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Mr. Nasogaluak,

Re: Comments from WWF-Canada in relation to the EIRB Draft Terms of Reference for Imperial's "Beaufort Sea Exploration Joint Venture Drilling Program"

As legal counsel to WWF-Canada, I am writing to comment on the draft Terms of Reference for the purposes of the EIRB's review of the proposed Beaufort Sea Exploration Joint Venture.

The comments were prepared with a view to ensuring that the EIS as defined by the Terms of Reference will be enhanced by the Terms' specificity. The comments identify gaps left by the draft Terms of Reference in regard to the Same Season Relief Well requirements and Spill Response capacity. The comments were drawn from past EIRB decisions and from the following sources:

1. The *Inuvialuit Final Agreement*
2. the National Energy Board (NEB) *Filing Requirements;*
3. the NEB *Review of Offshore Drilling in the Canadian Arctic;*
4. the *Circumpolar Inuit Declaration on Resource Development;*
5. the Arctic Council's *Arctic Offshore Oil and Gas Guidelines;*
6. Chevron's Arctic Offshore Relief Well Equivalency presentation, January 2009 & Same Season Relief Well Submission, March 2010;
7. Public Review of the Esso Chevron et al Isserk I-15 Drilling Program. November 1, 1989
8. Public Review of the Gulf Canada Resource Limited Kulluk Drilling Program 1990-1992
9. Prince William Sound Mechanical Response Gap Studies, February 2007 & April 2008;
10. US Department of the Interior Safety Measures Report, May 2010;

11. The Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) *Drilling Safety Rules;*
12. National Commission Staff Working Paper on Stopping the Spill, November 2010; and
13. National Research Council report, *Responding to Oil Spills in the US Arctic Marine Environment,* Apr 2014.

While we acknowledge the NEB may also undertake a review of the project, we have included comments sourced from the NEB's *Filing Requirements* and *Review of Offshore Drilling in the Canadian Arctic*, since the regulator's language may be helpful to the EIRB as it contemplates adding details to the Terms of Reference.

Comments are grouped according to the sections of the Terms of Reference to which they relate.

Prevention

Re: *"Features or aspects that would be considered hazards to the proposed development activities"*

This point should be modified by adding the underlined parts, pursuant to s 7.2 of the Arctic Council's *Arctic Offshore Oil and Gas Guidelines* and s 4.5(5)(c) of the NEB *Filing Requirements*: "Features or aspects that would be considered hazards to the proposed development activities, <u>including at least, but not limited to the risks related to normal and abnormal operating conditions, ice encroachment, uncontrolled flooding of the installation, loss of ballast control or stability, loss of station keeping control, pipeline leaks or ruptures, vessel collision, heavy weather, and difficulties with support facilities such as ice roads, aircraft or shuttle tankers</u>". This addition ensures that conditions specific to the Arctic are taken into account which is crucial since the proponent is proposing to drill the world's deepest Arctic offshore wells with equipment and techniques that remain unproven in Arctic waters. The examples are important as they present real hazards known to have troubled drilling activities. They have been drawn directly from past incidents or near misses.

In addition, this section should require <u>a description of hazards that include but are not limited to those that are expected to persist after a number of techniques have been attempted to bring those hazards under control</u>. The proponent should not have the option of only listing hazards that they believe will continue to be hazards after having become incidents, and having been responded to, thereby decreasing the amount of hazards accounted for. The proponent Imperial appears to already have taken advantage of this option left open in its March 2010 Same Season Relief Well submission to the NEB. Hazard identification must include all sources of risk.

Hazard identification also needs to include <u>hazards the operation poses for itself</u>. For example, the icebreakers helping to maintain the drilling unit's position operating in close quarters in what may at times be difficult weather, sea, and ice

conditions, raises the potential for collisions with the drilling unit. As noted by the May 2010 US Department of the Interior Safety Measures Report, vessel collisions have led to loss of well control in the past. This in turn raises the question of whether such a collision could increase the risk of a spill or loss of well control.

Re: *"The policies, procedures, and practices to anticipate, prevent, mitigate, and manage such hazards"*

This section should require a description of how offshore hydrocarbon development would ensure zero-volume discharge onto land and into Arctic waters, pursuant to s 8.8 of the *Circumpolar Inuit Declaration on Resource Development Principles*. The Beaufort Sea and shore are comprised of sensitive, biodiversity-rich ecosystems. The Inuit Circumpolar Council is attuned to this fact since Inuit rely on these ecosystems for sustenance. It has crafted s 8.8 in this way to ensure Inuit well-being is protected by nothing less than the most developed and demanding environmental standards.

