

**Exploratory Drilling Activities on Exploration Licences 2415 and 2416
Scoping Document for the Environmental Assessment**

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1.0 Purpose

This document provides a description of the scope of the project, the factors to be considered, and the scope of the factors to be considered related to the Environmental Assessment (EA) for the proposed exploratory drilling project in Exploration Licences 2415 and 2416 by Canadian Superior Energy Incorporated.

This document has been developed by the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB), as the Responsible Authority (RA) for the project, pursuant to sections 15 and 16 of the Canadian Environmental Assessment Act (CEA Act).

2.0 Regulatory Considerations

The Project will require authorizations pursuant to Section 142 (1)(b) of the Canada - Nova Scotia Offshore Petroleum Resources Accord Implementation Act (S.C. 1988, c. 28). Issuance of this authorization is described in the Law List Regulations of the CEA Act and therefore constitutes a power as described in sub-section 5(1)(d) of the CEA Act. The CNSOPB, as the sole RA, must ensure that an environmental assessment of the Project is carried out. Pursuant to Section 17(1) of the CEA Act, the CNSOPB will delegate the preparation of the environmental assessment to the proponent.

Based on the information contained in the project description submitted to the CNSOPB in January 2006, Fisheries and Oceans Canada (DFO) and Environment Canada (EC) have determined that they are in possession of specialist knowledge and information to support the EA process.

Environment Canada administers several statutes including the *Canadian Environmental Protection Act* (CEPA), *Species at Risk Act* (SARA), *Department of Environment Act*, *Fisheries Act* (Section 36), and *Migratory Birds Convention Act*. Fisheries and Ocean Canada administers a number of statutes including the *Fisheries Act* and *Oceans Act*. The *Gully Marine Protected Area Regulations* under the *Oceans Act* were enacted in May 2004. DFO also has responsibilities for aquatic species (including marine mammals, fish and turtles) under SARA.

3.0 Scope of the Project

The proposed exploratory drilling activity will occur in the marine waters under the jurisdiction of the CNSOPB, in EL 2415 (Marauder Block) and EL 2416 (Marconi Block). The Marauder Block is located approximately 310km from

Halifax and 12km from Sable Island, on the Scotian Shelf. The Marconi Block is approximately 330km from Halifax and 16km from Sable Island.

Canadian Superior, the proponent, is proposing a multi-year, multi-well drilling program. It is anticipated that one exploration well and up to three delineation wells will be drilled on various prospects in each Block. The proponent has stated that drilling may occur at any time in any given year. Individual wells could be drilled as early as 2006 and as late as 2013. Therefore, a commitment to periodic review of the EA to ensure validity of the findings is required.

Specific well locations have not been determined; the entire Marconi and Marauder Blocks are being considered as a prospective drilling area. Therefore the assessment shall cover the entire area of the Marauder and Marconi blocks. Water depth varies from 100m - 400m in the Marauder Block, and from 50m - 200m in the Marconi Block.

4.0 Factors to be Considered

The EA shall include a consideration of the following factors as described in subsection 16(1) of the CEA Act:

- the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;
- the significance of the effects referred to in paragraph (a);
- comments from the public that are received in accordance with the CEA Act and the regulations;
- measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project; and

The project will be posted on the Canadian Environmental Assessment Registry and the CNSOPB public registry. The proponent's EA will be posted on the CNSOPB public registry and will be open for comment for 30 days. Comments will also be requested from the CNSOPB's Fisheries Advisory Committee. All public comments received will be distributed to Canadian Superior and posted on the CNSOPB public registry.

5.0 Scope of the Factors to Be Considered

Based on previous EAs of similar projects, the CNSOPB has focused the scope of the factors to be considered to those that have the potential to have significant adverse environmental effects. This scope includes consideration of the

regulations, standards and required mitigation to be followed during project activities.

Section 6 outlines the issues of concern and the potential environmental risks that are to be assessed in the EA, and includes discussion of the rationale for the inclusion of each of the components and activities listed.

Appendix A describes those factors that are considered unlikely to have the potential to cause significant adverse environmental effects. Rationale for the exclusion of these factors, and specific mitigation that must be implemented to allow for their exclusion in the EA are included in Appendix A. These excluded factors are considered outside of the scope and do not require assessment in the EA. If mitigation other than that indicated in Appendix A is to be used, further assessment may be required.

