill hole on Shoal Point to waves generated under extreme storm conditions is negligible. Furthermore, since the height (under 1 m) and plunge distance (under 4 m) of waves breaking on, or near, the shore could not generate sufficient spray to reach the site, icing on structures at the drill site (about 45 m for the high water mark) from freezing spray would be negligible. The MDU will be operating onshore and stabilized using high strength guy wires secured to anchors that are drilled and grouted into bedrock, which should ensure that effects from the environment could be minimized. Therefore, the effects of the environment on the project will be **not significant**.

7.4 Sound Emissions

Various noise sources will be present during the exploration drilling program. These include the drilling rig (MDU), incident VSP surveying, and vehicular traffic to and from the activity zone. The VSP program will use the vibroseis technique, which is a land-based seismic exploration technique that uses truck-mounted vibrating pads. There are no airguns or explosives used with this technique.

7.4.1 Marine Fish and Fish Habitat 0

Sound emissions generated from the Project will result from site preparation, drilling rig assembly, drilling activities and VSP survey. Behavioural effects of sound emissions on marine fish may include avoidance behaviour, increased swimming speeds, disruption of migration patterns and disruption of reproductive behaviour. Sound emissions generated by VSP programs may cause some species to avoid the zone of influence around the Project Area. The issue of primary concern associated with sound emissions is the potential for interactions during particularly sensitive periods, such as spawning. However, no major sound sources will be placed in the marine environment. There is likely to be some transference of sound from both air and land to the marine environment but the sound pressure levels associated with these transferred sounds would be within the range of ambient sound in the surrounding marine area due to attenuation.

The potential residual effects of noise on marine fish and fish habitat are low in magnitude with a 1-10 km^2 geographic extent, and 13-36 months in duration. The potential residual effects of noise emissions on marine fish and fish habitat are **not significant**. There will be no cumulative effects on marine fish and fish habitat from the land-based project.

7.4.2 Marine Mammals and Sea Turtles 0

There is likely to be some transference of sound originating from activities in the activity zone from both air and land to the marine environment. However, the sound pressure levels associated with these transferred sounds would probably be similar to those of ambient sounds in the ocean. The probability of exposure to underwater noise emissions, including those associated with drilling and VSP profiling, would be low, as no major sound will originate from within the marine environment. Noise emission propagation from surface activities (drilling and VSP program) through the ground into the marine environment would be minimal. As well, the exposure of marine mammals and sea turtles to underwater noise would be low; due to the short

duration of activities, (e.g. VSP program is estimated to take 8 hours).

The potential residual effects of noise on marine mammals and sea turtles are low in magnitude with a 1-10 km^2 geographic extent, and 13-36 months in duration. The potential residual effects of activity zone-associated noise on marine mammals and sea turtles are **not significant**. There will be no cumulative effects on marine mammals and sea turtles from the land-based project.

7.4.3 Marine Birds 0

No sound sources will originate in the marine environment and the sound pressure generated by incident VSP on the surface will be greatly attenuated to below ambient levels when it is transferred to the marine environment.

The potential residual effects of noise on marine birds are negligible in magnitude with a 1-10 km^2 geographic extent, and 13-36 months in duration. The potential residual effects of noise on marine birds are **not significant**. There will be no cumulative effects on marine birds from the land-based project.

7.4.4 Commercial Fisheries 0

Sound originating from the land-based, subterranean drilling and VSP activities could potentially be transferred through the ground to the water and the fishing environment. There are no activities planned that would interfere with fishing gear or access to fishing grounds. However, loud sounds could result in fish scaring and therefore reduce fish availability. Since the level of sound is expected to be low, it would not be expected to be sufficient to scare fish, especially since it would be masked fully by naturally occurring noise (wind and sea state) and/or by other anthropogenic noise (particularly fishing boat motors). Activities will be scheduled at such time when commercial fishing activities are at a minimum.

The potential residual effects of noise on commercial fisheries are negligible in magnitude and approximately 20 months in duration. The potential residual effects of noise on commercial fisheries are **not significant**. There will be no cumulative effects on commercial fisheries from the land-based project.

7.4.5 Species at Risk 1

There is the potential for sound emissions associated with the drilling and VSP programs to interact to some degree with species at risk. The probability of exposure to underwater noise emissions associated with drilling and VSP profiling for all species at risk would be small, as no major sound will originate from within the marine environment and noise emission propagation from surface activities (drilling and VSP program) through the ground into the marine environment would at best be minimal. Therefore, the most likely interaction of sound emissions with species at risk would be with the marine and coastal bird species at risk. The most likely interaction with marine and coastal bird species at risk would be related to vehicle and drilling sound emissions while they are near shore.