Re: "*Description of training and competency expectations…*"

This point should be modified by adding the underlined parts, pursuant to s 4.5(g) of the NEB *Filing Requirements*: "Description of the systematic, explicit, comprehensive, proactive and documented processes for the establishment of training, supervision and competency ~~expectations~~ requirements of ~~personnel~~ employees, operators, contractors, subcontractors, consultants, agents and other persons working on the development, how such competencies would be assessed, and how any deficiencies would be corrected."

Supervision is a crucial part of ensuring the safety of the development. Past incidents such as the *Ocean Ranger* and the *West Atlas* have been attributed to lack of adequate supervision and training. Information about the requirements, rather than merely expectations, is also critical to the review since the former allows the review to examine the proponent's responsibility to ensure compliance, rather than just the responsibility of workers to live up to expected norms.

Re: "*Description of the measures to anticipate, prevent, mitigate, and manage any well control situations and release of oil, gas, condensates, other chemicals or drilling fluid spills into the physical environment"*

In addition, this section should require a description of the uncertainties in the calculations, such as any limited information and limited historical data on the hazards; limited information available regarding the likelihood of the equipment or technique for successfully regaining control of a well; limited experience within the industry of installing and operating the equipment or technique; limited experience within the industry of deploying such equipment or techniques in the Arctic deepwater, pursuant to the October 2010 BOEMRE *Drilling Safety Rule*. A proper review of the potential safety and impacts of the development cannot be undertaken without knowledge of the limitations of the information presented before the panel. This is particularly important to this review since, as an industry expert at Chevron,

recently admitted in its March 2010 Same Season Relief Well submission to the NEB, the positioning system this project proposes to use (dynamic positioning) has not yet been proven in pack-ice.

Re: "*Description of oil spill countermeasures and response plans including adequacy, likely effectiveness, number of 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*"

This section should require a description of the logistic requirements and the amount of time needed to start and to fully deploy any of these countermeasures, since an out-of-control well may pose more problems in deepwater where drilling a relief well is likely to take longer. The longer implementation takes, the greater the impact on the environment. Noting this consideration, the Sept 2010 BOERME *Drilling Safety Rule*, *Benefits-Cost Analysis* also requires proponents to account for the time response gap. The gap should account for the Canadian-equivalents of the gap-creating factors in the Arctic listed in the April 2014 National NRC report *Responding to Oil Spills in the US Arctic Marine Environment*, including the lack of US Coast Guard presence, the lack of monitoring and management of traffic through the Bering Strait, the lack of infrastructure and the exacerbating factor of a lack of funding mechanisms and dedicated budgets to remedy these things.[1]

Re: "*Description of how lessons learned from past events or near miss events in the Arctic offshore and elsewhere…*"

This point should be modified by adding the underlined parts, in accordance to what was learned in Chapter 4 of the NEB *Review of Offshore Drilling in the Canadian Arctic*: "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, the destruction of the ballast control room of the self-propelled *Ocean Ranger*, and the 29,600 barrels of oil released into the Timor sea over the 74 days it took to complete a relief well to control the *West Atlas*) have been incorporated and used in the development of the proposed development. ..." These concrete examples should be of particular concern to reviewers of this project since the project proponent may use the same kind of positioning system that went out of control in the *Ocean Ranger* incident, and to drill in conditions that pose significant challenges to completing a relief well in a timely manner, the result of which is demonstrated by the *West Atlas* incident.

Preparedness

Re: "*Description of the worst case scenario*"

This point should be modified by adding the underlined parts, pursuant to s 4.18(4) of the NEB *Filing Requirements*: "Description of the worst case scenario, including

[1] National Research Council, *Responding to Oil Spills in the US Arctic Marine Environment* (Washington, DC: The National Academies Press, 2014) at 8, 16.

but not limited to an adequate and credible estimate of the amount of oil that could be spilled from a subsea well blowout - including the maximum daily leak rate, the cumulative leak volume, pressure/flow rate data underpinning such estimates, the amounts that can remain suspended in the water column or settle and be inaccessible to all of the proposed countermeasures, and the prospective location of the inaccessible oil in the case of dispersant use and in the case that no dispersants are used". This information will allow for the review to account for the consequences of the worst case scenario. It is also important that the review consider how oil leaked will be inaccessible to recovery methods for the majority of the year due to ice cover and other conditions specific to the Arctic that the industry has not yet had to contend with.

This section should also require the proponent to provide evidence to satisfy the EIRB that an even worse situation than the so-called "Worst Case Scenario", such as a longer spill duration, or larger quantity of oil spilled, is impossible. The EIRB review of ESSO Chevron et al.'s ISSERK I-15 Drilling Program accounted for this. In that case, the Panel found that the proponent's worst case scenario was understated and did not adequately consider the breadth of the possible.

