CANADA-NEWFOUNDLAND and LABRADOR OFFSHORE PETROLEUM BOARD
DETERMINATION REPORT

PART A: GENERAL INFORMATION

Screening Date	**July 24, 2014**
EA Title	Environmental Assessment of MKI Southern Grand Banks Seismic Program, 2014-2018
Proponent	Multi Klient Invest AS (MKI) Lilleakerveien 4C, P.O. Box 251 Lilleaker, 0216, Oslo, Norway
Contact	Mr. Jerry Witney Vice-President, North America MultiClient Petroleum Geo-Services (PGS) 15150 Memorial Drive Houston, Texas 77079
C-NLOPB File No.	45006-020-004
Location	Offshore Southern Newfoundland
Referral Date	**November 5, 2013**
EA Start Date	**December 20, 2013**
Law List Triggers	Paragraph 138(1) (b) *Canada-Newfoundland Atlantic Accord Implementation Act* (Accord Act)

Part B: PROJECT INFORMATION

On November 4, 2013, Multi Klient Invest AS (MKI) submitted a project description entitled, *Project Description Southern Grand Banks Seismic Program, 2014-2018* (LGL Limited 2013) to the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB), describing its plans to conduct 2-Dimensional (2D) and 3-Dimensional (3-D) seismic surveys in the offshore region of Newfoundland in the Southern Grand Banks between 2014 and 2018. MKI submitted the *Environmental Assessment of MKI Southern Grand Banks Seismic Program, 2014-2018* (LGL Limited 2014a) (EA Report) on March 10, 2014. Although 3D seismic surveys were discussed in the project description included in the EA Report, they have not been included in the environmental assessment of the project and therefore considered to be outside the scope of the project assessed. If a decision is made by MKI, based on the results of the 2D seismic surveys, to undertake 3D seismic surveys between 2015 and 2018 then this activity will require a separate assessment. On May 14, 2014, the C-NLOPB requested additional information from MKI to respond to review comments on the EA Report. On May 29 and June 27, 2014, MKI responded to the review comments on the EA and consolidated the response in the revised *Environmental Assessment MKI Southern Grand Banks Seismic Program, 2014-2018 Addendum* (LGL Limited 2014b) (EA Addendum).

1 Description of Project

The proposed Project is a ship-borne geophysical program that will collect 2D marine seismic data. The 2D seismic will collect data with a single solid streamer up to 10 km in length. The seismic surveys will be conducted between 1 May and 30 November in any given year between 2014 and 2018 with a maximum acquisition of 19,000 line kms each year. For the proposed surveys, the seismic vessels will be conventional seismic vessels, approved for operation in Canadian waters, as described in the EA Report.

2 Description of Environment

A complete description of the biological and physical environment can be found in the Environmental Assessment (EA) Report (March 2014) and the subsequent EA Addendum (July 14, 2014). The following sections provide references to the appropriate sections of the reports.

2.1 Physical Environment

A detailed description of meteorological and oceanographic characteristics, including extreme conditions, in the Study and Project Areas is provided in *Physical Environmental Study for the Southern Grand Banks Seismic Program 2014-2018* (Oceans Limited 2014). Summaries of the relevant sections of that report were provided in Section 3.0 of the EA Report. Additional information was provided in theEA Addendum. Specifically, physical information included: bathymetry and geology; climatology; physical oceanography; and sea ice and icebergs.

2.2 Biological Environment

A detailed description of the biological environment may be found in Section 4.0 of the EA Report and the EA Addendum. Specifically, information on: fish and fish habitat; fisheries (including domestic, traditional and Aboriginal, recreational, aquaculture, Fisheries and Oceans Canada (DFO) research vessel surveys, and industry and DFO science surveys); seabirds; marine mammals and sea turtles; species at risk; and sensitive areas.

There are 11 Species at Risk, as defined under Schedule 1 of the *Species at Risk A*ct (SARA) that are likely to be within the Study Area. The following table identifies species and their SARA listing and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) status. A description of these species is included in Section 4.6 of the EA Report as well as the EA Addendum.

