

GENERAL COMMENTS

C-NLOPB

Generally, the Environmental Assessment (EA) report should be reviewed and revised accordingly as per the Scoping Document provided to MKI on March 10, 2011. It was difficult to provide a thorough review of the report given the inconsistencies and deficiencies. A thorough review of the Scoping Document should give the authors the level of detail required for the information provided in the assessment of the proposed project.

The report requires editing. Page numbering would have enabled the reviewers to provide better direction. Figure, Table, Section, and Appendix references are either missing or inaccurate (e.g. Section 5.1 - Table 17 Table 16). There are numerous incomplete and therefore confusing sentences throughout the report. Although some specific comments are provided below, a more thorough review of the report was not possible given the incomplete nature of the environmental assessment of the project which restricted the level of review that could be undertaken.

The temporal scope for the project, as per the Project Description submitted to the C-NLOPB, was three years (2011-2013). The Temporal Scope identified in the EA report is 2011-2015 in Section 1 and 2011-2016 in Section 3. The Scoping Document states that “*The proponent shall clearly define, and provide the rationale for the spatial and **temporal** boundaries that are used in its EA.*” This has not been done.

The spatial scope for the project has not been clearly defined. The Scoping Document states that “*The proponent shall clearly define, and provide the rationale for the **spatial** and temporal boundaries that are used in its EA. The EA report shall clearly describe the special boundaries (i.e. Study Area, Project Area) and shall include figures, maps and the corner point coordinates. Boundaries should be flexible and adaptive to enable adjustment or alteration based on field data. The Study Area will be described based on consideration of potential areas of effects as determined by the scientific literature, and project-environment interactions.*” Although “Study Area” is used frequently throughout the EA report, it has never been identified, defined, or described. Section 3.5 even uses the term “Project Areas”.

The Project Description submitted by MKI to the C-NLOPB in January, 2011 described the proposed program on the “Labrador Shelf” and not the “Labrador Shelf and **Davis Strait**”. This was clearly not the project that was proposed to the C-NLOPB in the Project Description.

As per the Scoping Document “It is recommended that the “valued ecosystem component” (VEC) approach be used to focus its analysis. A definition of each VEC (including components or subsets thereof) identified for the purposes of environmental assessment, and the rationale for its selection, shall be provided.” As per DFO’s comment, the EA Report does not adequately demonstrate why a particular activity will or will not impact a VEC. Additional information needs to be provided and assessed before an impact prediction can be made.

Fisheries and Oceans Canada

The Environmental Impact Assessment (EIA) requires some modification and therefore specific comments are not provided. Rather, general comments are listed below to help direct the proponent in revising the Environmental Impact Assessment (EIA) Report.

EIA Reports are available for viewing on the Canada-Newfoundland Offshore Petroleum Board (C-NLOPB) website. These examples demonstrate the quality and context usually associated with environmental assessment reports related to oil and gas developments off the coast Newfoundland and Labrador.

Section 16 of the *Canadian Environmental Assessment Act*, as well as the Scoping Document prepared by the C-NLOPB, outline factors that should be considered in a federal environmental assessment. They include: (1) the purpose of the project, (2) environmental effects of the project, (3) cumulative effects of the project, (4) significance of these effects, (5) mitigation measures, (6) significance and residual effects (7) follow-up and (8) consultation. The proponent sufficiently addressed the (1) purpose of the project and (7) follow-up, but more effort is required on other factors as addressed in the following bullets:

- Details on **environmental effects**. The EIA Report does not adequately demonstrate why a particular activity will or will not impact a valued ecosystem component. Additional information needs to be provided and assessed before an impact prediction can be made. For example, on marine fish, the EIA Report concentrates on the impact of seismic noise. Other components of the project (e.g. vessel noise, waste, spills, etc.) should also be assessed.
- **Cumulative environmental impacts** are not addressed. The statement “*No measureable impact to any marine resource has been identified to our knowledge*” (Section 9.5) is not supported in the EIA Report. Other considerations should be evaluated to support this statement. For instance, potential cumulative impacts that could be addressed include commercial fisheries, other seismic programs, and other types of vessel traffic.

- **Mitigations** as it relates to seismic sound are well described, however, minimal information is provided on other potential issues such as malfunctions or accidents.
- Similar to the comment provided in the environmental effects bullet above, **residual effects** and **significance** noted in Table 18 would likely require more information before such a prediction can be made.
- DFO understands that MKI are in the process of conducting **consultations** along the coast of Labrador. Any additional concerns raised during ongoing consultations should be included in the EIA Report.

The spelling, grammatical and formatting errors in the EIA Report are numerous and therefore are not specifically addressed. Other general comments are as follows:

The proponent did a good job in referencing the “*Statement of Practice with respect to the Mitigation of Seismic Sound in the Marine Environment*” and highlighted the mitigations associated with this report. These requirements are set out as **minimum standards**, which will apply in all non-ice covered marine waters in Canada.

Information on Accidents and Malfunctions may be improved. Things such as loss of fluid from streamers, accidental hydrocarbon release, and collisions with marine life or other vessels normally require a certain level of analysis that is lacking from this EIA Report.