This section should require a description of the volume of oil that would be recovered; the likely short-term impacts on the environment and Northern communities; the residual long-term impacts on the environment and Northern communities; and how long it would take to regain well control in worst-case operating conditions, pursuant to s 4.18(5) of the NEB's *Filing Requirements*. Also, the section should require a description of the points in the drilling program or the physical environmental conditions under which the scenarios pose the greatest risk, pursuant to s 4.18(6) of the NEB's *Filing Requirements*. This information will allow the review to account for the impact of the consequences of the worst case scenario, and where impact is maximized in the face of maximal risk.

Finally, the section should require a description of the percentage of time when no response is possible during the operating season months, irrespective of periods of open water, due to 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, as undertaken in the 2007 & 2008 Prince William Sound Mechanical Response Gap Study. The response gap calculation must not be limited to the open-water periods of the operating season months, but must also take into account when response is impossible during the operating season when ice encroaches and it no longer can be said to be an open-water period.

The EIRB can make use of further reference to the scenarios in the NCR's report for main considerations, standard response, and response needs.

Re: "*Description of how the NEB's SSRW policy expectations would be met*"

This section should require a description of the amount of time it would take to drill a relief well, especially in the late-season with the deteriorating weather conditions and the amount of time after drilling it would take to effectively implement the

relief and gain control over the out-of-control well in such deteriorating weather conditions. This needs to be considered by the review since operational demands increase in the late-season due to the typically deeper well depths that are involved as the drilling season progresses. Specifically, the developer must provide information about how it would ensure that operations cease sufficiently early to allow for the drilling and operation of a same season relief well while Arctic conditions are conducive.

If the proponent wishes to propose an alternative to same season relief well capability, this section should require a full description of that alternative and its anticipated performance in the event of a spill and evidence that the alternative would be equivalent.

If proposing singular reliance on same well intervention, this section should require a description of how capping will affect the risk of increasing pressure inside the well, the risk of bursting either the rupture disks or the outermost casings, pursuant to the concerns raised during the Macondo spill and addressed in the November 2010 National Commission Staff Working Paper on Stopping the Spill.

If proposing an acoustic backup system to activate the same well intervention, pursuant to the October 2010 BOEMRE *Drilling Safety Rule,* this section should require a description of how salinity and temperature stratification of water layers due to Mackenzie River outflow and/or ice melt will affect the transmission of the acoustic signal to the countermeasures when installed in deepwater. As BOEMRE has indicated, concerns remain about the ability of acoustic transmitters in deepwater and the effect of different salinities between water layers on such transmitters. This information will allow the review to consider the actual efficiency of the unproven technologies in the Beaufort deepwater.

In addition, if proposing singular reliance on same well intervention, and forgoing with SSRW, this section should require a description of the ability of a drilling unit to drill its own relief well after losing well control, where damage to the wellhead and/or blowout preventer precludes same-well intervention techniques due to risks to personal safety. This requirement will allow the review to consider the proponent's capacity to stop an out-of-control well in conditions adverse to the continued use of the planned well relief methods, and is pursuant to lessons learned from the Macondo blowout. As the EIRB held in its review of Gulf Canada Resources Ltd's Kulluk Drilling Program, the proponent must have the ability to properly drill a relief well in the case of a blowout. The Panel rejected the development in part based on Gulf's inability to ensure this.

Notwithstanding Imperial's letter of April 24, 2014, addressed to the NEB but copied to the EIRB (John Pierce), requesting a review and ruling on the SSRW equivalency issue, we submit that the EIRB should maintain its focus on how the NEB's policy expectations would be met. Indeed, in order for the EIRB to fulfill its responsibilities to make recommendations to the NEB (notably in relation to matters pertaining to worst case scenarios and harm to wildlife harvest resources and the environment), WWF believes that the EIRB's own assessment of Imperial's

approach to SSRW is of fundamental importance. In our opinion, this would in no way detract from any specific review process that may be undertaken by the NEB on this topic.

Re: "*Description of any capping and containment equipment and personnel that would be deployed to reduce or minimize the amount of released hydrocarbons…"*

This point should be modified by adding the underlined parts, pursuant to s 7.1 of the Arctic Council's *Arctic Offshore Oil and Gas Guidelines* and s 5.11 of the NEB *Filing Requirements*: "Description of any capping and containment equipment and personnel that would be deployed to ensure that the source of any oil pollution is first secured, and any release is effectively contained and collected near the source of the discharge as quickly as possible 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, despite any conditions to the contrary in the Well Approval" This degree of specificity allows the review to consider the relevance of the capping and containment equipment to environmental impact and the degree to which the proponent is prepared to deploy spill response.

The section should require a description of the well integrity and well barriers with enough detail to demonstrate at least two independent and tested physical well barriers in place during all well operations; and reliable well control equipment is installed to control kicks, prevent blowouts, and safely carry out all well activities and operations, pursuant to s 5.11 of the NEB *Filing Requirements.* This degree of specificity will allow the review to consider the adequacy of the proposed preventative and responsive measures in accordance with federal requirements.