SPECIES	SARA Status	COSEWIC Status
North Atlantic right whale (*Eubalaena glacialis*)	Schedule 1 – Endangered (May 2013)	Endangered (May 2013)
Blue Whale (*Balenoptera musculus*)	Schedule 1 – Endangered (May 2012)	Endangered (May 2012)
Northern bottlenose whale (*Hyperoodon ampullatus*) Scotian Shelf population	Schedule 1 – Endangered (May 2011)	Endangered (May 2011)
Leatherback Sea Turtle (*Dermochelys coriacea*)	Schedule 1 – Endangered (May 2012)	Endangered (May 2012)
White shark (*Carcharodon carcharias*) Atlantic population	Schedule 1 – Endangered (April 2006)	Endangered (April 2006)
Beluga Whale (*Delphinapterus leucas*) St. Lawrence population	Schedule 1 – Threatened (May 2004)	Threatened (May 2004)
Northern Wolffish (*Anarhichas denticulatis*)	Schedule 1 – Threatened (November 2012)	Threatened (November 2012)
Spotted Wolffish (*Anarhichas minor*)	Schedule 1 – Threatened (November 2012)	Threatened (November 2012)

Atlantic Wolffish (*Anarhichas lupus*)	Schedule 1 – Special Concern (November 2012)	Special Concern (November 2012)
Fin Whale (*Balaenoptera physalus*) Atlantic population	Schedule 1 – Special Concern (May 2005)	Special Concern (May 2005)
Sowerby's beaked whale (M*esoplodon bidens*)	Schedule 1 – Special Concern (November 2006)	Special Concern (November 2006)

Final recovery strategies have been prepared for seven species currently designated as either *endangered* or *threatened* under Schedule 1 and potentially occurring in the Project Area: (1) the North Atlantic right whale (DFO 2014); (2) the leatherback sea turtle (ALTRT 2006); (3) the spotted wolffish (Kulka et al. 2007); (4) the northern wolffish (Kulka et al. 2007); (5) the blue whale (Beauchamp et al. 2009); (6) the Scotian Shelf population of the northern bottlenose whale (DFO 2010b); and (7) the St. Lawrence Estuary population of beluga whale (DFO 2012b). In addition, a management plan has been prepared for the Atlantic wolffish (Kulka et al. 2007), currently with *special concern* status on Schedule 1 of *SARA*."

Part C: ENVIRONMENTAL ASSESSMENT PROCESS

3. Review Process

On November 4, 2013, MKI submitted a project description entitled, *Project Description Southern Grand Banks Seismic Program, 2014-2018* (LGL Limited 2013) to the C-NLOPB, describing its plans to conduct 2D and 3D seismic surveys offshore Newfoundland in the Southern Grand Banks. The Project requires an authorization pursuant to Section 138(1) (b) of the *Canada-Newfoundland Atlantic Accord Implementation Act* and Section 134(1) (a) of the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act.* The C-NLOPB requested comments on the project description and identification of expertise on December 20, 2013 from: DFO; Environment Canada (EC); Department of National Defence (DND); Transport Canada (TC); Natural Resources Canada (NRCan); Health Canada; Canada-Nova Scotia Offshore Petroleum Board (CNSOPB); and the Newfoundland and Labrador Departments of Environment and Conservation (NLDEC), Fisheries and Aquaculture (NLDFA) and Natural Resources (NLDNR). The C-NLOPB requested comments on the project description from One Ocean (OO) and the Fish, Food and Allied Workers Union (FFAW).

On January 28, 2014, the C-NLOPB notified MKI that an EA was required and the scope of that EA was provided.

MKI submitted the *Environmental Assessment of MKI Southern Grand Banks Seismic, 2014-2018* (LGL Limited 2014a) on March 10, 2014. The C-NLOPB forwarded the EA Report for review on March11, 2014 to DFO, EC, DND, CNSOPB, NLDEC, NLDFA, NLDNR, OO and the FFAW.

Comments on the EA Report were received from EC, FFAW and DFO. In order to address deficiencies in the EA Report, MKI was required to provide a response to the EA Report comments. On May 29, 2014, MKI responded to the review comments and this was forwarded to reviewers for their consideration. Additional comments were provided from reviewers and again forwarded to MKI for a response. MKI acknowledged that if 3D seismic surveys are proposed after 2014, then MKI will be required to assess the potential environmental effects of that activity within the Project Area at that time. 3D seismic surveys are outside the scope of the current EA. All comments were addressed satisfactorily and a revised *Environmental Assessment of MKI Southern Grand Banks Seismic, 2014-2018 Addendum* (LGL Limited 2014b) was submitted on July 14, 2014.