6.0 Issues of Concern and Potential Environmental Risks

6.1 Species at Risk

The proponent shall assess the potential for significant adverse environmental effects on all species at risk that may occur in the project area. The assessment shall be in accordance with the EA requirements identified in the CEA Act and SARA. The proponent shall identify and evaluate all environmental effects, including cumulative effects, of the project on species listed on Schedule 1 of SARA, and their critical habitat. The proponent shall also assess the means by which potential adverse effects on species at risk and their critical habitat will be mitigated through design and/or operational procedures

The mitigation measures identified shall be consistent with SARA recovery strategies and/or actions plans. The proponent shall indicate whether the project will be in compliance with the SARA prohibitions (SARA Sections 32, 33 and 58) and shall identify whether any SARA Section 73 permits will be requested.

New species may be added to Schedule 1 of SARA throughout the life of the project. Therefore assessment of species at risk shall include a similar analysis for species listed by COSEWIC as either endangered, threatened or of special concern. A commitment to periodic review of the EA will be required to determine if the species at risk assessment is still valid. The proponent should note that additional mitigation may be required should new species be added to Schedule 1.

6.2 Special Areas – The Gully and Sable Island

The Gully Marine Protected Area (MPA) is near the proposed project area. Marine mammals, such as the endangered Northern Bottlenose Whale, frequent the waters of the Gully. There is potential for collisions between marine mammals and drilling support vessels. Rare deep sea corals are found in the Gully as well. Spills from malfunctions and/or accidental events have the potential to reach the Gully. Assessment of the potential for significant adverse environmental effects on the Gully, including cumulative effects as a result of drilling multiple wells, shall therefore be included in the EA. Since the number of wells to be drilled is unknown at this time, the proponent shall use a 'worst-case scenario' approach to assess the potential significant adverse effects on the Gully.

Assessment of the Gully will include modeling to determine the potential for spills to reach the Gully. Assessment of the effects of noise on the Gully as a result of VSP and wellsite surveys is also required. Assessment of effects of noise on the Gully shall include, as appropriate:

- acoustic modeling (including factors such as seabed, geomorphic and oceanographic characteristics that influence propagation) with an assessment of potential impacts based in predicted sound levels;
- average and worst case sound exposure levels for a variety of depths within the MPA and Zone 1
- investigations of the potential for multipath propagation, reverberation in the canyon, and sound channelling or ducting;
- information and analysis of the signal excess (i.e. signal to noise comparisons with ambient or background sound levels);
- detailed operational mitigation techniques, e.g., ramp-up and shut-down procedures, and a code of conduct.

The proponent shall be required to provide evidence that there will be no other concurrent seismic programs close to the Gully, and will be required to adhere to marine mammal observer protocols stated in the most recent version of the *Statement of Canadian Practice on the Mitigation of Seismic Noise in the Marine Environment* for night and poor weather detection. Other assessment requirements for VSP and wellsite surveys are addressed in Section 6.7. The proponent shall discuss the means by which design and/or operational procedures, including follow-up measures, will be implemented to mitigate significant adverse effects on the Gully.

Sable Island is also within the vicinity of the proposed project area. It is a federally protected area and a designated Migratory Bird Sanctuary. Bird species at risk, such as the Roseate Tern and the Ipswich Sparrow, breed on Sable Island. Therefore, assessment of the potential for significant adverse

effects on Sable Island, including cumulative effects as a result of drilling multiple wells, shall be included in the EA. Since the number of wells to be drilled is unknown at this time, the proponent shall use a 'worst case scenario' approach to assess the effects on Sable Island.

Spills from malfunctions and/or accidental events may have the potential to reach Sable Island. The assessment shall address the fate and effects of accidental spills on Sable Island and its resident species. This will include modeling to determine the potential for spills to reach Sable Island. There may be helicopter traffic near Sable Island as a result of the project as well. Therefore, the potential effects of helicopter landings on Sable Island shall be assessed.

The assessment shall include the means by which design and/or operational procedures, including follow-up measures, will be implemented to mitigate significant adverse effects on the Sable Island.

6.3 Marine Benthos

The discharge of muds and/or cuttings could have chemical and physical effects on marine benthos. Lethal effects from smothering, reduction in feeding, growth and reproduction, tainting and changes in species composition are possible. Current recruitment levels for snow crab, which occur in the project area, are below average on the Scotian Shelf, and any further threats to the population should be minimized. Species of deep sea coral are known to occur in the deepwater canons of the Gully MPA as well, and may be affected by accidental spills or blowouts, including spills of drilling muds.

