TERMS OF REFERENCE - WORST CASE SCENARIO

Beaufort Sea Exploration Joint Venture Drilling Program

(November 12, 2014)

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 Drilling Program[1], to provide guidance and set out information requirements and expectations of the EIRB of the Developer for the determination of a worst case scenario that will satisfy the requirements of the *Inuvialuit Final Agreement* (IFA).

A determination of the worst case scenario for this Development is required for the EIRB to fulfill its responsibilities as set out in the IFA: pursuant to paragraph 13(11)(b) of the IFA, the EIRB *must 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.*

The EIRB recognizes that the Developer will engage with the Inuvialuit in preparing a worst case scenario for this Development as per the process set out in the 'Beaufort Sea Steering Committee Report Volume 2 - Report of Task Group One: Worst Case Scenario. April 1991'. The EIRB also recognizes that other regulatory processes, including the National Energy Board process for determining Same Season Relief Well Policy equivalency will require the development of a worst case scenario.

To support the effective development and use of a worst case scenario, the EIRB has decided to initiate early work on the determination of the worst case scenario, in advance of the Environmental Impact Assessment that will be conducted by the EIRB following the submission of an Environmental Impact Statement by the Developer. Accordingly, the early determination of the worst case scenario by the EIRB will be limited to the technical description of the worst case scenario only, including but not necessarily limited to the following: the quantitative estimate of the catastrophic release of hydrocarbons to the environment; the geographic extent of the hydrocarbon spill/release; the duration of the uncontrolled release of hydrocarbons, and; the point in the drilling

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

season that an uncontrolled release of hydrocarbons could occur. For greater clarity, this determination does not require impact assessment. An impact assessment of a worst case scenario will be undertaken during the environmental assessment of the project.

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 Inuvialuit Settlement Region (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 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 states 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.

INFORMATION REQUIRED

1. A description of the process used to develop the worst case scenario including information concerning the consultation with the Inuvialuit.
2. A description of the worst-case scenario including:
    - The expected flow rate of oil escaping during an uncontrolled blow out, and the maximum duration for such flow;
    - Chemical and physical characteristics of oil likely to escape during an uncontrolled blow out;
    - Modelling used for an uncontrolled blow out under conditions that will actually provide for a "worst case";
    - Physical environmental factors likely to affect spill rate and spill dispersion such as presence of ice, waves, water temperature, ocean currents, and wind direction and velocity;
    - Factors that could exacerbate the scope and effects of an uncontrolled blowout such as timing;
    - Capacity of the oil spill countermeasures to cope with the release volumes particularly in conditions beyond the effective operating limits of the countermeasures and available numbers; and,
    - Maximum geographic area impacted under a worst case scenario, including not only impacts to land, but also impacts to the entire biophysical environment.
3. A description of the percentage of time when no response is possible during the operating season months, due to presence of ice, weather, sea state (lack of wave action for mixing dispersants), temperature, wind chill, ice, visibility due to darkness, fog and precipitation, or a combination of those factors.
4. A description of how lessons learned from past events or near miss events in the Arctic offshore and elsewhere (including, but not limited to recent significant events such as the *Deepwater Horizon* - Macondo disaster in the Gulf of Mexico, the loss of the self-propelled *Ocean Ranger*, an out of control well and significant oil release into the Timor sea at the Montara site from the *West Atlas*) have been incorporated and/or used in the determining a worst case scenario for the proposed Development.