ENVIRONMENTAL IMPACT REVIEW BOARD

DRAFT TERMS OF REFERENCE FOR THE ENVIRONMENTAL IMPACT REVIEW

(Environmental Impact Statement Guidelines)

Beaufort Sea Exploration Joint Venture Drilling Program

INTRODUCTION

These Terms of Reference are:

- issued by the Environmental Impact Review Board (EIRB) to the developer, Imperial Oil Resources Ventures Limited (IORVL or the "Developer") representing the Beaufort Sea Exploration Joint Venture[1], to provide guidance and set out information requirements and expectations of the EIRB of the Developer for the preparation of an Environmental Impact Statement (EIS) that will satisfy the requirements of the *Inuvialuit Final Agreement* (IFA);
- designed to facilitate an efficient and timely review process with the objective of avoiding duplication and overlap and therefore should, to the extent possible, also satisfy the requirements of the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) under which authority the National Energy Board (NEB) may conduct an environmental assessment; and
- intended to set out the scope of the environmental review for Inuvialuit, the public and stakeholders.

These Terms of Reference are issued by the EIRB as a result of a decision by the Environmental Impact Screening Committee (EISC) dated December 11, 2013 on the IORVL Drilling Program, in which the EISC determined that the proposed development could have significant negative environmental impacts and referred the development to the EIRB for a public review under subsection 11(20) of the IFA.

Although these Terms of Reference are intended to, the extent possible, satisfy the requirements of CEAA 2012, the EIRB does not assert that these Terms of Reference are comprehensive of those requirements. Any determination or decisions regarding the requirements of CEAA 2012 are within the jurisdiction of the NEB.

[1] The Beaufort Sea Exploration Joint Venture represents Imperial Oil Resources Ventures Limited Imperial, ExxonMobil Canada and BP Exploration Operating Company.

SCOPE OF THE DEVELOPMENT

The Development involves drilling one or more wells within Exploration Licence (EL) 476 or 477 located in the Beaufort Sea in the offshore of the ISR. These ELs are in water depths that range from 60 m to 1500 m, and lie about 175 km north-northwest of Tuktoyaktuk. These wells would be drilled in water depths of 80 to 850 m.

The preferred or baseline case set out by the Developer would have the first well drilled in EL 477 commencing in the 2020 open water season, before the expiry of EL 477 (on 30 September 2020). The well(s) are assumed to require at least two years to complete and IORVL's proposed drill program schedule indicates that it may take three seasons to complete.

IORVL, on behalf of itself and its partners, has indicated that a floating drilling unit would be the system of choice. IORVL has not identified the type of floating drilling unit (e.g., semi-submersible or drill ship) or the type of station keeping that would be used by the floating drilling unit (e.g., mooring system that uses mooring lines and anchors attached to the seafloor or a dynamically-positioned system that uses the unit's own propellers and thrusters). IORVL simply states that the proposed floating drilling unit would be up to standard and appropriate for the job it is designed to do.

IORVL has stated that it would use icebreaking support vessels for ice management around the drilling location and ice-strengthened vessels for supply, fuel, and warehousing. The ice-strengthened supply vessel(s) could be used for, amongst other things, oil spill response operations and for drilling support.

In addition to drilling activities, IORVL has provided high-level information on possible transit routes to or out of the drilling location. No decision has been made regarding overwintering of the drilling unit and/or the support vessels in the Canadian Beaufort Sea.

IORVL indicates that it will prepare a relief well plan as part of its Operations Authorization (OA) application to the NEB and that this plan will not include a same season relief well (SSRW). IORVL states that a relief well could be started but not be finished in the same season. IORVL's position is that a relief well is not a same season well control measure and that it is not possible to drill a well in a single season given the short drilling season in the Arctic, and that faster options exist to bring a well under control.

IORVL suggests that they could need onshore facilities for accommodation, storage, and docking area. Other activities that may be required for the Development include the dredging of Tuktoyaktuk harbour; mobilization and demobilization of drilling and related vessels, equipment, supplies, and people; and over-wintering of drilling and related vessels, equipment, and supplies in the ISR.

Note: The 'Scope of the Development' section in this draft is considered preliminary and is likely to change following the submission of the additional details requested

from the Developer regarding the specific decisions made on principal activities and components for the Development.

