Scotian Basin Exploration Drilling Project

Responses to Information Requests (IRs) issued on July 17, 2017

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Information Request (IR)-021A (DFO-04)

In IR-021, the Agency required the proponent to describe the procedure planned for surveying the sea bed prior to commencing to drill, as well as the timing of the survey relative to drilling, how the information collected during the survey would be reviewed, by whom, and whether the proponent has a standard operating procedure (SOP) that would be followed to manage environmental sensitivity and trigger a move of the drilling location. DFO suggested that mitigation could be strengthened by having an individual trained in deep-water benthic environments review the seabed survey in real time and offered to provide guidance to this individual prior to surveying.

The IR response indicated that the proponent would review the video in real time using a team that would include, at a minimum, a remotely operated vehicle (ROV) operator, a shallow hazards specialist and a marine scientist. The proponent stated that if any features of interest, such as benthic communities, epifauna, debris or other anthropogenic features are identified, they would be investigated in greater detail to help the survey team with their assessment. However, some details of the original request were not provided.

Request: Provide the standard operating procedure (SOP) to identify a threshold for environmental sensitivity that would trigger a move of the drilling location. If no such procedure exists, please provide a rationale.

Response:

A single threshold for environmental sensitivity of the benthic environment that would trigger a move of the drilling location has not been defined in a standard operating procedure. A single threshold for environmental sensitivity may not be appropriate as it may not adequately encompass the full range of features (or combination of features) which may occur during the survey, or specify in sufficient detail which measures would need to be taken to mitigate effects on any potential sensitivities.

Alternatively, BP has defined the steps which will be involved in the survey which will ensure that environmental features, if present, are identified and that an appropriate course of action is taken. BP has defined features which if identified would trigger a conversation with the Canada-Nova Scotia Petroleum Board (CNSOPB) and further investigation. In BP's view, these steps define an approach to identifying and managing impacts to environmental sensitivities that is flexible enough to encompass the full range of scenarios which may materialize.

These steps are described in the response to IR-021. In summary, the steps are as follows:

- Ongoing footage will be captured over an area with a 500-metre radius in an eight leg pattern in 45 degree increments by a remotely operated vehicle (ROV).
- A survey team will be compiled to review the footage in real-time, including at a minimum, a ROV operator, a shallow hazards specialist and an independent marine scientist.
- If any features of interest, such as benthic communities, epifauna, debris or other anthropogenic features are identified, they will be investigated in greater detail to help the survey team with their assessment.

- In the event that any epifauna is observed, the ROV will be diverted to investigate in greater detail. This may include observing the fauna from a different angle to assist with species identification or to assess the size of the individual or extent of any aggregation.
- The CNSOPB will be notified immediately if any environmental feature is detected which has been classified as sensitive or is unidentifiable, *i.e.*:
    - Habitat forming coral aggregation
    - The presence of epifauna species at risk
    - The presence of epifauna which cannot be identified.
- Following the notification, BP and the CNSOPB will discuss an appropriate course of action. This may involve further investigation and/or moving the well location, if it is feasible to do so.
- The CNSOPB may consult with other regulatory agencies (*e.g.*, Fisheries and Oceans Canada [DFO]) if they determine it is necessary. No drilling activity will occur before a decision is made with the CNSOPB.

Information Request (IR)-096A (MNNB-11)

In IR-096, the Agency required the proponent to describe the anticipated effectiveness of visual observations and the use of passive acoustic monitoring (PAM) to detect marine mammals and turtles that may be in the area and could potentially be affected by underwater sound from vertical seismic profiling (VSP) operations for the Project. The Agency also required the proponent to describe how the observations of marine mammals and turtles could lead to the implementation of additional mitigation measures such as a shut-down, and to provide examples.

The proponent committed to planning and conducting its VSP activities in keeping with measures outlined in the *Statement of Canadian Practice with Respect to the Mitigation of Seismic Sound in the Marine Environment* (SOCP), which DFO has advised the Agency is the accepted industry-standard mitigation for offshore seismic survey operations. DFO also noted that the proponent has proposed a 650-metre observation zone, which is larger than the 500-metre minimum zone recommended in the SOCP. The SOCP and scientific publications on marine mammal monitoring can be found on DFO's Internet site at http://www.dfo-mpo.gc.ca/oceans/publications/seismic-sismique/index-eng.html.