3.1 Scope of Project

The Study Area includes the Project Area plus a 20 km buffer area around the Project Area to account for the propagation of seismic survey sound that could potentially affect marine biota. The proposed Project is a ship-based geophysical program that could include as much as 19,000 line kms in any given year between 2014 and 2018. The proposed seismic programs will use a conventional seismic ship, as described in the EA Report which will tow the sound source (airgun array) and streamer/streamers containing receiving hydrophones. A support vessel approved for operation in Canadian waters, as described in the EA report, will be used during 2D surveys.

The proposed 2D survey sound source will consist of one or more airgun arrays with a total discharge volume of 3,000 to 6,000 in^3, operating at tow depth of 6 to 15 m. The airgun arrays are comprised of individual airguns ranging in size from 22 to 250 in^3 each. The airguns will be operated with compressed air at pressures of 2,000–2,500 psi and produce approximate peak-to-peak pressures of 100 to 200 bar-m. A typical airgun array used by PGS for 2D surveys consists of four sub-arrays with a total volume of 4,808 in^3, operated at a pressure of 2,000 psi. This array is generally towed at a depth of 9 m and produces peak-to-peak pressures of 179 bar-m. The airguns in the array are strategically arranged to direct most of the energy vertically downward rather than sideways. The shot interval will be one shot every 19 to 25 s, and the survey speed will be around 4.5 knots (8.3 km/h).

For 2D surveys, the seismic ship will tow a single seismic hydrophone cable (streamer) up to 10 km long, deployed near the ocean surface, at a depth of approximately 15–25 m. The cable will be a PGS GeoStreamer® solid streamer.

The seismic vessel will be equipped with a Furuno FE-700 echosounder. The downward-facing echo sounder operates at a frequency of 50 kHz or 200 kHz and will be used to collect water depth information. Sound velocity profiles will also be acquired in the water column at various locations within the survey area. These data are acquired with a small, passive device that will be deployed by the support vessel and measures pressure, temperature, and salinity.

Seismic surveys will occur within the period 1 May to 30 November from 2014 to 2018. The timing of the acquisition of specific lines within the Project Area in any year will depend on several factors, including commercial fish harvesting, the local weather, sea state, and ice conditions in specific locations. The duration of the 2D seismic survey in 2014 will be approximately 60 to 120 days.

3.2 Boundaries

The boundaries of the Project are defined in the EA Report as follows and are acceptable to the C-NLOPB.

Boundary	**Description**
Temporal	From 1 May to 30 November, 2014 to 2018.
Project Area	The Southern Grand Banks offshore Newfoundland, with the "corner" coordinates (decimal degrees, WGS84 projection): • Northwest: 45.914°N, 57.631°W; • North-central: 46.286ºN, 47.468ºW; • Northeast-1: 45.979ºN, 40.960ºW; • Northeast-2: 45.417ºN, 40.887ºW; • South-central: 38.658ºN, 47.411ºW; and • Southwest: 41.546ºN, 55.727ºW.

	The Project Area includes the ships' turning radii.
Study/Affected Area	The Study Area includes the Project Area plus a 20 km buffer area for potential effects around the Project Area. The coordinates (decimal degrees, WGS84 projection) of the six maximum extents of the Study Area are as follows: • Northwest: 45.998ºN, 57.858ºW; • North-central: 46.466ºN, 47.477ºW; • Northeast-1: 46.112ºN, 40.789ºW; • Northeast-2: 45.407ºN, 40.634ºW. • South-central: 38.478ºN, 47.364ºW; and • Southwest: 41.427ºN, 55.907ºW.
Regional Area	The area extending beyond the "Affected Area" boundary within the Southern Grand Banks and Southern Newfoundland.

There may also be an area of influence from the sound array. However, depending on the marine species present, this area of influence will vary in size. Hearing thresholds have been determined for a number of species (seals and odontocetes), but the threshold is not known for others (baleen whales). The sound that is actually received by the marine species depends on the energy released from the source and its propagation (and loss) through the water column. Therefore, the hearing ability of the species and background noise will affect the amount of noise from an airgun array detected.