SCOPE OF THE ASSESSMENT

Scope of Factors and EIS Requirements

The Developer will have regard to the following in its consideration of the factors and information requirements outlined below and in preparing the EIS:

- the EIRB's 'Environmental Impact Review Guidelines' dated April 29, 2011;
- the factors set out in Section 19 of the CEAA 2012; and,
- the National Energy Board's document 'Filing Requirements for Offshore Drilling in the Canadian Arctic', dated 2011.

Factors to be Considered and Information Requirements

This section outlines the factors to be addressed and the information required in the EIS.

Principles to Consider

The following principles should be incorporated into the EIS by the Developer and are applicable to all components of the Development:

- *Sustainable Development* – the Development should meet the needs of present generations without compromising the ability of future generations to meet their own needs. The objective of sustainable development is to achieve a balance between preserving environmental integrity, ensuring social equity and improving economic efficiency. The Developer should strive to integrate this objective within the EIS and clearly outline how it has been incorporated.
- *Precautionary Approach* – the Development should be considered in a careful and precautionary manner before any action is taken. The precautionary approach or "precautionary principle" can mean "where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation" (Principle 15 of the 1992 Rio Declaration on Environment and Development). The Developer should clearly demonstrate how it has applied such an approach in the EIS and in what circumstances.

Purpose and Alternatives

- Purpose of the proposed Development
- Description of the proposed Development

- Alternative means of carrying out the proposed Development, including the advantages and disadvantages of each alternative, that are technically feasible and the environmental impacts of any such alternatives
- Rationale for choosing the proposed undertaking as the preferred option, including the advantages and disadvantages, and explanation as to why the proposed approach is the best option

Traditional Knowledge and Public Comments

Factors*:*

- Traditional knowledge
- Community knowledge
- Issues and concerns raised by potentially affected parties
- Inuvialuit and other aboriginal harvesting areas, practices and activities
- Cultural and economic value of harvesting

Information required:

- The extent of the Developer's public engagement process
- Concerns and issues raised by individuals, organizations and communities in the Inuvialuit Settlement Region
- How public and community consultations have contributed to the development of the EIS, management plans and proposed mitigation measures for the Development
- What future consultations with Inuvialuit communities and public consultations are being planned and how the outcome of these consultations will be used to in the context of the proposed Development
- Traditional Knowledge and community knowledge that has been or will be collected and used in context of the proposed Development
- Detailed explanation on how Traditional Knowledge was incorporated into proposed mitigation measures and management planning
- How information received regarding Inuvialuit harvesting areas, practices and activities, and the cultural and economic value of harvesting, has been or will be used in context of the proposed Development

Environment and Impact Assessment

Factors

- Description, including baseline environmental conditions, of the affected environment, including human environment
- Environmental effects of the development
- Changes to the Development that may be caused by the environment
- Environmentally significant or sensitive areas
- Wildlife or environmental monitoring and inspection plans
- Accidents and malfunctions and their effects
- Waste management plans

- Chemicals anticipated to be used in the proposed Development, particularly those that may be used in drilling activities and spill countermeasures
- Mitigation measures that are technically feasible and that would prevent, reduce or eliminate any adverse environmental effects of the development
- Significance of the residual effects described above
- Cumulative environmental effects that are likely to result from the development in combination with other developments or activities that have been or will be carried out

Information required regarding methodology:

- The Developer must describe the methods used to predict the potential effects of the Development on the biophysical and socio-economic environment, and the effects of the environment on the Development. If the valued ecosystem component (VEC) or valued socio-cultural component (VSC) approach is used, the VECs or VSCs (referred to as valued components) for which effects are predicted must be described and justified. In identifying the valued components, the Developer shall consider those identified to be of concern during any public workshops or meetings held by the Developer, or that the Developer considers likely to be affected by the Development. In justifying the methods used to select the valued components, the Developer shall note that the value of a component not only relates to its role in the ecosystem, but also to the value placed on it by humans. If using the valued components methodology, the following valued components shall be considered by the Developer:
    - Fish and fish habitat;
    - Marine mammals and marine habitat;
    - Resident and migratory birds;
    - Species harvested by Inuvialuit, species at risk and species of special status;
    - Water quality;
    - Air quality;
    - Land and resource use including harvesting by the Inuvialuit in the ISR; and
    - Traditional, commercial and public recreational use.
- This list of valued components shall be modified as appropriate by the Developer following consultations with the Inuvialuit of the ISR, the communities within the ISR, public and relevant stakeholders.
- If another method is used to predict potential effects of the Development, the proponent must identify and justify the biophysical or socio-economic elements for which effects are predicted.
- For all components of the Development, the Developer will define the appropriate boundaries used for its assessment for each biophysical or socio-economic element assessed. The Developer will also provide a justification and rationale for all of the boundaries chosen. The Developer shall provide a description of the boundaries of the Development in a regional context showing existing and

planned future land use, current infrastructure, and proposed improvements to this infrastructure.