The proponent shall therefore assess the potential effects on marine benthos, and will discuss mitigative measure to avoid the potential for significant negative environmental effects on marine benthos. Dispersion modeling of waste discharges that may travel into the Gully is required. The assessment shall include the means by which design and/or operational procedures, including follow-up measures, will be implemented to mitigate significant adverse effects on marine benthos.

6.4 Malfunctions and Accidental Events

Accidental spills, blowouts and malfunctions have the potential to affect the health and survival of plankton, fish eggs and larvae, juvenile and adult fish, marine mammals, marine birds, marine turtles, and marine invertebrates in the immediate vicinity of well sites. The effects of accidental spills, blowouts and malfunctions will therefore require assessment in the EA.

A commitment to provide a spill response plan will be required in the EA. The assessment shall include a determination of whether dispersants will provide and environmental benefit if used. If dispersants are to be used, the proponent shall provide a plan for their use. The assessment shall include the means by which design and/or operational procedures, including follow-up measures, will be implemented to mitigate significant adverse effects from malfunctions and/or accidental events.

6.5 Other Ocean Users

The proponent shall discuss and assess potential interaction with other ocean users in the project area. Commercial fisheries for halibut, snow crab and stone crab, as well as some ground fish, shrimp, scallop, and shark occur in the project area. Interaction with marine shipping, military vessels, cables and scientific research vessels may also occur. Mitigative measures to minimize potential interference with other ocean users shall be discussed in the EA. Program(s) for compensation of affected parties, including fisheries interests, shall be included in the EA. Adherence to the *Compensation Guidelines Respecting Damages Related to Offshore Activity* will be required.

6.6 Cumulative Effects

Section 16 (1) of the CEA Act requires that every screening or comprehensive study of a project and every mediation or assessment by a review panel include a consideration of any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out. Therefore, the proponent will assess the cumulative effects of the project. The assessment shall include the means by which design and/or operational procedures, including follow-up measures, will be implemented to mitigate significant adverse effects resulting from cumulative effects.

6.7 Assessment of VSP Surveys and Wellsite Surveys

Both VSP surveys and wellsite surveys are captured as “Projects” under the CEA Act. Therefore, the EA shall also include assessment of the potential for significant adverse effects as a result of VSPs and wellsite surveys that may be conducted in association with the drilling project.

Assessment shall include determination of the potential for significant adverse effects on fish spawning, species at risk, snow crab, special areas (see section 6.2), and other ocean users. A cumulative effects assessment of the combined effects from numerous VSPs and wellsite surveys over the life of the project, and assessment of the potential effects of malfunctions and accidental events shall also be included. The assessment shall include the means by which design and/or operational procedures, including follow-up measures, will be

implemented to mitigate significant adverse effects resulting from VSP surveys and wellsite surveys.

7.0 Follow-up Monitoring

Based on the discussion of the above issues of concern and potential environmental risks, the proponent will include discussions on the need for, and requirements of, a follow-up program.

Fisheries and Oceans Canada conduct research in the Gully from time to time, and this project may provide DFO or others with an opportunity to conduct research. An EEM program and/or compliance monitoring may be required. The proponent shall consult with DFO to determine if there is potential for collaborative research and monitoring in conjunction with the exploratory drilling program

8.0 Spatial and Temporal Boundaries

The proponent shall clearly define, and provide the rationale for the spatial and temporal boundaries that are used in its environmental assessment. Boundaries should be flexible and adaptive to enable adjustment or alteration based on field data.

The temporal scope should describe the timing of project activities to the best of the proponent's knowledge at the time of drafting of the EA. Updates on timing of project activities shall be submitted to the CNSOPB as soon as they are determined. Also, a validation of the EA findings may be required after a period of time (to be determined).

9.0 Significance of Adverse Environmental Effects

The proponent shall clearly describe the criteria by which it proposes to define the "significance" of any adverse effects (i.e., following the employment of mitigative measures) that are predicted by the environmental assessment. This definition should be consistent with the November 1994 Canadian Environmental Assessment Agency reference guide *Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects*.

10.0 Assessment Summary Section

The assessment will include a detailed summary of all mitigation, commitments and follow-up measures discussed in the EA. Adherence to mitigation measures, commitments and/or follow-up measures will be considered by the CNSOPB as possible conditions of authorization.