As indicated above, the presence of noise is predicted to be not significant for birds, fish, marine mammals, and sea turtles. With the application of mitigation, the potential residual effects of noise on species at risk are negligible in magnitude, 1-10 km^2 geographic extent, and 13-36 months in duration. The potential residual effects of noise on species at risk are **not significant**. There will be no cumulative effects on species at risk from the land-based project.

7.5 Light Attraction

A drill rig and ancillary equipment such as temporary storage tanks, site trailers, and light towers will be onshore. Approximately 1 hectare (10,000 m^2) of land at the northern tip of Shoal Point will be used for on-site activities associated with the exploratory drilling. Light and heat could also be emitted for short periods by flaring during well testing.

7.5.1 Marine Birds 1

The project activities will be very close to the marine system. Lights and flaring could attract night-migrating and other nocturnally active marine birds. Seabirds, especially storm-petrels, are attracted to offshore rigs, vessels and lighthouses on the East Coast, apparently due to attraction to light sources.

The potential effects of lights and flaring on marine birds is expected to be low in magnitude, 1-10 km^2 in geographic extent and 1-12 months in duration. The potential residual effects of lights on marine birds are **not significant**. Because the maximum total duration of flaring is <1 month and the magnitude and geographic extent of potential impacts of flaring are the same as for lights, the potential residual effects of flaring on marine-associated birds are **not significant**. There will be no cumulative effects on marine birds from the land-based project.

7.5.2 Species at Risk 1

As indicated above, the presence of light is predicted to be not significant for marine birds. With the application of mitigation such as minimizing of lighting, the magnitude, geographic extent and duration of the potential impacts of lights on the species at risk are negligible, 1-10 km^2, and 1-12 months. The potential residual effects of lights on species at risk are **not significant**. The maximum total duration of flaring is <1 month and the magnitude and geographic extent of potential impacts of flaring are the same as for lights; the potential residual effects of flaring on the species at risk are **not significant**. There will be no cumulative effects on species at risk from the land-based project.

7.6 Accidental Events

During exploration drilling programs, the possible accidental events, which may affect the environment, include accidental spills of crude or fuel oil. This may occur during onshore drilling operations by loss of well control (includes both blowouts and well control incidents), accidental releases from surface equipment, and vehicle incidents. Modeling was completed to assess the probabilities of coastline contamination by oil under various scenarios differing by hydrocarbon release location (onshore), season, wind speed, direction, and release size/hydrocarbon type (3bbl crude oil, 50 bbl crude oil, 192 bbl crude oil, and 35 bbl diesel fuel). The results of the model showed that because of the configuration of the coastline in the Project Area, favourable wind conditions would result in much of the oil released to the marine environment in the event of a spill remaining within 1 km from the spill location. Regardless of the spill size, the probabilities of oil remaining within 1 km of the spill location range from 42% in spring to 58% in fall and winter for a spill source at Shoal Point West, from 17% in summer to 36% in spring for a source at Shoal Point East, and from 29% in winter to 44% in spring for a spill at the location east of Long Point. Details of the modeling exercise are described in the 2007 EA report. Additional analysis of both winds and waves specific to the Project Area are included in the EA Addendum.

7.6.1 Marine Fish and Fish Habitat 1

Fish eggs and larvae are more likely to be affected by spills because they are not physiologically equipped to either detoxify or actively avoid spills. However, given the low probability of accidentally released hydrocarbons ever reaching the marine environment with mitigation measures such as spill prevention and remediation, residual effects are predicted to be reversible. Therefore, the residual effects of an accidental event on marine fish and fish habitat is predicted to have negligible to low magnitude, 101 to 1,000 km^2 geographic extent depending on event scenario-life stage interaction, and 1-12 months duration. The residual effect of accidental events on fish and fish habitat is predicted to be **not significant**.

7.6.2 Marine Mammals and Sea Turtles 1

The probability of oil from a spill reaching the marine environment is very low because of the design of the activity zone. Marine mammals and sea turtles exposed to oil from a spill could suffer sublethal effects, though oiling of mucus membranes would be reversible. Depending on the time of year, location of marine mammals and sea turtles within the affected area, and type of accidental event, the residual effect of an offshore oil release on the health of marine mammals and sea turtles are predicted to range from negligible to low magnitudes over varying geographic extents. Based on spill modeling, the predicted geographic extent for all accidental event scenarios is 101 to 1,000 km^2 with a duration 1-12 months. The residual effects on marine mammals and sea turtles, at both an individual and population level, would be reversible. It is predicted that the residual effect on marine mammals and sea turtles from an accidental release of oil during the proposed project will be **not significant**.

7.6.3 Marine Birds 2

Oil on water is a threat and potential effect to marine birds. Exposure to oil causes thermal and buoyancy deficiencies in seabirds that typically lead to the deaths of affected seabirds (EA Report). Reported effects vary with bird species, type of oil, weather conditions, time of year, and duration of the spill or blowout. The offshore islands that terns and eiders use as nesting habitat, such as Long Ledge and Shag Island and coastal and estuarine tern nesting sites such as Fox Island river delta are vulnerable to oil contamination. In the Study Area, the abundance of pelagic seabirds is much lower than other coast areas of Newfoundland.

