NRDC
THE EARTH'S BEST DEFENSE

NATURAL RESOURCES DEFENSE COUNCIL

--SUBMITTED VIA ELECTRONIC MAIL--

August 14, 2014

Ms. Sheri Young
Secretary of the Board
National Energy Board
517 10th Ave SW
Calgary, AB T2R 0A8
Canada

Re: The National Energy Board's (NEB) request for public comments on its draft "List of Issues" to be considered during its advance review of both Imperial Oil Resources Ventures Limited's (IORVL) and Chevron Canada Limited's (Chevron) plans to pursue well control measures that deviate from the NEB's same season relief well (SSRW) policy

Dear Ms. Young,

The Natural Resources Defense Council (NRDC) is writing in response to the NEB's call for public comment on the Board's draft "List of Issues" to be considered as the Board reviews both IORVL's and Chevron's presentation of their planned SSRW alternatives for proposed projects in the Beaufort Sea. Per the NEB's two letters dated July 18, 2014, the Board extended the period for public comment on its draft "List of Issues" through August 15, 2014. NRDC appreciates the NEB's consideration of our request for this extension, which we believe helps to ensure that the public interest is served during the Board's upcoming review.

At the outset, we strongly encourage the NEB to declare that its review of IORVL's and Chevron's SSRW alternative proposals will be a public process with opportunity throughout for public input. As part of this public process, we also strongly encourage that the NEB take steps to ensure that any documents, including technical documentation, submitted to the Board are fully disclosed to the public. Ensuring public disclosure allows for a transparent public process where all stakeholders can independently evaluate the strengths and weaknesses of both IORVL's and Chevron's plans.

In addition to the comments offered below, NRDC requests that the NEB provide greater clarification of the intended scope of the four issues already presented in its draft list. As drafted, the issues are especially broad and could encompass an entire range of sub-issues likely to be suggested by interested parties. Therefore, for the sake of clarity, we respectfully request that the NEB consider outlining the various "sub-issues" that the Board believes are encapsulated under its four main areas of inquiry. While NRDC considers the issues we present below to stand alone, we also acknowledge that they can be read as specific sub-issues that fall under the broad outlines contained in the NEB's July 11, 2014 letters to IORVL and Chevron.

We also urge the NEB to issue, after receipt and initial review of both IORVL's and Chevron's SSRW alternative proposals, a finding that it has insufficient information to make a definitive determination at this time. Such a decision would return review of these projects to the Environmental Impact Review Board, the forum where these threshold questions should be receiving initial scrutiny. This will also allow the NEB to conduct its own review at a time when complete information about each project has been developed and disclosed. As we outline below, this will also ensure that the duplicative review inherent in granting IORVL's and Chevron's premature requests can be avoided.

NRDC's following comments on the NEB's draft "List of Issues" are based on our understanding of the Board's SSRW policy as it was revised in the Board's 2011 release of its *Filing Requirements for Offshore Drilling in the Canadian Arctic*.[1] Under Chapter 4, the NEB reaffirms its longstanding SSRW policy, which states that an "applicant must demonstrate, in its Contingency Plan, the capability to drill a relief well to kill an out-of-control well during the same drilling season. . . . The intended outcome of this policy is to minimize harmful impacts on the environment."[2] NRDC reads this policy as containing two independent goals: First, an applicant must demonstrate that it can *kill* an out-of-control well during the season where well control is lost. Second, the methods and techniques used for killing the well, should "minimize harmful impacts on the environment" caused by the loss of well control. An independent review of an applicant's SSRW plans, be they for an actual relief well or an "alternative," thus appears to be a two-pronged inquiry.

A. Threshold Issues

Based on the above reading of the Board's policy, NRDC believes that the following two issues must be considered by the NEB as it reviews each submission from IORVL and Chevron:

1. The NEB should articulate in detail what requirements must be met to "kill" an out-of-control well. NRDC recommends that the NEB confirm that killing a well requires that it be sealed from the bottom and that all risk of future rupture be eliminated.

Under the first prong of the Board's SSRW policy, an applicant needs to demonstrate that its plans will actually kill an out-of-control well. This requires a definition of what "kill" means from the NEB's perspective. Defining this term will allow the Board to provide regulatory clarity to current and future applicants.