3.3 Scope of Assessment

For the purpose of meeting the requirements of the *Accord Act*, the factors that were considered to be within the scope of the EA are those set out in the *Multi Klient Invest AS Southern Grand Banks Seismic Program, 2014 to 2018 Scoping Document* (C-NLOPB 2014).

4. Consultation

4.1 Consultation carried out by MKI

Consultations for the proposed Project were undertaken by MKI with the following agencies, stakeholders, and interest groups:

- Fisheries and Oceans Canada;
- Environment Canada;
- Transport Canada;
- Newfoundland and Labrador Department of Fisheries and Aquaculture;
- Canada-Nova Scotia Offshore Petroleum Board
- Government of France
- Conne River Band Council;
- Fish, Food and Allied Workers Union;
- One Ocean;
- Nature Newfoundland and Labrador (NNL);
- Association of Seafood Producers (ASP);
- Ocean Choice International (OCI);
- Aquaforte Town Council;
- Argentia Management Authority;
- Bay Bulls Town Council;

- Burin Harbour Authority;
- Burin Town Council;
- Wave Energy Research Centre;
- Ferryland Harbour Authority;
- Ferryland Town Council;
- Fortune Harbour Authority;
- Fortune Town Council;
- Grand Bank Harbour Authority;
- Grand bank Town Council;
- Marystown Shipyard;
- Marystown Town Council;
- Placentia Harbour Authority;
- Placentia Town Council;
- Riverhead Harbour Authority;
- St. Bride's Community Council;
- City of St. John's;
- St. John's Port Authority; and
- St. Mary's Harbour Authority.

Some agencies and groups did not request in-person meetings but were provided information packages and invited to comment. Initial and subsequent contact and face-to-face meetings were conducted between 18 December 2013 and 31 January 2014. During the face-to-face meetings, PowerPoint presentations with details about the proponents and the proposed Project were given. The presentations included provisional maps of the proposed 2014 survey lines and the Project and Study Areas as well as several maps showing fish-harvesting locations (key species) in relation to those lines.

The most consistent issue raised during the consultations related to potential conflict with the commercial fisheries, specifically ensuring that the survey does not interfere with or otherwise impact harvesting success. Consequently, fish harvester groups and agencies were a key focus of the consultations. Other topics of discussion included potential effects on marine biota, employment opportunities, and the importance of ongoing communication between the Operator and potentially affected groups.

MKI will conduct follow-up discussions with all interested groups during and after the survey. This would include reporting on the progress of the survey, monitoring the effectiveness of the mitigations, determining if any survey-related issues had arisen, and presenting monitoring results.

The C-NLOPB is satisfied that the consultations carried out by MKI, and reported on in the EA Report and Addendum, included all elements of the Project, and that MKI has addressed substantive concerns about the proposed Project.

4.2 Review of the March 2014 EA Report

The C-NLOPB forwarded the EA Report on March 11, 2014 to DFO, EC, DND, NLDEC, NLDFA, NLDNR, OO, and the FFAW for review.

DND provided comments on the EA Report on 02 April, 2014 which stated that comments provided by DND during the scoping phase were appropriately addressed and that they would likely be in the area in a non-interference manner, thus requesting it be informed of dates and locations of seismic activities.

EC provided comments on the EA Report on 16 April 2014. The key issues were: proper data numbers and concentrations of seabirds; assessment of sound; a recommendation to always perform a ramp-up/soft start; and lighting on the vessel. They reiterated that their comments on the draft scoping document (January 16, 2014) were still valid. EC provided a response on the EA Addendum on 17 June 2014 with a point of clarification.

DFO provided comments on the EA Report on 01 May 2014. Their comments focused on: fisheries other than the commercial fishery; clarification of species at risk information presented; adherence to the Standard of Canadian Practice; and the recovery strategy for multiple wolffish species. DFO provided comments on the EA Addendum on 05 June 2014 with respect to Atlantic salmon. DFO provided a reply on June 27, 2014 that their comment had been addressed.