Re: "*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:…"*

Under the subsection "forecast trajectory modelling…", the section should be modified by adding the underlined parts, pursuant to s 7.2 of the Arctic Council's *Arctic Offshore Oil and Gas Guidelines*: "…forecast trajectory modelling with its capabilities, strengths and weaknesses including details of the operator's capability in using real time wind and current data to implement an oil spill trajectory model both for open sea and for ice-infested areas". This will assist the review in considering how reliable the EIS is regarding its trajectory modelling and impacts analysis.

Under the subsection, "information on the efficiency, and efficacy of any spill countermeasures to be used including what equipment is at hand…the effectiveness of such equipment" pursuant to s 4.18(17) of the NEB's *Filing Requirements,* this section should require a description of how response to spills are anchored in proven cleanup technologies, and a proven demonstration of the industry's ability to retrieve spilled oil in frozen, broken and refreezing ice conditions, high wind, high seas, ice fog and other Arctic conditions that limit the ability to deploy spill response techniques for extended periods, pursuant to s 8.10, 8.11 of the

Circumpolar Inuit Declaration on Resource Development. Pursuant to s 8.11, "[a]llowing resource development without such a demonstration would be fundamentally irresponsible".

This section should include a description of how spill response and clean up through in situ burning would ensure zero-volume discharge onto land and into Arctic waters, pursuant to s 8.8 of the *Circumpolar Inuit Declaration on Resource Development*. The Beaufort Sea and shore are comprised of sensitive, biodiversity-rich ecosystems and species. The Circumpolar Inuit Council is attuned to this fact since Inuit rely on these ecosystems for sustenance. It has crafted s 8.8 in this way to ensure Inuit well-being is protected by nothing less than the most developed and demanding environmental standards which fully take these conditions into account.

To allow the review to consider the proposed spill countermeasures, this section should require for each response method, a description of the operational limits (response gaps) caused by unique Arctic conditions, the efficiency of each method in relation to the frequency of environmental conditions that will affect their performance when they can be deployed, and a description of the amount of time each of the proposed intervention techniques would take, and finally an assessment of the impact of the impact of the migration of the oil spill plume on the capacity to deploy countermeasures. All of these factors will influence how much oil from a spill can be recovered and how much will remain in the environment.

This section should also include a description of the process to ensure that no unauthorized modifications are made to any of the critical countermeasures equipment, pursuant to s 5.12 of the NEB *Filing Requirements*.

Further, the section should require a description of the developer's ability to respond to spills in the off-season, with regard to the actual geography and transit paths to and from the drill site, and the limits the planned installations and other Arctic conditions pose against ice breaking equipment. This was considered by the the EIRB review of ESSO Chevron et al's ISSERK I-15 Drilling Program. In that case, the Panel found the towing and ice breaking scenario described by the proponent's was ineffective for immediate spill response in the off-season.

The review should consider the worst case scenario, in which oil will not be recovered in the same season due to ice cover and general inaccessibility of the drill sites for the majority of the year in the Arctic. Thus this section should also require a description of the effectiveness of measures to recover weathered oil following a winter season.

Cleanup and compensation

Re: "*Description of how the financial viability and financial responsibility required by the IFA s 13(1) statutes and regulations would be determined …*"

Pursuant to s 13(18) of the IFA, this section should require the financial viability and responsibility to account for actual wildlife harvest loss including loss in the

worst-case scenario for reduction in hunting, trapping or fishing income for those Inuvialuit who depend on that income as part of their gross income; any material reduction in wildlife take or harvest for those Inuvialuit who harvest for subsistence purposes; as well as remedial measures including cleanup, habitat restoration and reclamation. Pursuant to s 8.6 and 8.7 of the *Circumpolar Inuit Declaration on Resource Development*, this section should also require a description of how the precautionary principle and the polluter plays principle will be applied in all stages of the project planning, self-assessment, implementation, and reclamation, and a description of how the reclamation and recovery of habitat and affected lands and waters be fully funded in advance of and throughout the project implementation. The review needs to be able to account for the developer's ability to meet the obligations of developers found to have caused actual wildlife harvest loss or future harvest loss without proof of fault or negligence, pursuant to s 13(15) of the IFA, to determine the actual ability of the developer to meet the requirements of the IFA in a worst-case scenario.

Conclusion

WWF-Canada submits that the Beaufort Sea presents unique challenges to the operations the proponent proposes. In fact, Chevron's Arctic Offshore Relief Well Equivalency presentation to the NEB in January 2009, ranked the Beaufort Sea as the 3rd most challenging basin in terms of operating wells, topped only by Northwest and Northeast Greenland. Therefore we strongly suggest detailed information requirements anchored in lessons learned from past blowouts and near misses, and a robust response gap study that accounts for time lags in responses and the impacts of those time lags.

Thank you in advance for considering our request.

Regards,

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