



Husky Energy
White Rose Extension Project
Scoping Document

Prepared by:
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1. Purpose

This document provides scoping information for the screening level environmental assessment (EA) and the Environmental Preview Report (EPR) of the proposed White Rose Extension Project (the Project). On July 6, 2012, the *Canadian Environmental Assessment Act* (S.C. 1992, c. 37) was repealed when the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) came into force. The Minister of the Environment has designated this project and the environmental assessment will continue under the former *Canadian Environmental Assessment Act*. On October 30, 2012, Husky Energy (Husky) were informed by the Newfoundland and Labrador Department of Environment and Conservation (NLDEC) that the project activities associated with the Argentinia Peninsula and Placentia Bay portion of the project were subject to an EPR. In order to fulfil the requirements of both the *Environmental Protection Act* and the *Canadian Environmental Assessment Act*, an agreement was reached between the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB), as the Federal Environmental Assessment Coordinator (FEAC) for the Screening level EA, and the NLDEC that a single harmonized environmental assessment process could accommodate the Province's information and review process requirements.

Husky Oil Operations Limited, on behalf of the White Rose Extension Project (WREP) proponents, Husky; Suncor Energy Inc. (Suncor) and Nalcor Energy - Oil and Gas Inc. (Nalcor), is leading the development of the White Rose Extension Project (WREP). The proposed project is located on the Grand Banks offshore Newfoundland and Labrador, approximately 350 km east of St. John's in water depth between 115 and 120 m.

Initial development of the White Rose field was through excavated subsea drill centres, with flexible flowlines bringing production to a centralized floating production platform, the *SeaRose* floating production, storage and offloading (FPSO) vessel. The White Rose field was originally developed using subsea wells in two subsea drill centres; the Central Drill centre (CDC) and the Southern Drill Centre (SDC). A third drill centre, the Northern Drill Centre (NDC) is used as an injection site for gas that is being stored for future use. First oil from the White Rose field was produced in November 2005. In May 2010, production commenced from the North Amethyst Drill Centre (NADC) and was tied back to the *SeaRose* FPSO for production, storage and export to tanker. The current focus of the WREP is on the development of West White Rose.

Included in this document is a description of the scope of the project that will be assessed, the factors to be considered in the assessment, and the scope of those factors.

The document was developed by the C-NLOPB in consultation with other departments and agencies in the Governments of Canada and of Newfoundland and Labrador.¹

¹Appendix 1 contains a list of the departments and agencies consulted during the preparation of the document.

2. Regulatory Considerations

The original White Rose field underwent an environmental assessment in 2000 pursuant to the *Canadian Environmental Assessment Act* (the “CEA Act”) (S.C. 1992, c. 37) as a Comprehensive Study. In 2007, a further environmental assessment was undertaken on activities associated with construction of up to five additional subsea drill centres and associated flowlines under *Husky White Rose Development Project: New Drill Centre Construction and Operations Program Environmental Assessment Addendum* (LGL 2007).

The Project, as described in the “White Rose Extension Project Description” (Husky Energy May 2012), describes two development options to develop the WREP: a Wellhead Platform (WHP) development in the West White Rose pool plus up to three future subsea drill centres; or a subsea drill centre development in the West White Rose pool plus up to three additional future subsea drill centres. The WHP development option, which includes activities both at the on/nearshore graving dock and offshore, will include engineering, procurement, construction, fabrication, installation, commissioning, development drilling, operations and maintenance, and decommissioning activities. Under the subsea development option it will be comprised of an excavated subsea drill centres into which subsea well infrastructure will be placed. Drilling of the wells will be done from a mobile offshore drilling unit (MODU).

In order to proceed, the project will or may require the following authorizations, permits or approvals:

- C-NLOPB authorizations under sub-sections 138(1)(b) and 139(4)(a) of the *Canada-Newfoundland Atlantic Accord Implementation Act*,
- Fisheries and Oceans Canada (DFO) authorization under section 35(2) of the *Fisheries Act* for the harmful alteration, disruption or destruction (HADD) of fish habitat. Based on the information available, DFO anticipates the following aspects of the White Rose Extension Project proposal will likely result in a HADD and require a *Fisheries Act* authorization. These items will be part of the scope of the project for which DFO will be responsible, including ensuring the implementation of mitigation measures and follow-up:
 - Argentia – Dredging and re-instatement of a marine berm or structure for the casting basin; and dredging requirements in Placentia Bay to facilitate tow-out;
 - White Rose Field – Footprint of the Concrete Gravity Structure (CGS); excavated drill centres and resulting dump site for spoils of excavated materials from the glory holes; and any dredging and/or smothering associated with installation of the Offshore Loading System and subsea flowlines;
 - All other works, temporary structures or activities related to the construction, operation, maintenance or decommissioning of the above mentioned works and

activities impacting fish and fish habitat (e.g. backfilling/infilling, cofferdams, use of explosives, etc.);

- Environment Canada (EC) permit under Schedule 1, Part 1, Paragraph 3 of Section 127(1) of the *Canadian Environmental Protection Act*, 1999 (formerly Subsection 71 (1)) for disposal of a substance at sea; and
- Transport Canada (TC) approval under Part 1, Section 5 of the *Navigable Waters Protection Act* for any man-made structure, device or thing, whether temporary or permanent, that may interfere with navigation within a 12 nautical mile limit of the coastal shoreline.
- Minister of Environment and Conservation approval under Section 54 of the *Environmental Protection Act* and Section 7 of the *Environmental Assessment Regulations*. The scope of the provincial environmental assessment is confined to project details regarding the Argentia Peninsula and activities in Placentia Bay.