After reviewing the proponent's response, MNNB requested evidence from peer-reviewed literature that demonstrates the effectiveness of the proposed monitoring activities in identifying the presence of marine mammals and sea turtles or, if such evidence is unavailable, a follow-up program to determine the effectiveness of the mitigation.

Request: Identify any studies on the effectiveness of the SOCP as mitigation, including estimated observation detection rates. Provide a summary of the principal findings and explain whether any changes are required to the mitigation.

Response:

The mitigation measures in the Statement of Canadian Practice with Respect to the Mitigation of Seismic Sound in the Marine Environment (SOCP) were reviewed during the 2014 CSAS meeting (DFO, 2015). The report is available at: http://waves-vagues.dfo-mpo.gc.ca/Library/364484.pdf.

When discussing the effectiveness of mitigation activities, it is important to do so in the context of a combined suite of multiple activities rather than considering individual activities in isolation.

The report states that: "It was concluded that most of the mitigation measures of the SOCP likely reduce the potential negative impacts of seismic airgun sounds on individuals, but to varying degrees and with some caveats". Additionally, it states that: "Implementation of the multiple measures of the SOCP as a whole is likely to be more effective than any one measure on its own, and the SOCP provides flexibility for enhancing mitigation measures to meet SARA requirements as it states that operators may be required to put in place additional or modified mitigation measures for species of concern."

During vertical seismic profiling (VSP) activities, BP has proposed to implement an extended exclusion zone. The extended exclusion zone that will be implemented by BP is 650m, whereas the SOCP recommends a 500m exclusion zone. The area of the extended exclusion zone was determined to reflect the outcomes of a sound modelling study. Should baleen whales, sea turtles, or any marine mammal listed on Schedule 1 of SARA be identified inside

the 650m exclusion zone, VSP activities will be shut-down. Furthermore, as stated in the response to IR-035, BP will implement passive acoustic monitoring (PAM) throughout VSP surveys to detect vocalising marine mammals, concurrent to the visual monitoring.

Typically the effectiveness of visual monitoring reduces with distance from the monitoring platform. The extended exclusion zone distance is considered to be within the nominal range capabilities of visual monitoring methods during good to moderate sea state/weather conditions (Parente, C. L. et al, 2011).

It is widely recognised that no single monitoring technology or method is able to detect all animals all of the time. Detection performance of any method is a function of the monitoring method itself, its operational setting, experience of monitoring personnel combined with other external factors such as weather and background environmental conditions and availability of marine mammal cues for detection (at the sea surface for visual or vocalisation sound levels above background levels for PAM). Visual monitoring and technology enhanced monitoring such as PAM have both capabilities and limitations, which complement and compensate each other. Therefore, by combining the use of the two monitoring capabilities, the likelihood of detecting a marine mammal will be increased. Consequently, no change is proposed to the mitigation measures proposed in the EIS and in the response to IR-035.

References:

DFO [Fisheries and Oceans Canada], 2015. Canadian Science Advisory Secretariat Science Advisory Report 2015/005: Review of Mitigation and Monitoring Measures for Seismic Survey Activities In and Near the Habitat of Cetacean Species and Risk. Available at: http://waves-vagues.dfo-mpo.gc.ca/Library/364484.pdf

Parente C L et al, 2011. Journal of Integrated Coastal Zone Management 11(4):409-419 (2011). Effectiveness of Monitoring Marine Mammals during Marine Seismic Surveys off Northeast Brazil

Information Request (IR)-039A (ECCC-IR-05)

In IR-039, the Agency required that the proponent specify all areas of high environmental sensitivity that have been identified in relation to helicopter flight paths and describe the factors that influence helicopter operators' ability to avoid them. The Agency also required the proponent to describe the potential environmental effects and anticipated frequency of situations where sensitive areas cannot be avoided. The Agency requires the following clarifications.

Request:

- **Clarify the means by which helicopter pilots would be made aware of sensitive areas to be avoided (i.e. buffers identified in section 7.4.8.2 of the EIS) except in emergency situations.**
- **Clarify how federal authorities would be advised, in a timely manner, of incidents where bird colony buffers are not maintained.**

Response:

In Section 7.4.8.2 of the EIS, BP stated that "helicopters transiting to and from the MODU will fly at altitudes greater than 300 m (with the exception of approach and landing activities) and at a lateral distance of 2km round active colonies when possible. Helicopters will avoid flying over Sable Island (a 2km buffer will be recognized) except as needed in the case of an emergency."