The probability of oil from a spill reaching the marine environment is very low because of the design of the drilling activity zone. Depending on the time of year, location of marine birds within the Study Area, and type of accidental event, the magnitude of residual effects on marine birds would be negligible to high. Based on spill modeling, the geographic extent for all accidental event scenarios is predicted to be 101 to 1,000 km^2 and the duration 1-12 months. While the likelihood of an event occurring is low, the effects would be **significant and adverse**. However, even though there would be a significant effect on birds, the likelihood of a spill is very small, as there are mitigations in place to prevent spills from occurring. Although the effects on individual birds are likely irreversible, the effects on marine birds at the population level are deemed reversible in all scenarios. Therefore, this will result in a **not significant** effect.

7.6.4 Commercial Fisheries 1

It was previously concluded that effects on fish populations due to a project related oil spill (terrestrial or blowout) would be not significant due to mitigation and response measures that will be in place. However, a spill might prevent or impede a harvester's ability to access fishing grounds because they would be temporarily excluded during the spill or spill clean-up. It might

also cause damage to fishing gear (through oiling) or result in a negative effect on the marketability of fish products. There may also be effects due to market perceptions of poor product quality (loss of buyers or reduced prices). Any such economic effects (caused by loss of access, gear damage or changes in market value) could be considered significant to commercial fisheries. However, with the application of appropriate post-event mitigative measures (economic compensation), the effect would be reduced to **not significant**.

7.6.5 Species at Risk 1

It is predicted that accidental events will not have significant effects on marine fish, marine birds, marine mammals, and sea turtles. Outer beaches are vulnerable to oil contamination. Piping Plover nesting has not been recorded in the Study Area with the nearest recorded nesting of Piping Plover in Stephenville Crossing. There is low probability of occurrence of an accidental event during the Project and low probability of an accidental event resulting in hydrocarbons reaching either the terrestrial environment outside of the activity zone or the marine environment. Prevention of accidental events is the primary mitigation, however, in the case of an accidental event, appropriate response measures are required. Therefore, for marine fish, marine birds, marine mammals, and sea turtles species at risk likely to be present in the area, the effects from accidental events will be negative but **not significant**.

7.7 Well Abandonment

Any well that is not suspended or completed will be abandoned to prevent hydrocarbons from flowing out of the well. The well abandonment procedures will follow industry standard practices and in accordance with provincial regulations. There will be no interaction of activities with the marine environment and therefore no effect.

7.8 Cumulative Environmental Effects

In 2007, the activities that may overlap in time and space with the exploration program are likely to be commercial fishing, marine bird hunting activities, and other marine exploration activity (seismic surveys and exploratory drilling). However, the exploration program will be scheduled to such an extent to avoid spatial overlap. The cumulative effects may be additive; however with mitigation, the effects will be adverse but of low magnitude, limited geographic extent and short duration. The cumulative effects are therefore considered **not significant**.

7.9 Follow-up Monitoring **Required** **Yes**☐ **No**☒

The RA does not require follow-up monitoring, as defined in the CEA Act and supporting guidance material, to be carried out for the Project.

8. Other Considerations

The C-NLOPB is satisfied with the environmental information provided by PDIP regarding the potential adverse environmental effects, which may result from the proposed Project for exploration drilling activities in 2007, and is satisfied with the operator's proposed monitoring and mitigative measures.

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

9. Recommended Conditions and/or Mitigations

The C-NLOPB recommends that the following conditions be included in the authorization if the Project is approved.

- *PDI Production Inc. 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 "Port au Port Bay Exploration Drilling Program Environmental Assessment"(LGL 2007) and the "Port au Port Bay Exploration Drilling Program Environmental Assessment Addendum" (LGL 2007).*

Part D: Screening Decision

10. Decision/Decision Date

The Canada-Newfoundland and Labrador Offshore Petroleum Board is of the opinion that, taking into account the implementation of proposed mitigation measures set out in the conditions above and those committed to by PDIP, 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 K. Coady* Date: *December 20, 2007*
Kimberly A. Coady
Environmental Assessment Officer
C-NLOPB

References:

LGL Limited. 2007. Port au Port Bay Exploration Drilling Program Environmental Assessment. Report prepared by LGL Limited and Calixte Environmental Management for PDI Production Inc. 223 p.

LGL Limited. 2007. Port au Port Bay Exploration Drilling Program Environmental Assessment Addendum. Report prepared by LGL Limited and Calixte Environmental Management for PDI Production Inc. 117 pp.

PDI Production Inc. 2007. Port au Port Drilling Project Description. 6 p.