A provincial environmental assessment committee was appointed to prepare the information requirements for the EPR. Comments were provided by the NLDEC and included in this Scoping Document.

The C-NLOPB, acting as the FEAC respecting the assessment, will be responsible for coordinating the review activities of the other responsible authorities as well as those of other expert government departments and agencies that participate in the review.

The C-NLOPB, DFO, EC, and TC, as Responsible Authorities (RAs), intend that the environmental assessment report and any supporting documents, as may be necessary, will fulfill the requirements for a Screening under the CEAA. The RAs therefore, pursuant to Section 17(1) of the CEA Act (S.C. 1992, c. 37), formally delegate the responsibility for preparation of an acceptable Screening environmental assessment to Husky Oil Operations Limited, the project Proponent. The RAs will prepare the Screening Report, which will include the determination of significance.

3. Scope of the Project

3.1 Project Components

The subsea development option, which includes the subsea drill centre, flowlines, and the activities associated with that development option, have previously been assessed under *the Husky White Rose Development Project: New Drill Centre Construction and Operations Program Environmental Assessment Addendum* (LGL 2007). The construction of a subsea drill centre for the West White Rose pool was one of the potential subsea drill centres assessed and compensated for in 2007. A fish habitat compensation agreement (Authorization No. 07-01-002) has been in place with

Fisheries and Oceans Canada (DFO) since 2007 to compensate for the excavation of up to five subsea drill centre sites, of which only one has been excavated to date (the NADC).

The WHP development option will consist of construction of a CGS in Argentia, Newfoundland which is located in Placentia Bay on the southern Avalon Peninsula, 130 km south west of St. John's. The construction site is considered a brownfield location because of past military and industrial activities and is located in the northeast portion of the Northside Peninsula, bordering Argentia Harbor. The topsides will be constructed at an existing fabrication facility and therefore are not considered part of this assessment. The CGS will be constructed in the dry, in a de-watered graving dock. Upon completion of the CGS, the berm is to be removed to flood the graving dock to allow WHP flotation and dredging for subsequent towing out to sea to a deep-water site in Placentia Bay where it will be mated with the topsides structure. The WHP will then be towed to and installed in the western portion of the White Rose field and tied back to the *SeaRose FPSO*. New subsea Drill Centres, using subsea drill centre technology, may be developed in conjunction with the WHP development option. The project to be assessed consists of the following components.

3.1.1 Argentia – Graving Dock Construction Site:

- (a) Onshore/Nearshore Graving Dock Site Preparation (including shoreline/nearshore dredging and other in-water works (infilling/spoils) should be addressed);
- (b) Excavation of Graving Dock behind the natural coastal berm to a depth of 20 m below sea level in Argentia, may include the following activities: site surveys (e.g. geophysical, geological, geotechnical, environmental), sheet pile/driving, bund construction, installation of gated system, dredging, blasting, grouting, dewatering, proper disposal of excavated material with potential locations identified;
- (c) Construction of mooring points at deepwater site;
- (d) Completion of CGS construction at the Argentia site and decommissioning shoreline berm (e.g. graving dock berm removal and shoreline dredging activities)
- (e) Tow out of the WHP to the deepwater site; dredging activities and material disposal may be required;
- (f) Mating of the CGS with topside components and all ancillary activities;
- (g) Tow out of the CGS platform to its offshore location through Placentia Bay; and any required dredging activities; and

- (h) Operation of support craft associated with the above activities, including but not limited to vessels for the berm/mooring construction, topside mating activities, and CGS tow out, diving programs, supply vessels, helicopters, tow vessels, barges, ROVs.