The Scoping Document outlined components that required evaluation in the EIA Report and included: “*Marine Fish, Marine Mammals and Sea Turtles, SAR, and Sensitive Areas*”. DFO generally feel that these sections of the EIA Report were not properly addressed. The inclusion of recent scientific information is required such that a valued scientific review can take place. For instance, information on marine mammals is lacking. DFO requires up to date, appropriate information in order to assess accuracy of data and information.

Species at Risk information requires revisions throughout the document. For example, Table 12 displays *Species at Risk Act* listed species, but not all the species in the table are listed under Schedule 1. Also, the terms “listed” and “assessed” are not always used properly. Species are “listed” under SARA and “assessed” by Committee on the Status of Endangered Wildlife in Canada.

The proponent should be advised that the fishing season off the coast of Labrador is short. As such they should work with local fish harvesters to mitigate the effects and interaction of the seismic survey and fishing activity. The proposed area of seismic activity is on some the most significant fishing areas for crab and turbot along the coast so there may be potential conflicts with fixed gear.

In general, sections on “Sensitive Areas” and “Soft Corals” were sparse on information. More detail and additional maps, including closed areas and sponge locations, would help improve the EIA Report. For instance, there is a voluntary fishing industry “Coral Protection Zone” in the area of the Hatton Basin Area (near NAFO 2G/OB) and a seamount area closed by NAFO to bottom trawling near the Orphan Knoll. These have not been indicated in the EIA Report. In addition, corals and sponges, not just “Soft Corals”, occur in the study Area and should be addressed.

The following documents are provided to help enhance the context of the EIA Report as it relates to corals and sensitive areas:

- “Status Report on Coral and Sponge Conservation in Canada” for context of coral/sponge conservation in NL waters. <http://www.dfo-mpo.gc.ca/library/340259E.pdf> Sections: 3.2.2, 4.5, 7.2.1 as well as Figures: 1, 6, 10)
- Canadian Science Advisory Secretariat Science Advisory Report 2010/041 “Occurrence, Sensitivity to Fishing, and Ecological Function of Corals, Sponges, and Hydrothermal Vents in Canadian Waters” http://www.dfo-mpo.gc.ca/CSAS/Csas/publications/saras/2010/2010_041_e.pdf
- <http://www.nafo.int/fisheries/frames/regulations.html> (see NAFO Conservation and Enforcement measures 2011 “Article 16 Coral and Sponge Protection Zones”).

This EIA Report does not adequately describe the commercial fishery for shrimp, snow crab or Greenland halibut in the study area. Specifically, there is no mention of gear type or fleet sector involved. Information is provided in table format to indicate the landings by species, however, the tables do not indicate clearly what Fishing Area or NAFO is being described. Addressing these two information gaps is necessary in order to satisfy the requirement of section 5.2.9 of the Scoping Document.

Department of National Defence

It was observed during the review that the information provided to the C-NLOPB by the Department of National Defence (DND), through the Federal Coordination Regulations process, has not been included in the report. DND requests that MKI include the information provided to the C-NLOPB on January 31, 2011. That information was:

“DND is likely to be transiting and conducting naval exercises within the study area during the June to December 2011 to 2013 timeframe. Unexploded ordinate (UXO) data is available for the study area: A search of the records was conducted to determine the possible presence of UXO within the MKI Project Description survey area. As depicted in the attached graphic, our records indicate that the following wrecks are present within the survey area: Shipwrecks. Four vessels (EVEROJA,

FLYNERBORG, GREVALE, EMPIRE GEMSBUCK) from convoy SC-52 were sunk by German U-boats U-202 and 203 on 3 November 1941. Further, a vessel (MOUNT MAYCALE) from convoy SC-117 was sunk by U-boat U-413 on 22 January 1943. Records indicate that all five ships were carrying general cargo at the time; consequently, it is possible munitions were part of the cargo. Aircraft wreck. A B-24J Bomber wreck was reported to be present in the northern part of the survey area (Long - 58.666667 Lat 59.216667). However, given that supporting information is limited, it is assessed that the reported position of this aircraft is only approximate. B24 aircrafts used in the Maritime Patrol role were typically of Very Long Range (VLR) configuration, carrying a maximum load of 2700lbs of torpedoes, depth charges, and .50 cal machine gun ammunition. Consequently, it is possible that munitions were aboard.

Given our understanding of the survey activities to be conducted, the associated UXO risk is assessed as low. Nonetheless, due to the inherent dangers associated with UXO and the fact that the Atlantic Ocean was exposed to many naval engagements during WWII, should suspect UXO be encountered during the course of your operations, do not disturb/manipulate it, mark the location, and immediately inform the Coast Guard. Additional information is available in the 2010 Annual Edition – Notice to Mariners 2010, Section F, No. 37.

In the event of activities which may have contact with the seabed (such as drilling or mooring), it is strongly advised that operational aids, such as remote operated vehicles, be used to conduct the seabed survey to prevent unintentional contact with harmful UXO items that may have gone unreported or undetected.