- In determining the spatial boundaries to be used in assessing the potential adverse environmental effects of the components of the Development, the Developer shall consider, but not be limited to, the following criteria:
    - The physical extent of the Development components, including any offsite facilities or activities. The physical extent shall include all areas affected by the Development, including those impacts onshore, in or on the water, on the shoreline or coast;
    - The extent of aquatic and terrestrial ecosystems potentially affected by the Development, including potential accidents and malfunctions;
    - The extent of potential effects arising from noise and atmospheric emissions;
    - The extent to which the communities within the ISR may be affected by any Development component;
    - The extent to which traditional land use and Inuvialuit rights could potentially be affected by the Development component; and
    - Lands used for residential, commercial, industrial, recreational and aesthetic purposes.
- For the assessment of the potential effects related to an accidental or unauthorized release of oil or other hydrocarbons, the spatial boundaries will be expanded to take into account the areas that could be affected by a potential accident or malfunction.
- The temporal boundaries of the Development shall cover the construction, operation, maintenance, and where relevant, closure, decommissioning and restoration of the sites affected by the Development. Temporal boundaries shall also consider seasonal and annual variations related to environmental components for all phases of the Development, where appropriate. To determine the temporal boundary of assessment, the Developer shall take into account the following elements:
    - Duration of the operational period;
    - Design life of engineered structures, facilities and equipment; and
    - Frequency and duration of natural events and human-induced environmental changes.

Information required regarding baseline data:

- Baseline information that will provide a complete description of the biophysical and socio-economic setting, including the current state of the environment within the study area. This is equally applicable for the terrestrial and marine components of the Development. The Developer is not required to provide extensive descriptions of features of the environment or socio-economic elements that are not relevant factors or issues related to the Development, however, the Developer must provide a sufficient description of the local setting to allow the EIRB, other regulators, the public, and stakeholders to clearly understand the rationale for environmental assessment decisions. If the baseline data have been

extrapolated or otherwise manipulated to depict environmental conditions in the study areas, modelling methods and equations should be described, and should include calculations of margins of error and other relevant statistical information, such as confidence intervals and possible sources of error.

- With respect to all components of the Development, without limiting itself to this list, the Developer will provide the baseline information outlined in the following as appropriate. If such information is not provided, the Developer will provide a rationale as to why it has not done so and how such gaps would be filled.
- Physical environment baseline information:
    - Possible natural hazards potential.
    - The prevailing climate conditions, including the identification of available data sources (e.g. Meteorological Service of Canada, recording stations).
    - The predominant meteorological conditions, including wind direction, wind velocity, severe outflow conditions, seasonal variations, visibility, darkness, temperature, icing, storms and polar lows.
    - Surface water and groundwater quality and quantity.
    - Sediment regime (e.g. erosion zones, sediment transport, accumulation zones), particularly in dredging and filling areas, and potential open water sediment-disposal sites.
    - Noise environment (near the marine structures and at sensitive points).
    - A description of marine environments, including the type of water body (e.g. estuary, coastal, marine), and any special management areas in or near the study area.
    - An overview of oceanography, including a description of the physical characteristics of the Beaufort Sea in an around the drill site and other Development components, tidal range, offshore currents, the time of year and weather conditions that influence the characteristics of flow.
    - An overview of ice conditions including, ice cover, ice movement, ridging, ice thickness and ice hazards.
    - An overview of surface and sea floor geology including such factors as, soil competence, ice keel scours and shallow gas.
    - A description characterizing sediments in relation to parameters identified in the Canadian Sediment Quality Guidelines, the Canadian Environmental Protection Act, 1999, and its Disposal at Sea Regulations including areas to be dredged or used for dredge spoil disposal.
- Biologic and biophysical environment baseline information:
    - The identification, description and mapping of marine habitats, including habitat type, location and range, habitat suitability, diversity, abundance, and sensitive aquatic habitat.
    - The identification and relative predominance of aquatic vegetation.
    - A description of marine habitat use and species presence, including population status, life cycle, sensitive periods, habitat requirements for each life stage, abundance (local and regional), distribution and use of habitat type, and for anadromous species, the seasonal range, migration patterns, and sensitivity to disturbance.
    - A description of any existing wildlife harvesting in the area.