The FFAW provided comments on the EA Report on 28 April 2014. The key issues were: role of the Fisheries Liaison Officer (FLO); information on Atlantic cod and clam; clarification of results of fisheries surveys; the dynamic nature of the fisheries; timing of commercial fisheries; avoidance as mitigation; and avoidance of active fisheries and the DFO Post Season Trap Survey for Snow Crab. The FFAW provided comments on the EA Addendum on June 20, 2014. Comments included: the changing composition of commercially harvested species; and temporal and spatial avoidance of the post-season trap survey for snow crab. On July 7, 2014 the FFAW responded that they would continue to be available for consultation.

The consolidated review comments were provided to MKI on May 14, 2014. MKI responded on May 29, 2014 in the form of an EA Addendum. This response was forwarded to reviewers on June 2, 2014 for consideration. Additional comments were forwarded to MKI on June 25, 2014 and a response was provided on June 27, 2014. All comments and responses were consolidated in a revised EA Addendum on July 14, 2014.

The C-NLOPB believes that all substantive comments within the scope of the EA have been satisfactorily addressed.

5. Environmental Effects Analysis

5.1 Methodology

The C-NLOPB reviewed the environmental effects analysis presented by MKI in its EA Report. A Valued Ecosystem Component (VEC) based assessment, based on the interaction of project activities with VECs, was used in assessing environmental effects, including cumulative effects and effects due to accidental events. The EA methodology and approach used by the Proponent is acceptable to the C-NLOPB.

Potential adverse environmental effects, including cumulative effects, were assessed with respect to:

- magnitude of impact;
- geographic extent;
- duration, likelihood, and frequency;
- reversibility;
- ecological, socio-cultural and economic context; and
- significance of residual effects following implementation of mitigation measures.

The potential effect significance of residual effects, including cumulative effects, for each VEC was rated in this environmental screening report as follows:

0 = No Detectable Adverse Effect

1 = Detectable Effect, Not Significant
2 = Detectable Effect, Significant
3 = Detectable Effect, Unknown

These ratings, along with the likelihood of the effect, were considered in determining overall significance of residual effects.

In the EA Report, MKI presented information regarding the potential effects of the seismic survey program activities on fish and fish habitat, fisheries, seabirds, marine mammals and sea turtles, species at risk, and sensitive areas. A summary of the effects assessment follows.

5.2 Valued Ecosystem Components/Potential Environmental Effects

5.2.1 Fish and Fish Habitat 1

The seismic survey program will not result in any direct physical disturbance of the bottom substrate. During seismic surveys, survey equipment is not expected to come in contact with the seafloor and deep-water corals and sponges. Therefore the negligible residual effects on fish habitat (i.e., water and sediment quality, phytoplankton, zooplankton, and benthos) are predicted to be **not significant**.

A discussion of the potential effects of the proposed seismic project on fish and marine invertebrates may be found in Section 5.8.4 of the EA Report and in the EA Addendum. Mitigations consistent with those outlined in the *Geophysical, Geological, Environmental and Geotechnical Program Guidelines* (C-NLOPB 2012), will be implemented. Spatial and temporal avoidance of critical life history times (e.g., spawning aggregations) will mitigate the behavioural effects of exposure to airgun sound. The effects assessment concluded that physical effects on fish due to project activities will be: negligible to low in magnitude; over an area of less than 1 to 11-100 km^2; and for a duration of less than 1 month to 1 to 12 months. The likelihood of effects (behavioural and physical) is low and therefore **not significant**.

Any potential physical or behavioural impact to invertebrate species is considered to be: negligible to low in magnitude; over an area of less than 1 to 11-100 km^2; and for a duration of less than 1 month to 1 to 12 months. The likelihood of effects (behavioural and physical) is low and therefore **not significant**.

5.2.2 Commercial and Traditional Fisheries and DFO Research Surveys 1

A discussion of the potential effects of the proposed seismic project on fisheries may be found in Section 5.8.5 of EA Report and in the EA Addendum.

Given the application of mitigation measures, including the avoidance of fishery activity, it is predicted that the effects of seismic activity, including vessel movement, will be: negligible to low in magnitude; over an area of less than 1 to 11-100 km^2; and for a duration of less than 1 month to 1 to 12 months. The likelihood of effects (behavioural and physical) is low and therefore **not significant**.