Further UXO general information is available on our website at www.uxocanada.forces.gc.ca

Environment Canada

In general, the marine bird section (5.7) is extremely brief, contains several factual errors and is missing required information. Several main reference sources for marine bird distribution at sea could have been consulted to better describe the seabird resource in the area. Those references are provided here:

- Brown, R. G. B. 1986. Revised Atlas of Eastern Canadian Seabirds. Canadian Wildlife Service, Ottawa, ON.
- Fifield, D. A., Lewis, K. P., Gjerdrum, C., Robertson, G. J., and Wells, R. 2009. Offshore Seabird Monitoring Program. Environment Studies Research Funds Report no. 183. St. John's. 68 p. Available at: <http://www.esrfunds.org/pdf/183.pdf>

- Lock, A. R., Brown, R. G. B., and Gerriets, S. H. 1994. Gazetteer of Marine Birds in Atlantic Canada: An Atlas of Vulnerability to Oil Pollution. Canadian Wildlife Service, Atlantic Region.

Page numbers should be added to the final document. This is echoed by the C-NLOPB.

Environment Canada – Canadian Wildlife Service (EC-CWS) also has the following general recommendations:

Data

In an effort to expedite the process of data exchange, the EC-CWS requests that the data (pertaining to migratory birds and species at risk) collected from surveys be forwarded in digital format to our office following completion of the study. These data will be centralized for our internal use to help ensure that the best possible natural resource management decisions are made for these species in Newfoundland and Labrador. Metadata will be retained to identify source of data and will not be used for the purpose of publication. EC-CWS will not copy, distribute, loan, lease, sell, or use of this data as part of a value added product or otherwise make the data available to any other party without the prior express written consent.

Fuel

The proponent should ensure that all precautions are taken by the contractors to prevent fuel leaks from equipment, and that a contingency plan in case of oil spills is prepared. Furthermore, the proponent should ensure that contractors are aware that under the *Migratory Birds Regulations*, “no person shall deposit or permit to be deposited oil, oil wastes or any other substance harmful to migratory birds in any waters or any area frequented by migratory birds.” Biodegradable alternatives to hydraulic fluid for heavy machinery are commonly available from major manufacturers. Such biodegradable fluids should be considered for use in place of petroleum products whenever possible, as a standard for best practices. Fuelling and servicing of equipment should not take place within 30 meters of environmentally sensitive areas, including shorelines and wetlands.

Regulations

Migratory birds, their eggs, nests, and young are protected under the *Migratory Birds Convention Act* (MBCA). Migratory birds protected by the MBCA generally include all seabirds except cormorants and pelicans, all waterfowl, all shorebirds, and most landbirds (birds with principally terrestrial life cycles). Most of these birds are specifically named in the Environment Canada (EC) publication, *Birds Protected in Canada under the Migratory Birds Convention Act*, Canadian Wildlife Service Occasional Paper No. 1.

Under Section 6 of the *Migratory Birds Regulations* (MBR), it is forbidden to disturb, destroy or take a nest or egg of a migratory bird; or to be in possession of a live migratory bird, or its carcass, skin, nest or egg, except under authority of

a permit. It is important to note that under the current MBR, no permits can be issued for the incidental take of migratory birds caused by development projects or other economic activities.

Furthermore, Section 5.1 of the MBCA describes prohibitions related to deposit of substances harmful to migratory birds:

“5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.

(2) No person or vessel shall deposit a substance or permit a substance to be deposited in any place if the substance, in combination with one or more substances, results in a substance — in waters or an area frequented by migratory birds or in a place from which it may enter such waters or such an area — that is harmful to migratory birds.”

It is the responsibility of the proponent to ensure that activities are managed so as to ensure compliance with the MBCA and associated regulations.

Nunatsiavut Government

Project area

Figure 1 is unclear. Is the entire black box the maximum extents zone or is the white shaded area within the black box the maximum extents zone? Regardless, the boundaries in Figure 1 are arbitrarily drawn to show no overlap with the Labrador Inuit Settlement Zone. In particular, although it has been firmly committed that no survey lines will enter the Labrador Inuit Settlement Zone, the extent of impact as a result of multiple survey lines just outside the Zone has not been rigorously demonstrated.

With respect to extent of impacts, the Canadian Environmental Assessment Act and associated regulations stipulate that the burden of proof rests on the proponent to demonstrate the extent of impacts (or lack thereof) with high certainty. The arbitrarily drawn boundary (white shaded area) along the coast of Labrador is a clear indication that the extent of impact boundary along the Labrador coast has not been established with high certainty. Rather, it has been subjectively drawn to avoid the Labrador Inuit Settlement Area.

Currently, there is no evidence provided by the proponent to explain the western boundary of impacts. Therefore, the exclusion of effects (with high certainty) on the Labrador Inuit Settlement Zone is not possible.