    - A description of any marine birds and migratory birds, including a description of suitable habitat.
    - A description of underwater natural and man-made noise levels at sensitive sites.
    - The identification and description of any federal, provincial and/or territorial listed species at risk in the study area, including distribution and population status, the identification of their habitat and critical habitats, critical timing windows, known factors limiting their distribution and population, sensitivity to disturbance, and whether any species recovery plans are available.
    - Any known issues with respect to the health of harvested species (e.g. parasites, disease) and known baseline contaminant concentrations in harvested species.
    - A listing and distribution or abundance of existing invasive, non-native species.
    - The location and description of protected areas in the region.
- Human environment baseline information:
    - A description of harvesting activities.
    - A description of commercial vessel traffic, including tourism, from existing port or terminal data, including frequency, goods, quantities, shippers, origin and destination, and the importance to the local and regional economy.
    - Human health, with respect to potential contamination of food sources, noise and air quality issues as applicable.
    - A description of routes and channels from and to the ocean that commercial shipping uses, main hazard areas for other users in relation to shipping, and frequency and magnitude of shipping incidents.
    - Tourism and commercial recreation activities practiced in the study area.
    - An inventory, description, including maps, and evaluation of any archaeological and historical resources likely to be affected by the marine components.
- Detailed description of factors of the unique Arctic environment where the proposed Development would occur with particular attention to wildlife harvesting, cultural identity, ice, permafrost, extreme seasonal variations.
- How monitors and inspectors would be deployed to observe marine mammals and birds and monitor the effectiveness of mitigation measures and monitoring, inspection and follow-up plans

Information required regarding the Impact Assessment including cumulative effects:

- The Developer shall clearly explain the methodology used in its assessment of the environmental effects of the Development. In this description, the Developer shall consider environmental effects, such as direct and indirect, reversible and irreversible, short- and long-term and cumulative environmental effects of all Development components. In predicting and assessing the Development's effects, the Developer will clearly state the elements and functions of the environment

that may be affected, specifying the location, extent and duration of these effects and their overall impact. This assessment shall focus primarily on the biophysical and socio-economic values affected by the Development.

- Details on the effects on the physical environment:
    - Identify the sources, quantities and frequency of Development-related emissions of greenhouse gas, nitrogen oxides, sulphur oxides and volatile organic compounds that could result from the construction and operation of the marine Development components and from accidents or malfunctions.
    - If, as a result of the Development, there will be an increase in ship activity over current activity levels, provide an estimate of emissions of common air contaminants and any expected air toxics using activity information and emission factors. If proposed emission levels are notably higher than current emission levels, provide a quantitative estimation of ambient air quality concentrations (i.e. through validated dispersion modeling).
- Details on the effects on the biologic and biophysical environment:
    - The potential effects on the marine environment, including the effects of increase vessel traffic.
    - The anticipated changes in the composition and characteristics of the populations of marine mammals and various fish species, including shellfish and forage fish, following modifications to the aquatic environment, including:
        - disruption of sensitive life stages or habitat;
        - disruption of feeding activities;
        - distribution and abundance;
        - contaminant levels in harvested species; and
        - marine mammal health and condition.
    - The identification of any potential harmful alteration, disruption or destruction of fish habitat, including the calculations of any potential habitat loss (temporary or permanent) in terms of surface areas (e.g. spawning grounds, fry-rearing areas, feeding).
    - Any potential changes in the food web in relation to baseline.
    - Any modifications to the marine habitats for fish, invertebrates and marine mammals with regard to their productivity, life cycles, migration, or local movements.
    - The potential effects of the marine traffic on marine mammal individuals or populations, including:
        - risk of collision with other vessels;
        - disruption of activities (e.g. feeding, calving, movement, migration, etc.) and alteration of habitat;
        - effect of noise on the behaviour and habits of marine mammals;
        - effect of increased turbidity on the feeding activities of marine mammals and other marine species;
        - effect of ballast discharge and the potential for the introduction of invasive species; and quantity and effect of discarded waste and litter.