3.1.2 White Rose Field

- (a) Offshore site and clearance surveys, including geophysical, geological, geotechnical, environmental (including iceberg) surveys;
- (b) Installation of the CGS at its offshore location; may include site preparation activities such as clearance dredging, seafloor levelling, underbase grouting, offshore solid ballasting, docking piles, mooring points;
- (c) Connection of CGS to *SeaRose FPSO*, including flowlines;
- (d) Construction of flowlines (including trenching, excavation, covering, and or spoil deposition), installation, maintenance, protection, and abandonment/decommissioning of subsea;
- (e) Construction, installation, maintenance, abandonment/decommissioning of up to three subsea Drill Centres associated with the CGP and up to four subsea Drill Centres for the subsea Drill Centres development option;
- (f) Drilling operations from the CGS option (40 wells plus up to 16 wells each for three Drill Centres for a total of 88 wells), including well testing, workover of development wells, VSP programs, wellsite/geohazard surveys;
- (g) Drilling operations from the subsea Drill Centre option using a semi-submersible drilling rig (West White Rose plus up to three additional Drill Centres, each with 16 wells for a total of 64 wells); including well testing; workover of development wells, VSP programs; wellsite/geohazard surveys;
- (h) Support activities, including diving programs, ROV surveys, and operation of support craft associated with the above activities, including but not limited to dredging vessels, mobile offshore drilling units, platform supply and standby vessels, helicopters, and shuttle tankers.
- (i) Operation, maintenance, modifications, decommissioning and abandonment;

3.2 Project Timing

3.2.1 Argentina

- (a) Construction activities at Argentina will likely commence near Q3 of 2013 with activities ongoing for approximately three years.

3.2.2 White Rose Field

- (a) Offshore construction, site preparation, and installation of the CGS will likely occur between Q2 2015 and Q3 2016; and
- (b) Production and drilling activities will commence in Q4 2016 or early 2017 and continue through the life of the project, estimated at 25 years.
- (c) Offshore construction using a subsea drill centre would begin in 2014 with installation of equipment, and first oil potentially in 2015.

4. Factors to be Considered

The screening level assessment shall include a consideration of the following factors, which include those prescribed by Section 16, in accordance with Section 16 of CEAA:

- (a) Purpose of and need for the project;
- (b) Alternatives to the project;
- (c) Alternative means of carrying out the project which are technically and economically feasible and the environmental effects of any such alternative means;
- (d) The environmental effects² of the Project, including those due to malfunctions or accidents that 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, and the significance of these effects;
- (e) Measures, including contingency and compensation measures as appropriate, that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project;

² The term “environmental effects” is defined in Section 2 of the *CEA Act*, and Section 137 of the *Species at Risk Act*.

- (f) The significance of adverse environmental effects following the employment of mitigative measures;
- (g) The need for, and the requirements of, any follow-up program in respect of the Project (refer to the Canadian Environmental Assessment Agency's 2002 "Operational Policy Statement" regarding Follow-up Programs³);
- (h) The capacity of renewable resources that are likely to be significantly affected by the Project to meet the needs of the present and those of the future; and
- (i) Report on consultations undertaken by Husky Energy with interested parties who may be affected by the Project and comments that are received from interested parties and the general public respecting any of the matters described above.

5. Scope of the Factors to be Considered

Husky will prepare and submit to the C-NLOPB an environmental assessment, which satisfies the requirements for a screening level assessment, for the above described physical works and activities, and as described in the project description "*White Rose Extension Project Description*" (Husky 2012). The environmental assessment will address the factors listed above, as well as the issues identified in Section 5.3, and will document any issues and concerns that may be identified by Husky through regulatory, stakeholder, and public consultations.

It is recommended that the "valued environmental component" (VEC) approach be used to focus its analysis. A definition of each VEC (including components or subsets thereof) identified for the purposes of environmental assessment, and the rationale for its selection, shall be provided.

The scope of the factors to be considered in the environmental assessment includes the components identified in the "Summary of Potential Issues" setting out the specific matters to be considered in assessing the environmental effects of the project and in developing environmental plans for the project, and the defined "Boundaries" (see below). Considerations relating to definition of "significance" of environmental effects are provided in the following sections.

³ CEA Agency Guidance documents and Operational Policy Statements are available on its web site: http://www.ceaa-acee.gc.ca/012/newguidance_e.htm#6.

Discussion of the biological and physiological environments should consider the data available for the Project and Study Area. Where data gaps exist, the EA should clearly identify the lack of available data.

5.1 Cumulative Effects

The assessment of cumulative environmental effects should be consistent with the principles described in the February 1999 CEEA *Cumulative Effects Assessment Practitioners Guide* and in the March 1999 CEEA operational policy statement “*Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act.*” Cumulative effects assessment must include a consideration of environmental effects that are likely to result from the proposed project in combination with other projects or activities that have been or will be carried out. These include, but are not limited to the following activities:

- proposed offshore oil and gas activities under EA review (listed on the C-NLOPB Public registry at www.cnlopb.nl.ca);
- ongoing offshore oil and gas activities, including development drilling, production, exploration drilling and marine seismic surveys;
- nearshore (Argentia) construction activities;
- fishing activities (including Aboriginal fisheries); and
- marine transportation (e.g., tanker traffic in Placentia Bay).