The NG requests that the proponent provide a clear scientific basis for the exact western boundaries of impact as a result of the survey (as indicated in Figure 1) along the entire coast of Labrador. They also request that the proponent quantitatively provide evidence for the degree of certainty associated with this

predicted boundary. Finally, our understanding is that the survey lines, as drawn in Figure 2, do not include the turning radius of the seismic vessel, which can be substantial. Please include the turning radius of the ship in the above answers.

Previous seismic survey operations took place along the coast of Labrador during the same time that the Aboriginal fishery was taking place (in our particular case, we are concerned about the Inuit fishery). There were several local observations (related to crab and shrimp) that catch per unit effort decreased sharply after the seismic survey vessel went through various areas that were being fished, therefore compromising the ability of certain fishing operators to maximize their catch. This was based on fishing taking place just prior to the seismic vessel entering the area and just subsequent to the vessel leaving the area. This indicates significant impacts of seismic survey operations on the Aboriginal fishery.

The chief means of mitigating potential effects on fisheries activities is to avoid active fishing areas, including but not limited to, fixed gear zones when they are occupied by harvesters. To help mitigate significant impacts on the Aboriginal (Inuit) fishery, the seismic program along the Labrador coast should begin no earlier than October 1 each year. If this is not possible, it is clear that given the high likelihood of significant impacts on the fishery, other mitigation measures will need to be explored, agreed upon and implemented prior to the survey program beginning.

The NG requests that the proponent be required to commit to not beginning their seismic operations prior to October 1 of each year or be required to explore and agree upon other mitigation measures with the Nunatsiavut Government prior to the survey program beginning (ice formation over the past two years along the coast has been much later – mid-January this past winter). It is also our understanding that the statement “ensure that seismic activity does not interfere with the fishermen” means that the seismic vessel will avoid any areas that are being actively fished and avoid any fixed gear that is in place.

The NG requests that the proponent confirm this is the case. As stated in 5.6.1, behavioural responses of marine fish may include avoidance behavior (i.e. displacement) and avoiding the zone of influence around the seismic vessel. Fish distributions have been shown to change for up to five days after shooting ended in one study (Engas et al. 1996). In areas that are being fished (or are about to be fished) this can cause decreases in catch per unit effort for the aboriginal fishery, which is a significant socio-economic impact. Therefore, these are extremely important mitigation measures to put in place. If these specific measures are not taken into account, other appropriate mitigation measures should be discussed and agreed upon by the proponent and the Nunatsiavut Government.

As another mitigation measure, we request that the proponent be required to hire Inuit marine mammal observers and fishery liaison officers (or, at the very least, Inuit marine mammal observer trainees and fishery liaison officer trainees) and Inuit for other positions related to the seismic survey vessel operations.

3.5. Offshore seismic survey.

Based on the written statement provided, we assume the seismic survey lines will always be 120 km apart. Please confirm. Regardless, the sentence should be re-written to clarify.

Pinnipeds – The injury criteria for pinnipeds exposed to multiple pulse noise events is 186 dB in water and 144 dB in air. Pinnipeds often have their heads above the surface of the water, therefore a 144dB criteria is the most conservative and should be used, following the precautionary principle.

Behavioural disturbance criteria is complex and not easily quantifiable. The proponent states that “extrapolation of behavioural data is inappropriate.” Please provide a quantitative analysis of the behavioural impacts of this specific proposed seismic program rather than a simple literature review that is broad and does not necessarily apply to the Labrador coast ecosystem.

Please provide quantitative information supported by references on the cumulative impacts of anthropogenic noise due to the proposed seismic survey, other vessel traffic and natural ambient noise on marine mammals and turtles.

Although the proponent indicates that there is no published evidence that seismic survey methods do not affect corals, the absence of evidence is not evidence of absence. Figure 10 indicates a significant number of coral species off the coast of Labrador and Figure 11 indicates a high density of corals in some areas off the Labrador coast. The burden of proof lies on the proponent and, as such, the proponent should provide a detailed analysis of the potential affects on corals (with literature references), including the degree of certainty in their conclusions.

The report states that there is “evidence of damage to the hearing system of exposed fishes in the form of ablated or damaged hair-cells although an exposure regime required to produce this damage was not established and it is believed such damage would require exposure to high level airgun signals at short range from the source.” Please provide the literature reference that supports this speculation (i.e. belief).

The Fay (1988) paper on thresholds of hearing sensitivity is over 20 years old. This should be supported with up to date references. Regardless, it is indicated that sensitive fish have a threshold of below 80 dB (with no lower limit provided). The statement “these sensitivity thresholds were derived under quiet laboratory conditions, so thresholds to seismic sound pressure in the ocean are thought to be 40 dB higher due to ambient noise and the start and stop nature of the

seismic signal” needs to be supported by a literature reference, and otherwise should be considered invalid.

As a mitigation measure, we are indicating that the seismic survey should not begin until after the aboriginal fishery has (for the most part) concluded. Please indicate the specific mitigation measures that could be put in place for thick-billed murre, given this mitigation measure proposal. Please also indicate mitigation measures for ivory gull.

Section 5.7.1.3 Please indicate the specific mitigation measures to be put in place for black-legged kittiwakes.