Helicopter operations will be run out of Halifax Stanfield International Airport (YHZ) but routes to the well locations from shore have not yet been finalized because well locations have not yet been confirmed.

Helicopter pilots will be made aware of the sensitive areas (*i.e.*, bird colonies and Sable Island) in briefings following the contract signing and kick-off. Additionally, details will be provided in procedures, including bridging documentation, and maps which will be made available to the contractor providing helicopter services.

Additionally, BP will be involved in route planning activities between Stanfield International Airport (YHZ) and the wellsite locations.

Details of environmental reporting procedures, including notifications to authorities when the buffers around sensitive areas are not maintained will be included in the Environmental Protection Plan (EPP) which will be submitted to the Canada-Nova Scotia Petroleum Board (CNSOPB) for review and approval. The CNSOPB would be notified by BP in the event that there is a deviation away from the scheduled flight path which impedes upon the 2-km buffer around Sable Island or around bird colonies.

Information Request (IR)-063A (ECCC-IR-19)

In IR-063, the Agency had required outlines of each of the Incident Management Plan (IMP), Spill Response Plan (SRP), and Environmental Protection Plan (EPP) and an accounting of key commitments, including those related to incident prevention, emergency preparedness, mitigation, and follow-up. The Agency notes that the EIS Guidelines stated that "at a minimum, an outline of the emergency response plan (for spills)……is required in the EIS", but that an overview of the SRP was provided, along with descriptions of the IMP and EPP, but not an outline.

Request: Provide an outline of the SRP, such as an annotated Table of Contents.

Response:

BP is required to submit environmental protection and emergency response plans to the Canada-Nova Scotia Offshore Petroleum Board (CNSOPB) as part of the Drilling Operations Authorization (OA) approval process. The Drilling and Production Guidelines (CNLOPB and CNSOPB 2011) provide additional information on the specific requirements for these plans. The commitments requested in the IR are standard items for inclusion in these plans which are currently under development and will be submitted to, and reviewed by, the CNSOPB.

Information about the spill response plan was included in Section 8.3.1 of the EIS and in the response to IR-063.

The spill response plan is being drafted; however, an annotated outline is provided below. The outline is subject to change as the document is finalised.

- **Policy, Responsibility and Planning Systems**

  Includes information about scope, spill response policies, linked plans, resource availability

- **Initial Oil Spill Response Actions**

  Includes information about actions to be taken at site immediately after a spill. Actions may include hazard assessment, notifications, spill assessment and tracking, and source control. Information is provided about response objectives and strategies and facilities.

- **Notification Procedures**

  Includes information about how notifications should be managed internally and to government agencies.

- **Response Resources**

  Includes information about what resources are available for spill response and source control, as well as how to mobilize them. Resources include personnel, equipment and expertise.

- **Incident Management Team**

  Includes information about accountabilities of members of the incident management team, as well as defining the command system that will be adopted.

- **Spill Response Strategies and Tactics**

Includes information about response tactics for different environments (*e.g.*, on-water or shoreline) and supporting information for tactical plan selection.

- **Wildlife Protection and Rehabilitation**

  Includes detail for surveying, detracting (hazing), rescue and rehabilitation and resource monitoring for wildlife.

- **Waste Management**

  Includes information about how to manage waste generated from oil spill response activities, e.g. recovered oil.

- **Decontamination and Demobilisation**

  Includes information about decontamination and demobilisation, including check-out procedures.

- **Incident Termination and Debrief**

  Includes information about managing the incident close-out and wrap-up.

- **Appendices and annexes**,

  Included reference information and detailed tactical response plans.