5.2 Boundaries

The Screening level assessment will consider the potential effects of the proposed physical works and physical activities within spatial and temporal boundaries that encompass the periods and areas during and within which the project may potentially interact with, and have an effect on, one or more VEC. These boundaries may vary with each VEC and the factors considered, and should reflect a consideration of:

- the proposed schedule/timing of the construction, operation, maintenance, and decommissioning phases of the proposed physical works and/or physical activities;
- the natural variation of a VEC or subset thereof;
- the timing of sensitive life cycle phases in relation to the scheduling of proposed physical works and/or physical activities;

- the interrelationships/interactions between and within VECs;
- the time required for recovery from an effect and/or return to a pre-effect condition, including the estimated proportion, level, or amount of recovery; and
- the area within which a VEC functions and within which a project effect may be felt.

The Proponent shall clearly define, and provide the rationale for the spatial and temporal boundaries that are used in the Screening Level Assessment. The spatial boundaries of the Study Areas, and those areas within the Study Areas (Project Area), shall be clearly described in the document using figures and maps as appropriate. The corner-points for all areas should be included.

Boundaries should be flexible and adaptive to enable adjustment or alteration based on field data and/or modeling results. The Study Areas and associated boundaries should be described based on consideration of potential areas of effects as determined by modeling (e.g., spill trajectory, produced water and drill cuttings dispersion), the scientific literature, and project-environment interactions (including transportation corridors). A suggested categorization of the spatial boundaries within the Study Area(s) follows.

5.2.1 Spatial Boundaries

Project Area: All areas in which project works and activities are to occur.

Affected Area(s): The area(s) beyond the project area which could potentially be affected by Project works and activities beyond the project area.

Region: The area extending beyond the “affected area” boundary. The “region” boundary will also vary with the component being considered (e.g., boundaries suggested by bathymetric and/or oceanographic considerations).

5.2.2 Temporal Boundaries.

The temporal scope should describe the timing of Project activities at Argentia and the White Rose Field. Scheduling of Project activities should consider the timing of sensitive life cycle phases of the VECs in relation to physical activities.

5.3 Summary of Potential Issues and Environmental Effects Assessment

The Environmental Assessment Report (EA) should contain descriptions of the physical and biological environments, as identified below. The description of the environment and the effects assessment shall include the Argientia Study Area, including Placentia Bay, and the White Rose Field Study Area.

Program activities are proposed for the Jeanne d'Arc Basin, which has been studied extensively in a number of recent environmental assessments. For the purposes of this assessment, the information provided in the environmental assessment documents for the exploration and development programs on the Jeanne d'Arc Basin can be used in support of the environmental assessment for the proposed White Rose Expansion Project with primary literature referenced. However, where new information is required for any of the following factors, the new data and/or information must be provided. Where information is summarized from existing EA reports, it should be properly referenced, with the sections of the existing EA report.

Physical, environmental, and monitoring data from offshore exploratory and production activities on the Jeanne d'Arc Basin have been collected for more than 10 years. This information must be considered and incorporated, where applicable, in the EA.

The EA should contain descriptions and definitions of methodologies employed in the assessment of effects. Effects of relevant Project works and activities on those VEC most likely to be in the Study Area(s) will be assessed. Discussion of cumulative effects within the Project and with other relevant marine projects will be included. Issues to be considered will include, but not be limited, to the following.

5.3.1 Physical Environment

A description of relevant physical environmental parameters for the graving dock site and offshore site, including the following elements:

- Meteorological and oceanographic characteristics of Study Areas, including extreme conditions and climate change effects. Oceanographic characteristics should include bathymetry and currents of Argientia/Placentia Study Area;
- Site-specific sea ice, iceberg and ice island conditions, including iceberg scour of the seabed;
- Physical environmental monitoring, observation and forecasting programs that will be in place during the project;

- Ice management/mitigation procedures, including criteria respecting disconnection of project installations and assessment of the efficiency of detection and deflection techniques; and
- Effects of the environment on the Project.

5.3.2 Socio-economic Environment

A description of relevant socio-economic factors, including the following elements:

- Qualifications, certifications and other requirements, including the need for, location and availability of related training opportunities (e.g., post-journeyman training) associated with key positions for all phases of the project;
- An estimate of the number of apprentices (by level) and journeymen required;
- National Occupation Classification (NOC) codes at the 4-digit level associated with each position for all phases of the project, including the number of positions associated with each NOC code;
- The approximated time lines for each of the positions during the construction and operations phases of the project. This would include the number of positions for each 4-digit NOC code throughout the project at specified time intervals (monthly or at least quarterly) which would show levels of employment throughout the project timeline;
- An indication of whether the positions are full-time equivalent or if they are the actual number of positions; if they are indeed the actual number of positions, how many are full-time vs. part-time;
- An estimate of the number of apprentices (by level and trade) and journeymen required;
- The anticipated source of the workforce, including an estimate of local employment (local area, provincial) and any strategies for recruitment;
- A commitment to provide quarterly reports during the construction phase as well as for the duration of the operations phase, including information on the number employed by 4-digit NOC, the number of full-time/part-time employees, the number of apprentices (by level) and journeymen, gender, and source of the workforce;