The report states that “immature ringed seals may move offshore during open water season, but the adults will stay around the islands and within the bays and fjords (MacLaren, 1958).” This is no longer the case. It is known that adults transit and may also move offshore during the open water season.

Figure 21 is misleading and inaccurate. Seal distribution along the coast is much more extensive than indicated (for all species of seal indicated in the figure). Likewise, Figure 24 is misleading and inaccurate, completely under-representing actual observations of polar bears along the coast.

In the marine mammals section, many references were absent.

Section 8.3 – Inuit are represented by the Nunatsiavut Government, not the Labrador Inuit Association.

Table 18 – do not agree with the assessment of limits of confidence and significance post-mitigation as is currently proposed in the report (especially for fish and the fishery).

Section 9.5 – cumulative environmental impacts assessment is not quantitative or objective. It is speculative and subjective. Please provide a quantitative and scientific assessment.

In addition, given the high degree of uncertainty and unknowns with respect to the determination of the possibility of significant effects, an important measure will be a monitoring program guided by appropriate stakeholder groups. We are therefore requesting a follow-up monitoring program to make informed and up to date decisions with respect to the seismic program. Although the EA is for a period of 2011-2016, it is important that the conclusions and uncertainties of the EA be re-visited several times during this period. With the high amount of uncertainty and unknowns with respect to the impacts of seismic surveys, new information will undoubtedly emerge that will be critical to decision-making going forward. It is perhaps more important that this decision-making is guided by an appropriate stakeholder group, including representation from the Nunatsiavut

Government, and the opportunities to conduct research and collect valuable knowledge is maximized. We request that this stakeholder group be formed by the end of August 2012.

Although it is stated that there are no viable alternatives that can be considered from an environmental viewpoint, in our response, we have put forward several mitigation measures that will significantly improve the sustainability of the proposed project and ensure that the benefits of the project outweigh the risks associated with it.

Fish, Food and Allied Workers

The commercial fishery is very important to many communities in Newfoundland and Labrador. While the membership of the Fish, Food and Allied Workers' (FFAW/CAW) live in communities as far north as Fish Cove Point (just north of Cartwright), our Labrador members fish in NAFO divisions 2J, 2H and 2G for crab, shrimp, turbot, cod, etc. As well, our harvesters in 4R (northern Newfoundland) have rights to fish in 2J, and our northeast coast fishers still have fishing rights off the coast of Labrador as well. The FFAW also has members who fish quotas for the Nunatsiavut Government in 2H. The proposed survey area also includes a portion of NAFO division 3K, which does not seem to be represented in the fisheries maps and/or data presented in the EA Report.

There are a number of inconsistencies in the document, they are as follows:

- The non-technical summary states that the commercial fishery takes place within the area of interest during the summer months. The document later states (in Section 6.1.1) that the shrimp fishery is prosecuted all year long.
- In section 3.4 there is no mention of avoidance of heavily fished areas but it is mentioned later in Section 9.1.7.
- Section 5.6 states that turbot is the most important commercial species in the region. Later it is stated that shrimp is the most important species (Section 6.1.1)
- The document also suggests that snow crab (Section 6.1.2) will not be subject to intense seismic survey activity. The FFAW is unsure what constitutes intense activity in this regard. Furthermore, the data on crab harvesting activity in 3K should be included in this analysis.
- In Section 9.0 there is reference that organisms will be "one time" exposed to seismic activity. There has been significant seismic activity in the area of interest over the years (as mentioned in Section 9.5) and the company proposes to conduct further work within the lines identified for 2011 pending results of this year's activity. There is potential for organisms to be exposed (some may have been previously exposed) to seismic activity multiple times through the life of this program and others in past and future exploratory programs of the area of interest.
- Section 9.1.6 suggests that turbot gear poses the highest potential for gear conflict within the area of interest. Crab gear will also pose a threat

for conflict with the seismic program, particularly in the northern portion of NAFO division 3K.

- There are several references to the duration of this proposed multi-year seismic program (i.e. three, five and six years). The timelines for the program require clarification.

The document does not reflect that the proponent has a complete understanding of the commercial fishery in the full area they are proposing to survey. A more recent time series of harvesting data (up to 2009) could have been obtained from DFO as well as data from NAFO division 3K, which would show additional areas of potential conflict between the 2D survey program and the fishing industry. This is important as seismic work in 3K and 2J is still relatively new to harvesters.

The unknown long term effects of seismic activities are of major concern to harvesters. There have been reports from harvesters that fish behaviour has been affected following seismic blasts and shellfish have disappeared from areas following seismic work being undertaken. While the research has not determined any direct mortality of fish or shellfish attributable to seismic activity it needs to be recognized that there may be behavioural changes that could affect migration and/or reproductive and spawning activities as well as movement of the exploitable biomass in an area. Discussion on impacts of seismic activity on important commercial species was minimal in this assessment.

From the viewpoint of the FFAW the proponent has not conducted adequate consultations with the fishing industry in all of Newfoundland and Labrador (Section 9.1.9 and 9.6) to gain a full appreciation of the industry in their area of interest. As the EA indicates, while many key fishing people were contacted in Labrador, there are many harvesters from St. Anthony to Valleyfield (who fish in the proposed area) who will also be impacted by this project.