Information Request (IR)-153A (ECCC-IR-21, SFN-03, MTI-19)

In IR-153, the Agency required additional information concerning the proponent's estimate that a well could be capped between 13 and 25 days after an incident, and asked if other means were considered for mobilizing a capping stack to the scene of a blowout more quickly. In reviewing the proponent's response, ECCC noted the following statements (in part (a) of the response): "if a blowout incident were to occur, BP would immediately commence the mobilization of the primary capping stack from Stavanger", and "a Blowout Preventer (BOP) intervention response is estimated to take between two and five days. BP would exhaust all options for direct BOP intervention before resorting to capping stack deployment." It is not clear whether the time referred to is for the length of time to travel from Norway by ship or installing the capping stack on the well.

Considering that residual adverse environmental effects of a blowout incident are predicted for migratory birds and special areas, and given the amount of time that it would take to get the capping stack from Stavanger, Norway to offshore Nova Scotia, the Agency requires clarification of the terms "deployment and "mobilization".

Request: Confirm that deployment refers to installing the capping stack on the well (and not leaving from Norway by ship) and that the stack would be mobilized immediately regardless of other efforts to regain well control.

Response:

In the information provided, BP refers to mobilization to describe the process of transferring the capping stack from Stavanger to the well location and deployment as the full process of installation.

In the event that primary well control measures failed, and an uncontrolled well event occurred, BP would launch a suite of response measures including:

1. Initiating direct intervention on the original BOP using equipment and capability provisioned within the Nova Scotia region;
2. Immediately initiating mobilization of the primary capping stack simultaneously and in parallel with other efforts to regain well control.

Request: Clarify why a capping stack could not be stored at a location, such as in Atlantic Canada, that would allow it to be more rapidly available for deployment.

Response:

Capping equipment is specialized equipment that is rarely (if ever) used, but yet must be continually maintained and tested to assure its readiness to perform. The offshore industry's response capability has evolved from not having any caps available pre-2010, to having purpose-designed, well maintained caps staged globally for industry operators to access. Capping stacks are stored and maintained in designated central locations around the world, ready for immediate use and onward transportation by sea and/or air in the event of an incident.

Altering the location of the primary capping stack would not significantly affect the sequence or duration of well intervention operations since a number of critical steps are required prior to capping stack installation that can occur concurrently to capping stack mobilization.

As indicated in Section 8.3.3.2 of the EIS, installing a cap on the well is a secondary response measure. The primary well intervention response that would be carried out in response to a blowout incident is direct intervention of the blowout preventer (BOP).

Furthermore, as explained in Section 8.3.3.2 of the EIS, a number of preparatory measures would be initiated to prepare the wellsite for capping stack installation. For example, whilst BOP intervention activities are ongoing, a site survey will be carried out to assess the extent of debris on the seafloor. Large debris on the seafloor could impede access for response equipment and would have to be cleared using subsea cranes and remotely operated vehicles (ROVs) equipped with debris removal tools. The site survey and debris clearance activities are critical for establishing a safe working environment above the wellsite for working in the area. If necessary, and once approved, equipment for subsea dispersant injection would be installed and injection initiated to establish safe working conditions for response personnel and vessels above the well site. Additionally, based on the specific nature of the blowout incident, it may be necessary to carry out engineering analysis and technical review of the wellhead and subsurface condition prior to the installation of the capping stack.

Site preparations as described above would be undertaken during the transit of the capping stack so that cap installation can begin upon arrival at the well location.

In summary, a number of critical steps are required prior to capping stack installation to establish a safe working area above the wellsite and to analyze the specific nature of the blowout incident to maximize the likelihood of a safe and effective capping stack installation and closure. There is a low likelihood that changing the location of the primary capping stack would significantly reduce the total mobilization and installation duration.

Information Request (IR)-085A (DFO-01)

In IR-085, the Agency required additional information on proposed follow-up measures related to underwater noise, to satisfy information requirements set out section 8 of the EIS Guidelines, as applicable.

In reviewing the proponent's response, DFO noted the proponent's statements that it "…will finalize the scope of the acoustic study following discussions with the CNSOPB to identify potential additional objectives in consideration of lessons learned from the underwater sound monitoring program that was undertaken for the Shelburne Basin Venture Exploration Drilling Project" and "BP will submit an acoustic monitoring plan, detailing the specifics of this follow-up program, to the CNSOPB at least 30 days prior to the commencement of the drilling program. The data captured as part of the program will be analysed and a summary report of results, including results of propagation loss modelling, will be submitted to the CNSOPB following completion of the field program and modelling. The CNSOPB will determine the method and extent of distribution of results."