    - Any modifications and use of the environment and habitats by aquatic species listed by the Species at Risk Act.
- Details on the effects on the human environment:
    - Any potential effects on human health associated with potential contamination of traditional foods including terrestrial and marine wildlife.
    - Potential effects of intensified shipping and port activities on regional shipping networks, and commercial and recreational boating during construction and operation.
    - Potential effects on wildlife harvesting, including a consideration of:
        - changes in harvester travel patterns resulting from increase vessel traffic;
        - disturbance of harvest patterns and harvest level, or loss or alteration of high-value harvest areas;
        - changes in the abundance and distribution of harvested resources;
        - changes to harvesting costs;
        - changes to harvest effort as perceived by harvester; and
        - changes in the quality of harvested species, including contamination, that would adversely affect their consumption or sale.
    - Effects on noise level at site boundaries and sensitive sites.
    - Any potential effects on the physical and cultural heritage, and on archaeological resources.
    - Any potential effects on the visual environment and the effects that changes to the aesthetic quality will have on businesses which rely on the aesthetic and recreational interest of the area.
    - Any effects of the Development on the recreational interest and potential of the area, including the steps that will be taken to maintain the recreational interest of the zones affected by the various components of the Development.
    - Any potential effects on unique sites or special features, such as environmentally sensitive areas, reserves or protected areas.
    - Any potential effects of the Development on other land uses.
- Description and evaluation of the potential effects of Development-related accidents and malfunctions on the environment, including impacts on social, economic or cultural elements of the environment and human health to people in close proximity of spilled contaminants. Particular attention should be focused on sensitive components of the environment that could be affected in the event of an accident or malfunction, and that could potentially make the consequences worse (e.g., proximity of communities, natural sites of particular value). Where potentially significant impacts could occur as a result of an accident or malfunction and the necessary data are available, the Developer will consider assessing the probability of such an occurrence, taking into account weather or external events that present contributing factors. In particular, the Developer will assess the potential for minor and major accidental releases of oil or other hydrocarbons. As appropriate, the Developer shall also provide an analysis of the

potential environmental effects of such releases on the marine and terrestrial environment and on human health within the spatial boundaries described. In conducting this assessment, the Developer will consider, without being limited to, the following points, as appropriate:

- Properties and volumes of oil and other hydrocarbons and its behaviour during an accidental spill;
- Probability analysis of the likelihood of an accidental oil release;
- Modelling of the dispersion of oil and other hydrocarbons, including a description of the dispersion models used for spills on land or at sea, including any formulated hypotheses, accompanied by supporting documentation and the results of the modelling;
- For the assessment of potential risks during navigation (e.g. vessel collisions), the Developer shall refer to Sections 3.8 and 3.15 of Transport Canada's publication, "TERMPOL Review Process 2001"; and
- Its environmental track record.

- Description of all waste streams generated by the development, with particular attention to any that may result in air emissions or any discharges of cuttings or mud to the environment
- Description of how chemicals to be used in the development would be selected, and how low toxicity alternatives were considered in the selection process
- Details on the cumulative effects assessment:
  - The Developer will consider, without being limited, to the following:
    - Identify and justify the environmental components that will constitute the focus of the cumulative effects assessment, emphasizing this assessment on the VECs and VSCs most likely to be affected by the Development and other developments and activities;
    - Identify and justify the spatial and temporal boundaries for the cumulative effect assessment for each VEC and VSC selected. The boundaries for the cumulative effects assessments will generally be different for the different VECs and VSCs considered. These cumulative effects boundaries will also generally be larger than the boundaries for the corresponding Development effects;
    - Identify the sources of potential cumulative effects. Specify other past, present or reasonably foreseeable physical activities and developments, including current and potential marine shipping, planned offshore exploration and development and current and planned onshore physical activities that could cause effects on each selected VEC or VSC within the boundaries defined, and whose effects would act in combination with the residual effects of the Development.
    - Describe the mitigation measures that are technically and economically feasible. The Developer shall assess the effectiveness of the measures applied to mitigate the cumulative effects. In cases where measures exist that are beyond the scope of the Developer's responsibility that could be effectively applied to mitigate these

effects, the Developer will identify these effects and the parties that have the authority to act. In such cases, the EIS will summarize the discussions that took place with the other parties in order to implement the necessary measures over the long term;
- Determine the significance of the cumulative effects; and
- Develop a follow-up program to verify the accuracy of the assessment or to dispel the uncertainty concerning the effectiveness of mitigation measures for certain cumulative effects.