FFAW members in Newfoundland have indicated that they would like the opportunity to sit down and talk with the company proposing the work. (Information regarding this project was emailed to key contacts). While the FFAW recognizes that it is difficult to conduct meetings in general, the company proposed a meeting in mid April 2011 for the fishing industry in St. Anthony. The crab and shrimp fisheries had already begun (April 1, 2011) so fish harvesters would have been unavailable to attend a meeting at this time. As well, many harvesters from other areas of the northeast coast would not have been able to attend a meeting because of distance. The FFAW recommends that more thorough in-person consultations be conducted at centralized locations in Newfoundland should the project proceed in the area of interest in subsequent years.

In the case of this project, fish harvesters are spread out over a wide geographic area and communication is vital to the safety of all involved. There is a need for good planning and further consultation with the fishing industry prior to the start

of various components of the seismic program to avoid potential conflict(s) at sea. The proponent should ensure there is adequate and frequent communication with the FFAW to keep apprised of ongoing developments in the fishing industry as well, particularly in 3K, to mitigate potential conflicts with fishing vessels and fishing gear. The project area will be actively fished by harvesters during the time the proponent plans to schedule work. The deployment of a Fisheries Liaison Officer onboard the seismic vessel will help mitigate many conflicts on the water.

In areas of high gear concentration and/or extensive commercial fishing traffic we also suggest the deployment of a Fisheries Guide Vessel. (The FFAW has a guide vessel program in place to mitigate safety concerns between the fishing and oil and gas industries). A Fisheries Guide Vessel would be better suited than a chase or picket vessel as they have experience with vessel traffic and gear deployment on the fishing grounds where the seismic activities are taking place. The Fisheries Guide Vessel could also serve to provide a communication platform for the fishing industry during the seismic program.

SPECIFIC COMMENTS

C-NLOPB

Section 1, para. 5 – “Appendix I”. The list of Appendices should be reviewed and properly referenced. Where is “Appendix I”? The appendices do not have proper cover pages with the same identification (e.g. number, letter) and referenced in the text. For example, the second “Tab 9” has Appendix A – Letter of Introduction.

Section 1, last para. – “Canadian Arctic offshore acreage”. Do you mean the “Labrador Shelf”. The report should be reviewed to ensure reference is made to the area which was proposed by MKI in January 2011.

Section 1.1, para. 1 – Reference is made to Figure 1. This figure should be reviewed. The Project and Study Areas should be identified on the figure. What is meant by “Maximum Extents”? The province of Newfoundland and Labrador is included within this area. Is the white area highlighted in the figure the “Project Area”? Does it include the area required for the vessel to change lines where normally data is not acquired? Where is the “Extent of Land-Fast Ice”?

Section 1.1, para. 1 – There is inconsistency throughout the report in the total kilometres for the proposed survey lines. Paragraph 1 identified “9600 km”. Figure 2 states “9960 km”. Figure 10 and other figures state “9962 line km”. Figure 40 states “9,422 line km”.

Section 2, Table 1 – It is not clear why Columns 2, 3, and 4 are included in this table.

Section 2, para. 3 – The “*Geophysical, Geological, Environmental and Geotechnical Program Guidelines (May 2008)*” were revised in 2011. This should be reflected in the report and referenced in Section 10. The C-NLOPB guidelines incorporates verbatim the *Statement of Canadian Practice on Mitigation of Seismic Noise in the Marine Environment*.

Section 3.2, line 1 – The “specific area” should be identified. The second sentence is not complete.

Section 3.4, para. 1, last sentence – “Infill lines will be acquired in subsequent seasons.” A statement should be made here regarding the fact that “*At the time of application for subsequent program authorizations in the Project Area, MKI will be required to provide information to the C-NLOPB*” regarding these activities.

Section 3.4, para. 2, last sentence – It is not clear how “This will also serve to maximize the distance between known marine mammal areas and the survey vessel”.

Section 3.5, para. 3, last sentence – “*(In the case of the current project the line spacing is ranges from 120km-120km.*” This is not a range.

Section 3.5, para. 6, 2nd bullet – Where will the “*Deployment and calibration of the seismic gear*” occur? This should be included in the area assessed for this project.

Section 3.6 – This information should be included in the EA report where project effects are discussed and not in the project description.

Section 3.7.1, para. 1 - Please review the legislation to ensure it is applicable to the area proposed.

Section 3.7.2, para. 2, line 7 – “The seismic vessel...with the fisherman.” As per the Geophysical, Geological, Environmental and Geotechnical Program Guidelines (C-NLOPB 2011), “*The use of a ‘Fisheries Liaison Officer’ (FLO) onboard the seismic vessel is considered best practice in this respect.*”

Section 3.7.4 – More information is required for the proposed program (e.g. how many streamers, the length of the streamers).

Section 5.3 - A reference should be provided for the information presented in this section.