- Justification if it is not the intent by the Proponent to include a labour camp as part of the project proposed;
- Finalize all benefit amendment components, including local benefit capture and Gender Equity and Diversity Plans (including Business Access Strategies) with the Province for the construction, operations and decommissioning phases of the project. Plans are to be approved by the Minister of Natural Resources and the Minister responsible for the Status of Women for Gender Equity and Diversity, prior to the start of construction;
- Confirmation that the Proponent agrees to address any additional benefit concerns identified by the province arising from the Wellhead project;
- Confirm that any Benefit Amendments will be submitted to the C-NLOPB as an amendment to the Benefits Plan, and amended in the overall White Rose Benefit Framework, if deemed necessary by the Province; and
- A commitment to the development of a separate and distinct Gender Equity and Diversity Plan (including Business Access Strategies) for the White Rose Extension Project (WREP) which covers all phases of the Project, including construction and operations. The Plan must be finalized and approved by the Minister Responsible for the Status of Women prior to the start of construction.

5.3.3 Marine Resources

5.3.3.1 *Marine Ecosystem*

Characterization, including quantification to the degree possible, of the spatial area of seabed that is predicted to be affected by dredging, trenching, dredge spoil disposal; footprint of CGS, drill centres, flowlines, The Pond and berm (Argentina), MODU moorings; discharge of drill cuttings and other discharges.

5.3.3.2 *Marine and/or Migratory Birds Using the Study Area*

- Spatial and temporal species distributions in Study Area (observation/monitoring data collected during ongoing petroleum activities should be discussed);
- Species habitat, feeding, breeding, and migratory characteristics of relevance to the environmental assessment;

- Exposure to contaminants from accidental spills (e.g., fuel, oils) and operational discharges (e.g., deck drainage, gray water, black water);
- Attraction of birds to vessel lighting, flares and potential effects and mitigations;
- Noise disturbance from equipment including both direct effects (physiological), or indirect effects (foraging behaviour or prey species);
- Physical displacement as a result of vessel presence (e.g., disruption of foraging activities);
- Attraction of, and increase in, predator species as a result of waste disposal practices (i.e., sanitary and food waste);
- oiling of marine bird species;
- Procedures for handling birds that become stranded on offshore structures (e.g. rigs, supply vessels, construction vessels);
- Means by which bird mortalities associated with Project operations will be documented and assessed;
- Strategies to minimize or prevent accidental or chronic releases.
- Means by which potentially significant effects upon birds may be mitigated through design and/or operational procedures; and
- Environmental effects of the Project, including cumulative effects (e.g., other offshore oil and gas activities, hunting, fishing (long line by-catch), shipping).

5.3.3.3 *Marine Finfish and Shellfish*

- Characterization of existing environment in the Study Areas;
- Distribution and abundance of species utilizing the Study Areas with consideration of all life stages with special attention on critical life stages(e.g., spawning areas, overwintering, juvenile distribution, and migration);

- Description to the extent possible of location, type, diversity and areal extent of marine fish habitat in the Study Areas, in particular those indirectly or directly supporting traditional, historical, present or potential fishing activity, and including any critical (e.g. spawning, feeding, overwintering) habitats;
- Means by which potentially significant effects upon fish (including critical life stages) and commercial fisheries may be mitigated through design; scheduling, implementation of fish habitat compensation measures and/or operational procedures; and
- Environmental effects of the Project, including cumulative effects.

5.3.3.4 *Marine Mammals and Sea Turtles*

- Spatial and temporal distribution and abundance of species utilizing the Study Areas (observation and monitoring data collected during exploration and development activities should be considered);
- Description of marine mammal lifestyles/life histories relevant to Study Areas;
- Means by which potentially significant effects upon marine mammals/sea turtles (including critical life stages) may be mitigated through design, scheduling, and/or operational procedures; and
- Environmental effects of the Project, including cumulative effects.

5.3.3.5 *Species at Risk (SAR)*

- Description of species at risk as listed in Schedule 1 of the *Species at Risk Act (SARA)*, and those under consideration by COSEWIC in the Study Areas, including fish, marine mammals, sea turtles and seabird species;
- Description of critical habitat(as defined under SARA), if applicable, relevant to the Study Areas;
- Means by which adverse effects upon SAR and their critical habitat may be mitigated through design, scheduling, and/or operational procedures;
- Monitoring and mitigation, consistent with recovery strategies/action plans (endangered/threatened) and management plans (special concern);

- Assessment of environmental effects (adverse and significant) of the Project on SAR identified species and critical habitat, including cumulative effects; and
- A summary statement stating whether project effects are expected to contravene the prohibitions of SARA (Sections 32(1), 33, 58(1)).

5.3.3.6 Sensitive Areas

- Description (e.g. definitions, maps, photos as appropriate), of any sensitive areas in the Study Areas, such as important or essential habitat to support any of the marine resources identified, or areas identified through the Grand Banks-Placentia Bay Large Ocean Management Area (LOMA) Integrated Management Plan initiative (Ecologically and Biologically Significant Areas, Valuable Marine Ecosystems, Marine Protected Areas, etc.);
- Means by which adverse effects upon sensitive areas may be mitigated through design, scheduling, and/or operational procedures; and
- Environmental effects of the Project, including cumulative effects, on those sensitive areas identified.