To avoid potential conflict with DFO Research surveys, MKI will maintain communications with DFO personnel to keep up-to-date on the timing of planned research surveys. In addition, a temporal and spatial buffer zone will be implemented, in consultation with DFO, to reduce any potential interference with fish behavioural patterns. To avoid potential conflict with the execution of the Industry-DFO Collaborative Post-Season Trap Survey for Snow Crab, MKI has committed to maintain regular communication with DFO, the FFAW, independent fishers and

managers of other key corporate fisheries in the area of survey operations. With the implementation of mitigative measures, the impact of both noise and the seismic streamer on DFO research surveys and Industry-DFO Snow Crab trap surveys will be negligible and **not significant**.

5.2.3 Seabirds 1

The discussion of the potential effects of the proposed seismic project on marine birds may be found in Section 5.8.6 of the EA Report and as well as the EA Addendum.

Seabirds are expected to flush or dive in response to sounds or to avoid the area. It is predicted that there will be **no significant effects** on seabirds from the sound because the magnitude of the effect (if it occurs) will be: negligible to low; over an area less than 1 to 10 km^2; and for a duration of 1-12 months.

Deck lighting will be minimized (if safe and practical) to reduce the likelihood of stranding. Monitoring and mitigation measures to rescue stranded storm-petrels and other birds on board the seismic vessel will be the responsibility of the Marine Mammal Observer (MMO). Procedures developed by the CWS will be used to handle stranded birds and release them. The effect of vessel lighting on marine birds is predicted to be: of low magnitude; within an area 1-10 km, and over duration of less than one month. Therefore, the effect of vessel lighting on marine birds is deemed **not significant**.

5.2.4 Marine Mammals and Sea Turtles 1

The discussion of potential effects of the proposed seismic project on marine mammals and sea turtles may be found in Section 5.8.7 of the EA Report and in the EA Addendum.

The effects on marine mammals are predicted to be: negligible to low in magnitude; over a duration of less than 1 month to1-12 months, and over an area of less than 1 km^2 to 1-10 km^2 and 11-1,000 km^2 for underwater sound, and less than 1 km^2 for vessel presence. With the application of mitigation measures, the likelihood of effects occurring is low, and effects will be **not significant**.

The effects on sea turtles are predicted to be: negligible to low in magnitude; within an area less than 1 km to 100 km^2; and over duration of 1 to 12 months. With the application of mitigation measures, the overall likelihood of effects occurring is low, and effects will be **not significant.**

5.2.5 Species at Risk 1

The discussion of potential effects of the proposed project on species at risk may be found in Section 5.8.8 of the EA Report and additional information in the EA Addendum.

The physical effects of the Project on the various life stages of wolffishes and the white shark will range from: negligible to low; over a duration of 1-12 months and within an area of <1 km^2 to 1-10 km^2. Behavioural effects may extend out to a larger area but are still predicted to be **not significant**. The mitigation measure of ramping up the airgun array (over a 30 minute period) is expected to minimize the potential for impacts on wolffishes and the white shark.

Based on available information, the North Atlantic right whale, blue whale, Sowerby's beaked whale, beluga whale and leatherback sea turtle are not expected to occur regularly in the Study Area. Northern bottlenose whales (Scotian Shelf population) are expected to occur in the Study Area during summer months and perhaps also at other times of the year. As previously identified in Section 2.2, there are finalized recovery strategies for leatherback sea turtles, blue whales in

Atlantic Canada, the Scotian Shelf population of Northern bottlenose whales and North Atlantic right whales. In addition, a recovery strategy has been proposed for the St. Lawrence Estuary population of beluga whale (DFO 2011). Mitigation and monitoring designed to minimize potential effects of airgun array noise on *SARA*-listed marine mammals and sea turtles will be implemented. The effects are predicted to be: negligible to medium in magnitude (medium in the case of accidental releases), within an area less than 1 km to 1,000 km^2, and over a duration of 1-12 months. MKI will adhere to mitigations detailed in Appendix 2 of the *Geophysical, Geological, Environmental and Geotechnical Program Guidelines* (C-NLOPB 2012) including those in the *Statement of Canadian Practice with Respect to the Mitigation of Seismic Sound in the Marine Environment*. With the application of mitigation measures, the likelihood of effects occurring is low, and effects will be **not significant**.