Section 5.5 – Again, a reference should be provided for the information presented in this section. It is not enough to say “to our knowledge”.

Section 5.5, Figure 10 – Should the reference “CNSOPB 2008” be “C-NLOPB 2008”. This reference does not appear in Section 10.

Section 5.6, para. 4 – As per Section 5.2 of the Scoping Document, “The EA report for the proposed 2D seismic survey program should contain descriptions of the biological and physical environments, as identified below. Where applicable, information may be summarized from existing environmental assessment reports for the Labrador Shelf Offshore Area. The “*Strategic Environmental Assessment (SEA) Labrador Shelf Offshore Area*” (Sikumiut Environmental Management Ltd. 2008) provides a detailed discussion of the biological and physical environmental conditions. The EA report should provide only summary descriptions of those biological and physical parameters. If information is not updated, justification must be provided. Where information is summarized from existing EA reports, it should be properly referenced; with specific to those sections of the existing EA report summarized. “

Section 5.8.3.3, last sentence – There appears to be a reference missing (i.e. Error! Reference source not found).

Section 6.1.1, Figure 40 – Please explain the horizontal white lines on the figure.

Section 6.1.2, Figure 41 – Please explain the missing seismic lines in the southwest portion of the “Project Area”.

Section 7 – Areas described in the SEA Report should be included in this section, as per Figure 43 (e.g. Parks Canada Representative Marine Areas).

Section 9, para. 1, last sentence – Please provide a copy of the “*Labrador Slope Seismic Survey Continuation Environmental Assessment*” report (Canning & Pitt Associates Inc. (February 2005)).

Section 9 – The critical life stage should be assessed as per the Scoping Document.

Section 9, Table 16 – Should “Fishing Gear Conflict” be “Commercial Fishery”?

Section 9.1.2, last sentence – What is meant by “not measurably impact”. This does not fit with the definitions provided previously. Please identify the “profiling area”?

Section 9.1.7, last para. – As noted in Section 9.1.6 above, the role of the FLO is to facilitate inter-industry communications. One of the qualifications for this position would be “good” at-sea communications.

Section 9.1.11, para. 2 - Contact with fishing gear must be reported in accordance with the guidelines. The Board maintains a 24-hour answering service at (709) 682-4426. During working hours, the Board may also be contacted at (709) 778-1400.

Section 9.2 – Please ensure that all mitigation measures identified throughout the report are included in this section.

Section 9.2 - Section III of the Geophysical, Geological, Environmental and Geotechnical Program Guidelines (C-NLOPB 2011) contains recommended reporting formats for marine mammal and **seabird** observations during surveys.

Section 9.2, Bullet 7 – “The location of the seismic....any native harvest area.” Have these been identified? Please explain how MKI will accomplish this.

Section 9.3, line 6 – With regard to “specific protocols”, are these outlined in report format and if so, can the names of the reports be listed.

Section 9.5 – Section 5.4 of the Scoping Document states that “The assessment of cumulative environmental effects should be consistent with the principles described in the February 1999 CEAA *“Cumulative Effects Assessment Practitioners Guide”* and in the March 1999 CEAA operational policy statement *“Addressing Cumulative Environmental Effects under the Canadian Environmental Assessment Act”*. It should include a consideration of environmental effects that are likely to result from the proposed project in combination with other projects or activities that have been or will be carried out. These include, but are not limited to, proposed oil and gas activities under EA review (listed on the C-NLOPB Public registry at www.cnlopb.nl.ca); other seismic activities; fishing activities, including Aboriginal fisheries; other oil and gas activities; and marine transportation. The C-NLOPB website lists all current and active offshore petroleum activity within the NL offshore area.

Section 9.6 – The results of consultations undertaken after the EA Report was finalized and submitted to the C-NLOPB should be provided in the EA Report and incorporated in the body of the report. Any issues or concerns identified during consultation should be reported in the EA Report.

Appendix J is not necessary or applicable because while the operator is in Canadian waters the Statement of Canadian Practice (Appendix F) applies.

Environment Canada

Section 5.7, 1st paragraph

There is a reference (Table 9) to areas important to seabirds in the study area. The data in Table 9 are taken directly from Huetmann and Diamond 2000. This publication (and thus the table) only discusses areas of importance to juvenile and immature birds during a restricted period of the year taken from the Programme intégré de recherches sur les oiseaux pélagiques (PIROP) dataset.

This data does not represent areas that are important to the species in general or during the entire year, and thus omits a significant proportion of the population and annual cycle.

Section 5.7, Table 8:

Several species (including several that occur in significant numbers in the study area) are missing from this table (and thus from the document). Species that should be included are: Northern Gannet, Common Murre, Red-necked Phalarope, Sooty Shearwater, Manx Shearwater, South Polar Skua (which could simply be lumped in with Great Skua for simplicity), Dovekie, Herring Gull, Great Black-backed Gull, Glaucous Gull, Iceland Gull, and Arctic Tern.

One species, Arctic Loon, is restricted in range to a small section of the coast of Alaska and should be removed from the table.