The current lack of clarity has already created confusion on this issue. For example, recent media reports suggest that past submissions from Chevron to the NEB asserted that a relief well was not needed to "kill" the Macondo well during its catastrophic blowout in the Gulf of Mexico because a capping stack was used to initially stop the release of oil.[3] This assertion is contrary to

[1] National Energy Board, *Filing Requirements for Offshore Drilling in the Canadian Arctic* (December 2011).
[2] *Ibid*. at 4.17(c).
[3] Mike De Souza, The Star, 21 July 2014, *available at* http://www.thestar.com/news/canada/2014/07/21/energy_regulator_reviews_easing_arctic_drilling_rules.html.

the function of capping stacks and statements made by the U.S. government's lead coordinator for the Macondo disaster response who stated that the well was not considered "killed" until a relief well had intercepted the ruptured well, allowing the ruptured well to be sealed with cement from the bottom.[4] To clarify this apparent misunderstanding, NRDC recommends that the Board articulate that to "kill" a well, an operator must complete a relief well that allows for a ruptured well to be completely sealed. This approach assures the maximal level of safety.

If the NEB were to consider a definition for the meaning of "kill" that does not involve the use of a relief well, a number of subsidiary issues arise. These include the need for clarification of how the Board would classify a well where oil flow has been stopped via 1) introduction of material into the wellbore, 2) use of a blowout preventer (BOP), or 3) use of a capping stack (or a combination of each). Because none of these techniques have proven consistently effective when used in the field, the Board should consider the following questions if it is prepared to not require the use of a relief well to completely "kill" a blown out well:

- Would the Board consider a well where flow was stopped with any or all of the three above techniques "killed" under its SSRW policy?
- Due to the need to eliminate pressure anywhere near the wellhead during a well kill, we assume that the Board would require introduction of material into the wellbore through either a BOP or capping stack in the event that either technique was used to initially stop flow. Does the Board have any evidence that this is possible and has this type of operation been used successfully for high pressure wells in the past?
- In the event that a combination of the three measures listed above fail to neutralize oil pressure and thus fail to kill the well, what additional measure would the Board consider effective in the absence of SSRW capability or even relief well capability?
- Where a combination of the three well control techniques listed above is used, would the Board require an operator to perform additional safety measures to ensure the long term integrity of the kill and what might these measures be?
- Are there unique challenges posed by a high pressure well that may make killing a well without use of a relief well more difficult?
- Are BOPs and capping stacks being specifically engineered for high pressure deep wells in the Arctic?
- What modifications to traditional BOPs and capping stacks have been made to address conditions likely to be found in Arctic waters?

NRDC urges that the greatest amount of regulatory clarity and simplicity will be achieved if the NEB adopts the definition of "kill" that requires the use of a relief well. This definition avoids the uncertainties raised in the numerous questions above, while providing both certainty to Arctic operators and increased safety to those most likely to be impacted by a loss of well control.

2. The NEB should determine how it will analyze whether an applicant's well control proposal minimizes harmful environmental impacts – a requirement that is central a

[4] Harry R. Weber, Associated Press, 19 September 2010, *available at* http://www.boston.com/news/nation/articles/2010/09/19/blown_out_bp_well_finally_killed_at_bottom_of_gulf/.

tenet of the Board's SSRW policy. This will require the collection of all data relevant for understanding the impacts of a spill as well as the establishment of an environmental baseline against which spill impacts can be measured.

Under the second prong of the Board's SSRW policy, an applicant needs to demonstrate that its well control plans will minimize harmful environmental impacts. Minimizing harmful environmental impacts will require certain information and analysis to understand the potential risks associated with every element of an applicant's well control proposal and then the harmful environmental impacts that could flow from those risks. The type of information the NEB should consider under this prong includes:

- Spill modeling including a worst-case scenario that takes into account both timing and spill rate, as well as modeling that details possible geographic impacts
- Response timeframes for deploying well control strategies (indicating expected minimum and maximum response times for different control strategies)
- Environmental impacts associated with all proposed spill mitigation techniques
- Identification of environmental resources at risk during a loss of well control
- Collection of baseline data by which to analyze impacts

Though NRDC is cognizant of the NEB's wish to avoid an environmental impact review during its advance ruling process, it is impossible to fully divorce environmental impact considerations from a review of SSRW alternative proposals. To avoid consideration of environmental impacts at this stage would negate the existence of the dominant purpose of the Board's SSRW policy – minimizing harmful environmental impacts. Without consideration of what those impacts could be and whether an applicant's proposal minimizes them, any review of an SSRW alternative plan would be inherently incomplete.