5.2.6 Sensitive Areas 0

The discussion of potential effects of the proposed seismic project on sensitive areas may be found in Section 5.8.9 of the EA Report. Based on the previous conclusions on the effects of the project on the other VECs, the project is predicted to have **no significant effect** on sensitive habitat.

5.2.7 Water Quality/Discharges 0

Information on discharges may be found in Section 2.2.11 and Section 5.8.3 of the EA report. Vessel discharges will not exceed those of standard vessel operations and will adhere to applicable regulations and standards. The effect of the seismic program operations on marine water quality should be undetectable and **not significant**.

5.3 Cumulative Environmental Effects 1

A discussion of potential cumulative environmental effects may be found in Sections 5.5.5 and 5.9 of the EA Report. With the implementation of mitigative measures such as communication and coordination between other ocean users (including other seismic programs) and the limited temporal scope, the cumulative environmental effect of the seismic program in conjunction with other projects and activities is predicted to be **not significant**.

5.4 Accidents and Malfunctions 0

MKI will use a solid core streamer that eliminates the risk of leakage associated with cables filled with floatation fluid. In the unlikely event of the accidental release of hydrocarbons during the Project, MKI will implement the measures outlined in its Oil Spill Response Plan. In addition, MKI has an Emergency Response Plan in place which bridges the emergency plans of all project entities and vessels to the local facilities and the Halifax Search and Rescue Region. MKI will have a representative onboard who will represent MKI in all offshore Quality, Health, Safety and Environment activities and a Project Manager in St. John's.

Effects due to accidental spills associated with the proposed operation, therefore, are considered, overall, to be detectable if they occur, but **neither significant nor likely**.

5.5 Follow-up Program Required Yes☐ No☒

The C-NLOPB does not require follow-up monitoring to be undertaken for this Project.

6. Other Considerations

The C-NLOPB is satisfied with the environmental information provided by MKI regarding the potential adverse environmental effects which may result from the proposed project, and are satisfied with the operator's proposed monitoring and mitigative measures.

The C-NLOPB is of the view that the environmental effects from the project, in combination with other projects or activities that have been or will be carried out, are **not likely** to cause significant adverse cumulative environmental effects.

7. Recommended Conditions and /or Mitigations

The C-NLOPB recommends that the following conditions be included in the authorization if the seismic survey program is approved:

- *The Operator shall implement or cause to be implemented, all the policies, practices, recommendations and procedures for the protection of the environment included in or referred to in the Application and in the "Environmental Assessment of MKI Southern Grand Banks Seismic Program, 2014-2018" (LGL Limited March 2014) and "Environmental Assessment of MKI Southern Grand Banks Seismic Program, 2014-2018 Addendum" (LGL Limited July 14, 2014).*

- *The Operator, or its contractors, shall shut down the seismic airgun array if a marine mammal or sea turtle listed as **Endangered or Threatened** (as per Schedule 1 of SARA) is observed in the safety zone during ramp- up procedures and when the array is active. The safety zone shall have a radius of at least 500 m, as measured from the centre of the air source array(s).*

- *No later than January 31, 2015, the Operator shall submit a report to the C-NLOPB describing the progress and potential environmental effects of its 2014 seismic program. It shall include, but not be limited to, copies of the Fisheries Liaison Officer (FLO) reports and the marine mammal observer (MMO) and seabird observer reports that were produced during the program.*

Part D: Determination Decision

8 C-NLOPB Decision

The C-NLOPB is of the opinion that, taking into account the implementation of the proposed mitigation measures set out in the conditions above and those committed to by Multi Klient Invest AS, the Project ***is not likely to cause significant adverse environmental effects****.*

Responsible Officer *Elizabeth Young* D*ate: July 24, 2014*

Elizabeth Young
Environmental Assessment Officer
*Canada-Newfoundland and Labrador Offshore Pet*roleum Board

References:

ALTRT (Atlantic Leatherback Turtle Recovery Team). 2006. Recovery Strategy for Leatherback Turtle (*Dermochelys coriacea*) in Atlantic Canada. *Species at Risk Act* Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa, vi + 45 p.

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DFO. 2010. Recovery strategy for the Northern Bottlenose Whale, Scotian Shelf population, in Atlantic Canadian waters. *Species at Risk Act* Recovery Strategy Series. Fisheries and Oceans Canada. vi + 61p.

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