Several species names are mis-spelled - correct spellings are: Leach's Storm-Petrel (*Oceanodroma leucorhoa*), Black Guillemot, Red-throated Loon, and Great Skua (*Stercorarius skua*). Correct spelling of common and Latin names can be found at: <http://www.aou.org/checklist/north/print.php>.

Section 5.7, last paragraph (and subsequent subsections):

A small selection of species was chosen for closer attention. No justification is given for considering only these species, several of which are rare or non-existent in the study area. Every species listed in Table 8 (subject to the changes listed above) requires assessment for its occurrence in the study area. Species can be grouped (for example, all shearwaters, all jaegers, murre, gulls) for this exercise. The sections on each of these species/groups should identify what is known of the distribution and abundance of each group in the study area, including any quantitative information available in the above referenced reports.

Section 5.7.1.1 Thick-billed Murre

This section focuses on Thick-billed Murres breeding in the arctic, while ignoring Thick-Billed Murres breeding elsewhere and while ignoring all Common Murres. Both murre species occur in the study area and can be difficult to differentiate at sea, so a section on the "murre" in general is appropriate.

The third-to-last sentence in this section states that Thick-billed Murres are not expected in the study area during seismic activity. This is incorrect: the literature sources that the proponent quotes to justify this conclusion specifically detail the movements of Thick-billed Murres breeding in the Canadian Arctic. Thick-billed Murres and Common Murres breed in significant numbers along the coast of Labrador as well, and the study area is well within their foraging range during the summer. Also, the proponent has focused only on breeding birds. Most seabirds take from 1 to 4 years to mature to breeding age and as such a large portion of most species populations are pre-breeders that are at sea for most of the year. An examination of the references provided above will help to clarify the

distribution of murre, and will show that they occur in significant numbers in the study area during the study months. Finally the last sentence states that the survey is not expected to carry into October and November, but Section 3.4 states that the survey period is from June to November and that weather conditions will likely allow surveys into the middle of October. This stated timing requires clarification.

Section 5.7.1.2 Northern Fulmar

Third sentence states that Northern Fulmars are not likely to be encountered in the study area. This is incorrect: Northern Fulmar is one of the most numerous birds found far from shore at all times of the year. This is especially true given their strong attraction to ships. This misconception seems to stem from a focus on the breeding members of the species. Large numbers of non-breeders are to be found at sea year-round and in fact Figure 15 clearly shows this.

Section 5.7.1.5 Ivory Gull

Information in this section is currently out of date. The Ivory Gull has been assessed by COSEWIC and has been listed as *endangered* by COSEWIC and is now listed on schedule 1 of SARA as such. The second-to-last sentence in this section states that the seismic survey will be complete by the end of August. This contradicts information on timing in Section 3.4

Section 9.1.3

This section, or perhaps section 5, should include information on the foraging habits of the different species groups. The foraging habits of these species tend to vary considerably. This information should help to assess which species spend significant periods of time underwater and thus which may be exposed to seismic sound.

In Paragraph 2 of this section, Sentence 3 and 4: The COSEWIC and SARA status for Ivory Gull is out of date.

In Paragraph 5 of this section, the final sentence states that the ramping up of the air gun will "reduce or remove the likelihood that birds will choose to come close enough to the array to experience hearing damage or other physical harm". There is no data to support this claim. In paragraph 3 of this section, the proponent states that Evans et al. (1993) detected no observable change in seabird behaviour, with birds neither being attracted to nor repelled from the seismic source. It may well be that the birds will not come close enough to incur physical damage, but there are no studies to show how close is too close for physiological damage.

In Paragraph 7 of this section, exposure to lights: It is common practice for all seismic vessels to have the Marine Mammal Observer search the vessel each morning for birds stranded on deck (typically storm-petrels) and care for them. Should storm-petrels or other species become stranded on vessels, the

proponent is expected to adhere to the protocol described in Williams and Chardine's brochure entitled, *The Leach's Storm Petrel: General Information and Handling Instructions* (to be provided directly). A permit is required to implement the Williams and Chardine protocol. The proponent should be advised that it is required to complete a permit application form prior to proposed activities. This form is available from Andrew Macfarlane at the Canadian Wildlife Service of Environment Canada, who can be reached by phone at 506-364-5033 or email at andrew.macfarlane@ec.gc.ca.

In Paragraph 8 of this section, the proponent asserts that the project will likely have a small impact on seabirds since there is a "small impact of seismic sounds in the air". The implication is that since the birds are in the air above the water and the seismic device is pointing downward into the water, the seismic sounds will not affect birds in flight. This ignores the fact (detailed in paragraph 4 of this section) that several of the species in the study area spend a considerable amount of time under water.

Section 9.5 Cumulative effects.

The proponent states that it is unaware of other seismic programs in the area that will take place during the study. This is incorrect; possible other projects include:

- Chevron Offshore Labrador Seismic Program, 2010-2017
- Investcan seismic, geohazard and VSP program on Labrador Shelf, 2010-2017
- Husky Labrador Shelf seismic and geohazard program on Labrador Shelf, 2009-2017