DFO has advised that, as the federal regulator and expert department with specialized knowledge on underwater acoustics, marine mammals and species at risk, it will be the principal advisor to the CNSOPB on these matters. To help expedite the development of the Marine Mammal Monitoring Plan, and recognizing the potential for effects from VSP surveys, the Agency recommends that the proponent consult DFO when formulating the plan. DFO also recommends that certain key elements be present in the Marine Mammal Monitoring Plan, and has provided these to the Agency, as articulated in the request below.

Request: Provide a commitment that the Marine Mammal Monitoring Plan will include details of the VSP survey method (zero offset or walkaway) and specific details on marine mammal observation and mitigation that will be employed during the survey.

Response:

BP will provide details of the vertical seismic profiling (VSP) survey method in the Marine Mammal Monitoring Plan and will provide specific details on marine mammal observation and effects mitigation that will be employed during the VSP survey.

Information Request (IR)-154A (MNNB-45, MNNB-49, MTI-47, MTI-49)

In IR-154, the Agency required that the proponent provide additional information about the follow-up program, specifically for verifying its predictions about effects on the current use of lands and resources for traditional purposes and on Indigenous commercial fisheries. It also required clarification of how qualitative and quantitative assessment could be used to measure any changes in catch rates.

In reply, the proponent stated that it does not propose follow-up for potential effects of routine activities, due to its high confidence that no significant adverse effects are likely to occur, but stated that follow-up and monitoring may be required after an oil spill, in the unlikely event that one occurs. The response also stated that since landings data is not accessible by community for privacy reasons, no quantitative data is available to measure changes in catch rates on a community basis; the proponent has therefore adopted worst-case assumptions and predicted significant environmental effects and commitments for mitigation and emergency response in the event of a large spill as a means of addressing any uncertainties with respect to potential adverse effects.

MNNB commented that without a comprehensive understanding of the Indigenous fishery economy and use of resources for traditional purposes, it will be difficult to verify the proponent's prediction that no significant adverse effects will occur. MNNB is concerned that regulations do not mention a mechanism for reporting the results of environmental monitoring to concerned Indigenous communities. They requested more details on the Fisheries Communications Plan as an effective communications tool and to ensure that there are no significant adverse effects to Indigenous commercial fisheries and their local economies.

Request: Provide an outline of the proposed Fisheries Communication Plan and explain how it will provide a framework for ongoing engagement with Indigenous and non-Indigenous fisheries organizations during the Project (before, during and at the conclusion of drilling operations). Specify any opportunities for two-way communication, such as regular meetings, or a toll-free number for reporting issues that may arise, so it is apparent how any concerns from fisheries organizations will be received and considered.

Response:

BP will engage with Indigenous groups and organizations, and non-Indigenous fisheries organizations to develop and finalize an Indigenous Fisheries Communications Plan and a Fisheries Stakeholder Communications Plan prior to operations.

The content of the Indigenous Fisheries Communications Plan will be developed jointly with Indigenous groups based on the specific needs of each group/organization, but would likely include:

- Communication objectives;
- List of participants and key contacts;
- Expectations for communication before, during and at the conclusion of operations, including information about the means, the timing and the frequency of communication;

- Expectations for communications during the unlikely event of an emergency, including information about the means, the timing and the frequency of communication.

The plan outline is subject to change as BP engages with Indigenous groups and organizations and the plan is finalized.

Communication activities which will be detailed in the plan may include exchange of information meetings, regular e-mail bulletins and/or newsletters, a dedicated BP contact, priority contacts in Indigenous communities and emergency briefings in the unlikely event of an emergency.

BP will also develop a Fisheries Communications Plan with fisheries stakeholders through the Canada-Nova Scotia Petroleum Board's (CNSOPB) Fisheries Advisory Committee. The Fisheries Communication Plan will also contain information about:

- Communication objectives;
- List of participants and key contacts;
- Expectations for communication before, during and at the conclusion of operations, including information about the means, the timing and the frequency of communication;
- Expectations for communications during the unlikely event of an emergency, including information about the means, the timing and the frequency of communication.

The content of the Fisheries Communication Plan is subject to change as BP engages with stakeholders and the Fisheries Advisory Committee, and the plan is finalized.