Prevention (how to drill and work safely while protecting the environment)

Factors*:*

- Design and operating limits of the proposed drilling system and support vessels
- Policies, procedures, and practices that would be used to modify operations as conditions approach or are forecast to approach operating limits
- Hazard identification, risk management and mitigation measures
- Ice management
- Training and competency expectations
- Governance and bridge documentation
- Well control, including relief well
- Environmental and aquatic effects monitoring plan(s)

Information required:

- Features or aspects that would be considered hazards to the proposed development activities
- Description of how hazard identification and risk evaluation would be conducted
- Description of hazards identified
- The policies, procedures, and practices to anticipate, prevent, mitigate, and manage such hazards
- Description of ice management and other support activities that may be required for the drilling of the exploration wells, their capabilities and limitations
- Policies, procedures, and training to secure the well when operating or design conditions are forecast to affect drilling operations or have the potential to affect safety and environmental protection
- Description of the effectiveness and reliability of available methods for monitoring the condition and integrity of the well, well control, well capping, well containment, and relief well, including consideration of emerging technologies that could be used for the proposed development
- Description of training and competency expectations of personnel working on the development, how such competencies would be assessed, and how any deficiencies would be corrected
- Description of how a robust and effective culture to promote safety and protection of the environment would be implemented
- Description of the governance and bridge documentation between the developer and any drilling contractors, sub-contractors, service companies, marine services

companies, and others services required in the undertaking of the proposed development

- Description of options for regaining well control including relief well, the criterion for selection, and their likely effectiveness and reliability
- Description of the measures to anticipate, prevent, mitigate, and manage any well control situations and release of oil, gas, condensates, other chemicals or drilling fluids spills into the physical environment
- Description of the developer's state of preparedness to respond to drilling accidents, spills, and malfunctions including consideration of emergency planning requirements, emergency response planning requirements, infrastructure, equipment, supplies, personnel, and training and competency needs
- Description of oil spill countermeasures and response plans including adequacy, likely effectiveness, number and types of equipment, trained and competent personnel, policies and procedures, exercises, and incident management system in the event of an emergency situation or an out-of-control well condition
- Identification of appropriate best practices for prevention, management, and mitigation of an event that might adversely affect safety, the environment, and traditional and cultural activities of the Inuvialuit
- Description of how lessons learned from past events or near miss events in the Arctic offshore and elsewhere (including the Macondo disaster in the Gulf of Mexico) have been incorporated and used in the development of the proposed development. Detailed description of how these would be considered, evaluated, and updated in light of any new events, best practices, and lessons learned by the applicant, its joint venture partners, drilling contractors, service providers, support activities service providers, operations nationally and internationally, and by industry.
- Description of factors that affect human performance such as, cold, darkness, isolation, remoteness, monotonous work, and fatigue and how they have been considered in the design and operation of the proposed Development.

Preparedness and Response (responding effectively when things go wrong)

Factors*:*

- Contingency plans and communication plan(s)
- Same season relief well plan
- Worst-case scenario
- Capping and containment equipment and personnel
- Incident management
- Oil and other chemical spill countermeasures
- Roles and responsibilities of all parties that may have a role in an emergency or spill preparedness and response situations.
- Use of Inuvialuit, northern and local wildlife monitors and inspectors for environmental emergency or spill response

Information required:

- Description of the worst case scenario
- Contingency plans that outline emergency response procedures (ERP) for oil and other chemical spills, procedures to be utilised when approaching or when forecasted to approach operating limits for the drilling system, relief well and other support activities such as personnel movement, re-supply, and transits.
- The contingency plans and ERP should also include all proposed emergency response exercises and how the results of these exercises will be incorporated into the ERP to improve emergency preparedness
- Communication plans in the event of an emergency situation that adversely affects the safety, environment, and traditional and cultural activities of the Inuvialuit
- Description of how the NEB's SSRW policy expectations would be met
- Description of any capping and containment equipment and personnel that would be deployed to reduce or minimize the amount of released hydrocarbons and the effects of such releases to the environment, wildlife, and traditional and cultural activities of the Inuvialuit
- Description of how incident management would be conducted in an emergency situation or when events have the potential to affect safety, protection of the environment, and traditional and cultural activities of the Inuvialuit
- Description of the plans, policies, procedures, practices, training and competencies, exercises, and equipment for escape, evacuation, and rescue of personnel in these events
- Description of oil and chemical spill countermeasures that would be available in the event of a release to the environment. Specifically, spill countermeasures should include:
    - how any released oil or chemicals would be tracked
    - forecast trajectory modelling with its capabilities, strengths and weaknesses
    - required input to this trajectory modelling
    - remote-sensing to be used to track the released oil or chemicals, particularly in and under ice and for prolonged periods (several months)
    - an outline of the plans and procedures for spill removal, in-situ burning, and use of spill treating agents such as dispersants and chemical herders and how and when such agents would be applied
    - how a net environmental benefits analysis (NEBA) would be done to select appropriate spill countermeasures
    - information on the efficiency, and efficacy of any spill countermeasures to be used including: what equipment is at hand and the skill and competence of the people involved; how much equipment and how many skilled and competent people involved would be at hand or mobilized, and; the effectiveness of such equipment and people in the conditions expected to be encountered at the relevant locations for any spill countermeasures
    - availability of equipment, personnel, and infrastructure at the drilling or spill location

    - what people, equipment, infrastructure, and support may be envisioned from local, regional, national, or international organizations
    - training and readiness of the Inuvialuit to participate in any oil spill situation
- Results of "Net Environmental Benefit Analysis" examples for the development drilling location and valued ecosystem components at the start, middle and end of an open water drilling season that compares response options such as containment and recovery, in-situ burning, and aerial dispersant application
- Description of roles and responsibilities of all parties that may have a role in the emergency and any spill response situation.
- Description of how Inuvialuit and local wildlife monitors and inspectors would be deployed during incident response, their independence and ability to observe and report any situation that might be of concern to northerners' regarding safety, protection of the environment, wildlife, and traditional and cultural activities.
- With regards to an operator's accountability and responsibility for all authorized activity, for stopping any flow of hydrocarbon, for containing any releases, for cleaning up the environment, and for compensation for any losses, a description of the policies, procedures, and practices that would be used in an expeditious manner, particularly for loss of wildlife harvesting and traditional and cultural activities.

Cleanup and compensation

Factors**:**

- Post-operation reclamation, abandonment and clean-up activities
- State of knowledge of long-term adverse environmental effects of Arctic spills
- Post-spill clean-up and reclamation activities
- Financial viability and financial responsibility

Information required:

- Description of the policies, procedures, and practices that would be in place to clean up the environment and compensate the Inuvialuit and other affected parties for loss of wildlife harvesting and traditional and cultural activities.
- Description of the policies, procedures, and practices that would be in place to compensate the Inuvialuit and other affected parties for the worst-case scenario, how they would be developed and communicated to the Inuvialuit, and changes to these as a result of changing situation and circumstances.
- Description of how the financial viability and financial responsibility required by the IFA ss.13(13) statutes and regulations would be determined (the amount), which financial instruments (e.g., letters of credit, insurance, audited financial statements) would be used to demonstrate the statutory and regulatory requirements, when these instruments would be in place, and how long such instruments would be in place after the completion of any authorized activity.

Management of Change

Factors*:*

- Anticipated changes between submission of the EIS and the time of proposed drilling activities
- How these anticipated changes would be addressed in policies, plan, procedures and practices
- Management of change for contingency plans
- Communication of management of change

Information required:

- Description of how any changes from the time of submission to the time of the proposed drilling activities, particularly but not limited to, changes in the physical environment (meteorological-ocean-ice attributes), biological environment (e.g., marine mammals, fish, and birds), advances in technology and practices, safety and environment culture, and statutory and regulatory changes, would be accounted for and addressed in all policies, plans and procedures.
- Description of how the well control plans; oil and chemical spill response plans; escape, evacuation and rescue plans; and other contingency plans would be updated and revised in light of any lessons learned, weakness in the plans and systems, changes in the availability, status, and effectiveness of key safety, emergency response, and environmental protection equipment and personnel, and changing physical environment conditions.
- Description of management of change policies, procedures, and practices that encompass all aspects of the proposed development and includes how these would cascade to drilling contractors, sub-contractors, service providers, and others who may be supporting the proposed development were it to be approved.
- Description of how all the above would be effectively communicated internally, and externally to regulators, government departments, and to northerners.