B. Subsidiary Issues

NRDC also recommends that the NEB consider the following additional issues as it reviews the well control proposals to be submitted by IORVL and Chevron:

1. The NEB should consider the impact that the timing of a loss of well control – and an operator's ability to respond in a timely manner – could have on the effectiveness of an applicant's proposed well control plan.

The NEB should, as with any review of a proposed well control plan, consider a variety of response scenarios that include 1) loss of control during the early, mid, and late drilling season and 2) loss of control during difficult operating conditions such as extreme weather or unexpectedly heavy ice floes. Because the drilling season in the Beaufort Sea lasts only four months, the timing of any accident during operations, as well as an operator's ability to respond in a timely manner, could have a significant effect on an operator's ability to successfully kill an out-of-control well. Further, recent modeling of oil spill trajectories in the Canadian Beaufort

Sea highlight that the presence of ice versus open water profoundly change a spill's likely trajectory, with oil spilled during ice formation capable of traveling at least 1,200 kilometers.[5]

2. The NEB should consider whether it *is* feasible for an Arctic operator to develop SSRW capability before commencing operations.

The NEB should investigate whether requiring redundant drilling capacity via separate drill rigs could allow for the safety benefits of an SSRW in Arctic waters. IORVL has stated in its Project Description documentation that it will not rely on an SSRW as a component of its well control strategy because it is not possible to drill a relief well in a single drilling season. While this may be technically true, it assumes that a relief well is not already in place and is a purely *reactive* safety mechanism pursued only *after* a loss of well control occurs. However, offshore operators in other regions have successfully completed drilling down to, but not into, oil bearing formations with no apparent risk to the well or to safety in general. Therefore, the NEB should consider requiring that applicants plan for redundant drilling by separate drill rigs in order to not only preserve the Board's SSRW policy, but to also increase the probability of regaining well control in a single season. Using this technique, an operator would essentially drill a standby relief well capable of reaching a blown out well within a single Arctic drilling season.

3. The NEB should consider, alongside technical details regarding well control methods, the efficacy of each applicant's full suite of operating procedures and whether these procedures have been adequately adapted or designed for Arctic conditions.

Effective deployment of any well control strategy will be dependent on the various Arctic operating procedures developed by each applicant. The NEB's review of proposed well control plans cannot be performed without a complete review of these procedures to assure that emergency operation procedures are specifically tailored to Arctic conditions and the deployment of the well control methods proposed for use. As such, the NEB's review should encompass standard operating policies, emergency operating policies, and planned training for the implementation of such policies.

4. The NEB should determine what guarantees or proof of effectiveness the Board will require an applicant to provide where the applicant plans to use various well control technologies to meet the Board's SSRW policy.

Numerous studies of spill mitigation measures and well control technologies have found that there is a significant lack of knowledge about whether common well control measures and technologies will be effective in Arctic waters. Because Arctic operating conditions will be the harshest faced by any offshore operator, the NEB should determine what assurances, guarantees, and/or field testing the Board will require from applicants to demonstrate that an applicant's well control plans will actually work if well control is lost. Of greatest importance is a showing from

[5] *See generally* Melanie S. Gearon et al., RPS ASA, *SIMAP Modelling of Hypothetical Oil Spills in the Beaufort Sea for World Wildlife Fund (WWF)*, 17 April 2014, *available at* http://awsassets.wwf.ca/downloads/wwf_beaufort_sea_oil_spill_modelling_full_report_rps_asa.pdf.

each applicant that new or modified technologies have been tested under Arctic conditions, for high pressure/high temperature wells, and in deep waters.

5. The NEB should consider, in relation to the Board's SSRW policy requirement regarding minimizing harmful environmental impacts, the impact to environmental resources caused by increased reliance on the use of various spill mitigation techniques such as mechanical removal, in situ burning, and application of chemical dispersants.

Common spill mitigation methods such as mechanical removal, in situ burning, and application of chemical dispersants each have varying and different environmental impacts. If an applicant's well control proposal includes the deployment of any or all of these techniques (or others), the NEB should consider whether these mitigation techniques will minimize harmful environmental impacts. Because each technique – especially in situ burning and application of chemical dispersants – itself causes harmful environmental impacts, these impacts should be considered in reference to the baseline scenario discussed above under Issue A2. Further, as numerous studies have shown, little is known about the effectiveness or ecological impact of these three common mitigation methods in Arctic waters, especially in icy or snowy conditions. Thus, NRDC recommends that the NEB's review take into account gaps in knowledge regarding the effectiveness of mitigation techniques as well as the foreseeable challenges that an operator would face in deploying each mitigation technique during the drilling season.