5.3.4 Freshwater Resources

5.3.4.1 Freshwater Ecosystem

Characterization, including quantification to the degree possible, of the spatial area that is predicted to be affected by dredging, trenching, dredge spoil disposal; and the use of The Pond and berm.

5.3.4.2 Birds Using the Study Area

- Spatial and temporal species distributions in Study Area (observation/monitoring data should be discussed);
- Species habitat, feeding, breeding, and migratory characteristics of relevance to the environmental assessment;
- Exposure to contaminants from accidental spills (e.g., fuel, oils) and operational discharges (e.g., gray water, black water);

- Attraction of birds to lighting due to construction and presence in the onshore and nearshore, and the potential effects and mitigations;
- Noise disturbance from equipment including both direct effects (physiological), or indirect effects (foraging behaviour or prey species);
- Physical displacement as a result of construction and decommissioning activities (e.g., disruption of foraging activities);
- Attraction of, and increase in, predator species as a result of waste disposal practices (i.e., sanitary and food waste);
- Means by which bird mortalities associated with Project operations will be documented and assessed;
- Strategies to minimize or prevent accidental or chronic releases.
- Means by which potentially significant effects upon birds may be mitigated through design and/or operational procedures; and
- Environmental effects of the Project, including cumulative effects.

5.3.4.3 *Freshwater Fish*

- Characterization of the existing environment in the Study Area;
- Distribution and abundance of species utilizing the Study Areas with consideration of all life stages with special attention on critical life stages(e.g., spawning areas, overwintering, juvenile distribution, and migration);
- Description to the extent possible of location, type, diversity and areal extent of freshwater fish habitat in the Study Area, in particular those indirectly or directly supporting traditional, historical, present or potential fishing activity, and including any critical (e.g. spawning, feeding, overwintering) habitats;
- Means by which potentially significant effects upon fish (including critical life stages) and commercial fisheries may be mitigated through design; scheduling, implementation of fish habitat compensation measures and/or operational procedures; and
- Environmental effects of the Project, including cumulative effects.

5.3.4.4 *Terrestrial Mammals and other Wildlife*

- Spatial and temporal distribution and abundance of species utilizing the Study Area (observation and monitoring data collected during construction and development activities should be considered);
- Description of terrestrial mammal lifestyles/life histories relevant to Study Area;
- Means by which potentially significant effects upon terrestrial mammals/wildlife (including critical life stages) may be mitigated through design, scheduling, and/or operational procedures; and
- Environmental effects of the Project, including cumulative effects.

5.3.4.5 *Species at Risk (SAR)*

- Description of species at risk as listed in Schedule 1 of the *Species at Risk Act (SARA)*, and those under consideration by COSEWIC in the Study Area, including fish, mammals/wildlife, and bird species;
- Description of critical habitat(as defined under SARA), if applicable, relevant to the Study Area;
- Means by which adverse effects upon SAR and their critical habitat may be mitigated through design, scheduling, and/or operational procedures;
- Monitoring and mitigation, consistent with recovery strategies/action plans (endangered/threatened) and management plans (special concern);
- Assessment of environmental effects (adverse and significant) of the Project on SAR identified species and critical habitat, including cumulative effects; and
- A summary statement stating whether project effects are expected to contravene the prohibitions of SARA (Sections 32(1), 33, 58(1)).

5.3.4.6 *Sensitive Areas*

- Description (e.g. definitions, maps, photos as appropriate), of any sensitive areas in the Study Area, such as important or essential habitat to support any

- of the terrestrial resources identified, or areas identified through municipal, provincial or federal research and/or initiatives;
- Means by which adverse effects upon sensitive areas may be mitigated through design, scheduling, and/or operational procedures; and
 - Environmental effects of the Project, including cumulative effects, on those sensitive areas identified.

5.3.5 Marine Use

5.3.5.1 Noise/Acoustic Environment

- Noise and acoustic issues in the marine environment that may be generated from construction activities at Argentia and the White Rose Field (e.g., graving dock construction, mooring construction, pile driving, ocean disposal, drill centre excavation, berm/gate construction, blasting); drilling operations (e.g. drill rig, thruster-equipped vessels, VSP/Geohazard programs) and abandonment (wellhead severance);
- Means by which potentially significant effects may be mitigated through design and/or operational procedures; and
- Assessment of effects of noise/disturbance on VECs, including cumulative effects.

5.3.5.2 Presence of Structures and/or Operations:

- Size and location of temporary or project-life exclusion zones;
- Description of project-related traffic, including routings, volumes, scheduling and vessel types;
- Means by which adverse effects upon marine use may be mitigated through design and/or operational procedures; and
- Assessment of effects on access to fishing grounds, fish research surveys and upon general marine traffic/navigation; including cumulative effects.