Operational Monitoring and Follow-up

Factors*:*

- Monitoring of suspended or abandoned well(s)
- Ongoing collection and communication of environmental baseline data

Information required:

- Description of how the integrity of suspended well(s) or abandoned well(s) would be monitored and remedial action initiated and completed if there is any risk to safety, environment, wildlife, and traditional and cultural activities of the Inuvialuit.
- Description of the state of knowledge of long-term impacts of a spill on the unique Arctic environment, way of life, and communities in the ISR, adjacent areas of Yukon and the U.S. side of the Beaufort and Chukchi Seas and Alaska.

- Description of how ongoing environmental data would be acquired and shared during any authorized activity, and following the completion of the proposed development.

Worst Case Scenario and Wildlife Compensation

Under the IFA the EIRB Panel must recommend terms and conditions relating to mitigation measures that would be necessary to minimize any negative impact on wildlife harvesting, as referred to in paragraph 13(11)(a) of the IFA, including, as far as is practicable, measures to restore wildlife and its habitat to its original state and to compensate Inuvialuit hunters, trappers and fishermen for the loss of their subsistence or commercial harvesting opportunities. The EIRB Panel must also prepare an estimate of the potential liability of the Developer, determined on a worst case scenario, taking into consideration the balance between economic factors, including the ability of the Developer to pay, and environmental factors, as referred to in paragraph 13(11)(b) of the IFA. A worst case scenario will be the basis for the EIRB Panel to estimate the potential liability of the Developer with respect to harvest compensation and habitat remediation, as per paragraph 13(11)(b) of the IFA.[2]

The Developer shall:

- develop, in collaboration with the Inuvialuit, a worst-case scenario for the Development (paragraph 13(11)(b) of the IFA)
- document the process used to develop the scenario including information concerning the consultation with the Inuvialuit
- provide a complete description of the worst-case scenario
- describe mitigative or remedial measures necessary to minimize any negative impact on wildlife harvesting, as referred to in paragraph 13(11)(a) and (b) of the IFA. 61
- describe plans to prevent damage to wildlife and its habitat and to avoid disruption of harvesting activities as a result of the Development, and, if damage occurs, to restore wildlife and its habitat as far as is practicable to its original state and to compensate hunters, trappers and fishermen for:
    - loss or damage to property or equipment used in wildlife harvesting or to wildlife harvested
    - present and future loss of income from wildlife harvesting
    - present and future loss of wildlife harvested for personal use or which is provided by participants to other participants for their personal use

[2] In preparing the worst case scenario the Developer should refer to Volume 2, Report of Task Group One: Worst Case Scenario, a Report Prepared on Behalf of the Canadian Petroleum Association for the Beaufort Sea Steering Committee, April 1991, http://pubs.aina.ucalgary.ca/misc/33779.pdf

Annex I

DEFINITIONS:

As noted above, these Terms of Reference are, in addition to satisfying the requirements of the IFA, are also drafted to the extent possible, to satisfy the requirements of the CEAA 2012. The following definitions are provided, therefore, to assist in comparing certain terms applicable and pursuant to the IFA to the same or similar terms found in CEAA 2012:

"Environmental effects" means the environmental effects as described in the EIRB's 'Environmental Impact Review Guidelines' dated April 29, 2011.

In considering the requirements of CEAA 2012, the definition of environmental effects noted above is considered, for these Terms of Reference, to be inclusive of the definition of environmental effects set out in Section 5 of the CEAA 2012.

"Development" may include physical activities in the ISR that consequently may be a "designated project" pursuant to the *Regulations Designating Physical Activities* under the CEAA 2012.

"Developer" has the same meaning as "proponent" under the CEAA 2012.

"Mitigative and Remedial Measures" includes "mitigation measures" as defined under the CEAA 2012.

"Environment" in these Terms of Reference has the same meaning as "environment" found in CEAA 2012.

"Human Environment includes socio-economic conditions, which are the components of an individual, family or community's economic activity, social relations, well-being and culture".

"Environmental Impacts" include impacts on the Environment and the Human Environment.