6. The NEB should consider how a departure from requiring SSRW capability could impact international Arctic regulatory efforts. This consideration should take into account the likely regulatory path that other circumpolar nations are taking for offshore operations in Arctic waters.

In 2012, the U.S. Department of the Interior's Bureau of Ocean Energy Management (BOEM) conditionally approved Shell Gulf of Mexico, Inc.'s (Shell) oil spill response plan for oil and gas exploration activities in the Chukchi Sea.[6] As outlined by BOEM, Shell was required to plan for a possible significant release of oil and provide for numerous safety measures to contain such a release. Thus, BOEM required 1) development of a serious worst-case-scenario, 2) modeling of a lengthy spill event, and 3) clarification of key spill response logistics. For containment and mitigation, Shell was required to have 1) a capping stack available if other well-control systems failed, 2) systems for capturing and collecting leaked oil, and 3) the ability to drill a relief well "that could kill the well, if necessary."[7] All of these measures have been deemed necessary in operating conditions significantly less demanding than those expected in the Beaufort Sea where

[6] *See* U.S. Department of the Interior, Bureau of Ocean Energy Management, *Fact Sheet: Shell Chukchi Oil Spill Response Plan (OSRP)*, 17 February 2012, *available at* http://www.bsee.gov/BSEE-Newsroom/BSEE-Fact-Sheet/FACT-SHEET--Shell-Chukchi-Oil-Spill-Response-Plan-(OSRP)/; *see also* U.S. Department of the Interior, Bureau of Ocean Energy Management, *Conditional Approval for Shell Gulf of Mexico, Inc. Exploration Plan for OCS Leases Y-2280, Y-2267, Y-2321, T-2294, Y-2278, and Y-2324*, 16 December 2011, *available at* http://www.boem.gov/uploadedFiles/2011_12_16_10_58_33_BOEM Letter of Conditional Approval to Shell for Chukchi Sea Exploration Plan(1).pdf.

[7] *Ibid*.

water depths are 2-40 times deeper, the drilling season is shorter, and ice floes more severe.[8] Further, the regulatory conditions imposed on Shell are expected to be codified in BOEM's forthcoming Arctic-specific offshore drilling regulations.[9]

Though slightly outdated, a June 2011 report comparing the offshore drilling regulations of Canada, the U.S., the U.K., Greenland, and Norway, prepared by the Pembina Institute, clarifies the pervasiveness of the relief well requirement.[10] Especially notable is the strict requirement for relief well capacity in Greenland and Norway.[11] As international attention on Arctic resource exploration mounts, the NEB should seriously consider how its decision affects not only the Canadian Arctic regulatory regime, but also how a departure from requiring SSRW capability could translate to a weakened regulatory standard across all Arctic nations.

We thank the NEB for the opportunity to comment on the Board's draft "List of Issues" and ask that the issues we outline are considered in the Board's review of both IORVL's and Chevron's proposed well control plans. Please do not hesitate to contact us if you have any questions.

Sincerely,

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[8] Shell Gulf of Mexico, Inc., *Chukchi Sea Regional Exploration Program: Oil Spill Response Plan* at 1-15, May 2011, *available at* http://www.boem.gov/uploadedFiles/BOEM/About_BOEM/BOEM_Regions/Alaska_Region/Leasing_and_Plans/Plans/2012-2-Chukchi OSRP.pdf.

[9] *See, e.g.*, Tim Bradner, Alaska Journal of Commerce, *Interior Dept. May Have Draft Rules for Arctic by Year-end*, 13 June 2013, *available at* http://www.alaskajournal.com/Alaska-Journal-of-Commerce/June-Issue-3-2013/Interior-Dept-may-have-draft-rules-for-Arctic-by-year-end/.

[10] *See generally* Jennifer Dagg et al., Pembina Institute, *Comparing the Offshore Drilling Regulatory Regimes of the Canadian Arctic, the U.S., the U.K., Greenland and Norway*, June 2011, *available at* http://www.pembina.org/reports/comparing-offshore-oil-and-gas-regulations-final.pdf.

[11] *Ibid.* at 132.