5.3.5.3 *Traditional, Existing and Potential Commercial, Recreational and Aboriginal/Subsistence Fisheries, including Foreign Fisheries*

- Description of fisheries in Study Areas (including traditional, existing and potential commercial, recreational and aboriginal/subsistence);
- Traditional historical fishing activity – abundance data for certain species in this area, prior to the severe decline of many fish species (e.g., an overview of survey results and fishing patterns in the Study areas for the last 20 years);
- Consideration of underutilized species that may be found in the Study Areas as determined by analyses of past DFO research surveys and Industry GEAC survey data, with emphasis on those species being considered for future potential fishers, and species under moratoria;
- Fisheries liaison/interaction policies and procedures;
- Program(s) for compensation of affected parties, including fisheries interests, for accidental damage resulting from project activities;
- Means by which adverse effects upon commercial fisheries may be mitigated through design and/or operational procedures; and
- Environmental effects of the Project, including cumulative effects.

5.3.6 Discharges and Emissions

5.3.6.1 *Construction and Operational Discharges*

Planned project discharges to the marine environment, including but not limited to the following:

- Description and quantification of project discharges including, but not limited to: dredge spoil (including Graving dock berm removal and deposition), rock fill or flow line insulation material, drilling fluids and cuttings, bilge water, produced sand, grey water, black water, cooling water, deck drainage, blow out preventer fluid; ballast water;
- Characterization, quantification and modelling of expected discharges (e.g., dredge spoil disposal, cuttings dispersion; concentration of metals, nutrients,

hydrocarbons, biocides, timing of discharges), including a description of the models employed;

- Means for reduction, re-use and recovery of wastes beyond those specified in regulations and guidelines, including an evaluation of the applicability of “best available/practicable technology” (e.g., cuttings re-injection) to the project; and
- Environmental effects of discharges on VECs, including cumulative effects (effects assessment should consider existing EEM data from petroleum production operations on the Jeanne d’Arc Basin).

Argentia Site:

- Details should be provided on the location and construction of the settling pond. This should include details on water flow management, both in and out (e.g. discharged into the ocean) of the settling pond.
- Provide the basis for an estimated 20-hectare groundwater zone of influence. Details should be provided on how this area was calculated as well as the results of groundwater chemistry.
- Details on excavated material and its disposal (e.g. spread over the existing grade of the site) should be provided. The contaminant concentrations are used to determine if and how the excavated/dredged material can be re-used. In order to re-use excavated soil/dredged sediments around the site; it must meet commercial guidelines for all parameters with the exception of petroleum hydrocarbons. If petroleum hydrocarbon concentrations exceed 1000 mg/kg, it cannot be reused on site. This material must go to a soil treatment facility. The applicable guidelines for disposal in the pond would depend on whether or not the pond will remain a pond or if it is going to be completely filled in with excavated soil/dredged sediments. If the pond is going to remain a pond (i.e., not completely filled in), the material should meet the sediment quality guidelines to be protective of aquatic receptors. As it does not appear to be known whether the pond will be completely filled in or not, the most conservative (lowest) of the sediment quality guidelines and the commercial soil quality guidelines should be used for comparison. These guidelines should be referenced when discussing analytical results throughout the registration document.

- Details on disposal of excavated soil/dredged sediments in the pond. This should include details of additional soil that may be brought to the site, if required, to fill the pond to the natural topography.
- Details of how the displaced pond water is going to be managed during filling of the pond to ensure no impact to surrounding soil/groundwater/surface water and no issues (e.g. erosion, siltation). A plan for the management of displaced pond water should be provided.
- Conduct a risk assessment for disposal of material in the pond. This would determine if risk management/capping is warranted.
- The Proponent should explore options on the beneficial use of materials resulting from grave site excavation and ocean dredging along with a cost benefit and environmental analysis. Beneficial uses may include options such as; onsite storage of the materials for use by others or to stabilize the graving site post construction; use of the materials for leveling nearby land which may be beneficial to the owner of the site; use of materials to improve the environmental condition of the Pond; and possibility of ocean disposal of dredged materials.
- A groundwater-flow and groundwater-quality monitoring and treatment plan is required for review. The monitoring plan should be developed using a conceptual model of the area to assess the effect the excavation and dewatering will have on groundwater levels, flows and potential to increase migration of contaminants to the graving site. If this conceptual model indicates there is little or no risk of contaminated groundwater being pulled into the graving site, the monitoring program should reflect this assumption. The water treatment plan should outline how the water will be treated if required to meet the regulatory effluent standards.

5.3.6.2 *Air Quality*

Provide a description of the following:

- Description and annual estimates (rates and quantities) of air emissions associated with project activities, including greenhouse gas emissions;
- Implications for health and safety of workers that may be exposed to them;
- Description of potential means for reduction and reporting of above air emissions;

- Mitigation and monitoring; and
- Assessment of effects, including cumulative effects.