Appendix A: Components and Activities Outside the Scope

I) Air quality

The major air emissions sources from the proposed project are the drilling unit, supply/standby vessels and, if well testing occurs, flaring. Review of previous assessments indicates that project emissions are not expected to cause an exceedance of applicable air quality standards or guidelines. There are limited emissions sources, and few receptors in the project area.

Assessment of potential effects on air quality can be excluded provided the following mitigation measures are in place:

- designing well tests to minimize flaring using high-efficiency igniters;
- developing a backup manual ignition system when needed;
- adherence to MARPOL Annex VI, Regulations for the Prevention of Air Pollution from Ships;
- for the purpose of this project, the incineration of wastes will not be permitted in the Nova Scotia Offshore Area;
- the proponent adheres to the Air Emissions provisions of the Offshore Waste Treatment Guidelines, including the annual reporting of greenhouse gases, and
- the proponent shall address other mitigation measures considered to minimize atmospheric emissions.

II) Water Quality/Sediment Quality

The release of routine discharges (such as produced water and drilling muds) may impact water quality and/or sediment quality. It is unlikely that the discharge of drilling waste during the conduct of the proposed project will cause contamination or tainting of marine organisms in the water column. However, accidental spills, blowouts and malfunctions have the potential to significantly affect water quality. Assessment of the effects of malfunctions and/or accidental events is required, as is stated in Section 6.4.

Assessment of the potential effects on water quality/sediment quality can therefore be excluded from the EA, provided that:

- the proponent adheres to the Offshore Waste Treatment Guidelines; a
- the proponent is in compliance with the Fisheries Act (Section 36);
- the proponent adheres to CNSOPB's Drilling Regulations, Offshore Waste Treatment Guidelines, and Offshore Chemical Selection Guidelines;
- there is a commitment to provide an Emergency Response Plan, and
- the proponent addresses other mitigation measures considered to minimize marine discharges.

III) Fish

The effects of accidental spills, blowouts and malfunctions on fish are addressed in Section 6.4. Species at risk are addressed in Section 6.1. Routine drilling operations are not expected to have significant adverse environmental effects on fish populations in the area. Therefore no further assessment of the potential effects on fish is required.

IV) Marine Mammals and Sea Turtles

The attraction and/or avoidance of structures because of noise may affect behavior of marine mammals and sea turtles resulting in diversion from feeding areas and/or migration routes. Accidental spills, blowouts and malfunctions can also have lethal effects if animals are in the direct vicinity of significant excess discharges. Noise and spills from the project have the potential to reach the Gully and Sable Island. However, population level effects on marine mammals or sea turtles are not expected to result from this project.

As stated in Section 6.2, spill dispersion modeling and the potential for collisions between marine mammals and support vessels shall be required. The effects of accidental spills, blowouts and malfunctions on marine mammals and sea turtles are addressed in Section 6.4. Assessment of effects on marine mammal and turtle species at risk is required as well, as stated in section 6.1.

For marine mammals and sea turtles, no further assessment is required beyond that outlined in sections 6.1, 6.2 and 6.4.

V) Marine Birds

The attraction of birds to lights and flares may disrupt migration or may cause injury from incineration, or may result in collisions. Contact with platform/vessel surfaces may also result in oiling of birds. Routine discharges may affect birds in the water near platforms and vessels. However, population levels effects are not anticipated from this project.

Sable Island is an important breeding area for the Roseate Tern and the Ipswich Sparrow, which are species at risk. Hydrocarbons from accidental spills/blowouts have the potential to reach Sable Island and therefore affect these protected species. Assessment of the effects of malfunctions and accidental events on birds, and the bird inhabitants of Sable Island, are addressed in Sections 6.2 and 6.4.

No further assessment of the potential for effects on marine birds shall be required, provided that:

- the proponent adheres to the protocol described in Williams and Chardine's brochure entitled "The Leach's Storm Petrel: General Information and Handling Instructions" should birds land on vessels involved with the project. A permit is required from the Canadian Wildlife Service of Environment Canada to implement this protocol.

VI) Effects of the Environment on the Project

Physical environmental conditions acting on the project that could have consequences for the environment (factors which could affect the project design or operation) include meteorology, oceanography and ice regime.

The proponent is required to monitor physical environmental conditions to avoid potential adverse effects to the environment as a result of environmental influences on the project. An Emergency Response Plan is required, which will include responses to extreme weather conditions. A Certificate of Fitness is required to ensure compliance with applicable regulations and suitability of the structures for the purpose of the project.