5.3.6.3 Accidental Events

The discussion should consider accidental releases of drilling fluids, hydrocarbons (including fuels), and/or chemicals that may be spilled and should address:

- Quantification of blowout risk, particularly of crude oil;
- Quantification of risk of hydrocarbon/chemical spills of all volumes, from all facilities associated with the project. Hydrocarbons must not be limited to crude oil, but also include synthetic/oil based drilling fluids, and refined hydrocarbons. NL offshore experience shall explicitly be considered as part of this discussion;
- Description of the marine area likely to be affected by hydrocarbons from a spill event in the marine environment;
- Fate of hydrocarbons in the marine environment, as determined by spill trajectory analysis and supported, where feasible, with modelling of weathering parameters such as evaporation, dispersion and emulsification. A description should be included of the models and/or analyses that are employed and the physical data upon which they are based;
- Mitigation measures to be employed to reduce or prevent such events from occurring;
- Contingency plans to be implemented in the event of a spill, including an analysis of the likely efficiency of spill response measures and any equipment upgrade or acquisition that may be required to support the Project;
- Environmental effects of hydrocarbon or chemical spills on all VECs identified, including losses from streamers (VSP and geohazard surveys) and drilling muds, with consideration of effectiveness of spill countermeasures; and
- Cumulative effects in consideration of “chronic” oil pollution on the Grand Banks (e.g. spills from other offshore operations, bilge dumping and other

discharges from vessels), and with those of other offshore oil and gas activities.

5.3.7 Environmental Management

Provide a general overview of Husky's environmental management system and its components, including, but not limited to:

- Pollution prevention policies and procedures;
- Environmental effects monitoring (see Section 5.3.6.1, below);
- Environmental compliance monitoring;
- Provisions for management system auditing;
- Chemical selection and management procedures;
- Fisheries liaison/interaction policies and procedures;
- Program(s) for compensation of affected parties, including fisheries interests, for accidental damage resulting from project activities;
- Emergency response plan(s); and
- Environment-related training of project employees and contractors, including project vessels.

5.3.8 Biological and Follow-up Monitoring

Provide the following:

- Discuss the requirements of a follow-up program (as defined in Section 2 of CEAA) as may be required pursuant to the *SARA*. The discussion should also include any requirement for compensation monitoring (including fish habitat) as compensation is considered mitigation under the CEAA. Modification to existing follow-up programs to accommodate project modifications should be addressed, including compensation monitoring (Section 35(2) HADD authorization) EEM design and implementation, and the need for baseline information in support of these programs.
- An acceptable fish habitat compensation strategy, including options considered, in accordance with DFO's *Policy for the Management of Fish Habitat*

- Detailed description of monitoring and observations procedures to be implemented regarding marine mammals and seabirds (observation protocols should be consistent with the C-NLOPB Geophysical, Geological, Environmental and Geotechnical Program Guidelines (2012) and be designed in consultation with EC-CWS.).

5.3.9 Emergency Response Plan

Risk-based determination of oil spill response needs, including those for small-volume spills. The EA should identify:

- Types and location of response equipment; and
- Target times for equipment deployment.

5.3.10 Abandonment/Decommissioning

Discuss plans for abandonment and/or decommissioning of the Project Areas and associated facilities following termination of WHP construction and production. This should include, design considerations relating to removal of the production platform, and any anticipated requirement for post-abandonment monitoring.

The Proponent shall provide details on the Argentia site decommissioning/rehabilitation or future use/planning of the purpose-built graving dock. If a permanent graving dock to be used for the construction of future CGS or industrial applications is considered by the Proponent, then details should be provided and the activity assessed.

5.4 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 CEAA reference guide *Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects*, and be relevant to consideration of each VEC (including components or subsets thereof) that is identified. The effects assessment methodology should clearly describe how data gaps are considered in the determination of significance of effects.

6.0 Projected Timelines for the Environmental Assessment Process

The following are estimated timelines for completing the EA process. The timelines are offered based on experience with recent environmental assessments of similar project activities.

ACTIVITY	TARGET	RESPONSIBILITY
EA review upon receipt from Proponent	6 weeks	C-NLOPB & Regulatory Agencies
Compile comments on EA	1 week	C-NLOPB
Review of EA Addendum/Response Document (<i>if necessary</i>)	3 weeks	C-NLOPB & Regulatory Agencies
Screening Report (Determination of Significance of Project Effects)	3 weeks	C-NLOPB
Total	13 weeks	

APPENDIX 1

Departments and Agencies Consulted by the Responsible Authority

“Federal Authorities” and likely “Responsible Authorities” under the *Canadian Environmental Assessment Act*

Environment Canada
Fisheries and Oceans Canada
Industry Canada
Transport Canada
Natural Resources Canada
Department of National Defence
Health Canada
Parks Canada

Other Departments/Agencies

Canadian Environmental Assessment Agency

Provincial Departments (Government of Newfoundland and Labrador)

Department of Natural Resources
Department of Environment and Conservation
Department of Fisheries and Aquaculture
Department of Advanced Skills and Education
Women’s Policy Office