

**Multi Klient Invest AS
Northeast Newfoundland Slope Seismic Program, 2012-2017
CEAR No. 11-01-65425**

**Response to Comments from C-NLOPB
Dated 29th June 2012**

**By: YOLO Environmental and RPS Energy
Submitted: 20th July 2012**

GENERAL COMMENTS

DEPARTMENT OF NATIONAL DEFENCE (DND)

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 any suspected UXO be encountered during the course of the proponent's operations it should not be disturbed/manipulated. The proponent should mark the location and immediately inform the Coast Guard.

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 seabed surveys in order to prevent unintentional contact with harmful UXO items that may have gone unreported or undetected.

MKI Response

Considerable detail is provided in the project description to describe the components and activities that are associated with seismic. It was made clear that there are no bottom-founded activities and absolutely no potential for such seabed contact activities, and we reiterate that the interaction with seabed UXO will not occur. Only floating UXO, such as lost or moored mines would be any threat and this is an impossible occurrence in the North Atlantic Ocean.

ENVIRONMENT CANADA (EC)

On 4 January 2012, EC provided comments for a proposed Multi Klient Invest AS Northeast Newfoundland Slope 2D Seismic Program (as per *Project Description for 2-D Marine Regional Seismic Survey Northeast Newfoundland Slope* prepared by RPS Energy (Halifax) & YOLO Environmental Inc. [December 1, 2011]). Those comments remain applicable.

MKI Response

MKI received a scoping document from the C-NLOPB that incorporated the comments by all regulatory agencies as per the CEAA FEAC process. The EA report was prepared based on the scoping document as directed by the C-NLOPB.

FISHERIES AND OCEANS CANADA (DFO)

Active project-based environmental assessments (EAs) available on the C-NLOPB website are being repeatedly cited for this EA. This is unsuitable given the draft status of these documents and the likelihood of re-citing misinformation into the document currently under review. Citing secondary publications (e.g., LGL 2003) rather than primary publications in the EA is not encouraged. There are many instances where references for statements concerning species/biology are attributed to consultant reports (e.g., LGL (2003)), rather than the original research. Original citations should be provided where possible.

MKI Response

The C-NLOPB directed the following as acceptable in the scoping document, "*Program activities are proposed for areas of the Labrador Shelf, Orphan Basin (east and west), Flemish Pass Basin, and Jeanne d'Arc Basin of the Northeast Newfoundland Slope Area, which has been studied in a number of recent EAs and a Strategic Environmental Assessment (SEA). For the purposes of this assessment, the information provided in the EA and SEA documents can be used in support of the EA for the proposed seismic program.*" These EAs, their amendment reports, and the SEA were deemed acceptable. Primary literature is cited if new findings warrant such referencing. The original information is available in those sources as intended.

DFO

The “Statement of Canadian Practice with respect to the Mitigation of Seismic Sound in the Maritime Environment” (SOCP), specifies the mitigation requirements that must be met during the planning and conduct of marine seismic surveys, in order to minimize impacts on life in the oceans. These requirements are set out as minimum standards to be implemented during the planning and conduct of seismic programs. As such, it is advised that the proponent **adhere to all relevant minimum mitigations** outlined in the SOCP including the Planning Seismic Surveys, Safety Zone and Start-up, Shut-down of Air Source Array(s), Line Changes and Maintenance Shut-downs, Operations in Low Visibility and Additional Mitigative Measures and Modifications sections of the SOCP.

MKI Response

MKI stated clearly in the EA report that they will adhere to the SOCP during the seismic program and has made commitments to go beyond the SOCP using additional mitigation of avoidance.

DFO

Please continue to refer to the Species at Risk Public Registry (www.sararegistry.ca) to get the most up to date information.

MKI Response

Acknowledged.

DFO

Marine mammal observers (MMO) are noted throughout the document, however, details with respect to MMO protocols employed are not provided. It is suggested that the role of the MMO be better described within the EA Report to ensure reviewers that the best possible methods are employed.

MKI Response

Trained MMOs will be employed for the duration of the survey. They will understand the CSOP and best methods will be employed. This information requirement was not a part of the scoping document.

DFO

DFO conducts scientific surveys in the general area of the proposed program. The timing of the DFO scientific surveys will vary from year to year; therefore the proponent should contact DFO to ensure there are no timing conflicts.

MKI Response

MKI will contact DFO to ensure there are no timing conflicts prior to the start of the survey. As per the normal procedures, a Notice to Mariners is issued via Radio Broadcast.

FISH, FOOD AND ALLIED WORKERS

It should be noted while the “productive (harvesting) months” in the EA are listed as May to September (page 153), April can also be a busy month on the water. Furthermore, the industry post-season crab season is carried out from September to November. This is important as the timing of surveys in subsequent years is unknown at this point in time (Page 184).

MKI Response

We recognise that there are other important fisheries taking place outside the window of the survey period from May to November, however, the EA covered only those seasons where there could be a potential interaction.

The term post-season crab season is not understood. That implies there is crab fishing outside the season which is dictated by quota. Seasonal fishing was discussed at length with the FFAW to provide mitigation to fisheries catch and the agreed avoidance periods for crab and shrimp, temporally and spatially, by MKI were on the advice by FFAW as noted in the EA.

FFAW

It is therefore important that MKI maintain regular communication with the FFAW to keep apprised of ongoing developments and activities with respect to commercial fisheries in the project area.

MKI Response

MKI has discussed with FFAW their intention to be in regular consultation throughout the program.

FFAW

Finally, one of the fishing industry's concerns with a multi-year seismic program is the need for frequent communication between the industry and the oil and gas company, in this case MKI. 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 directly with the fishing industry several months prior to the start of the various components of the seismic program to avoid potential conflict(s) at sea each year. This should be coordinated with the FFAW.

MKI Response

MKI recognises this situation of changing fishing effort and has committed in the EA to continue the dialogue.

C-NLOPB

It should be confirmed by MKI that all environmental planning, mitigation and reporting measures for marine seismic surveys, as recommended in Appendix 2 of the *Geophysical, Geological, Environmental and Geotechnical Program Guidelines* (C-NLOPB January 2012) will be met.

MKI Response

MKI confirms that all environmental planning, mitigation and reporting measures for marine seismic surveys, as recommended in Appendix 2 of the *Geophysical, Geological, Environmental and Geotechnical Program Guidelines* (C-NLOPB January 2012) will be met.

SPECIFIC COMMENTS

ENVIRONMENT CANADA (EC)

EC 2.4.1.1 Shipboard Oil Pollution Emergency Plan (SOPEP) Page 10, paragraph 4

The purpose of the Plan is guidance to the Sanco Spirit Masters and of officers on board the ship with respect to the steps to be taken when an oil pollution incident has occurred, or is likely to occur. *Used correctly in a given situation, you and we as ship operator will, avoid any claims and responsibility from official authorities.* It is understood that the purpose of the Shipboard Oil Pollution Emergency Plan is to provide guidance with regard to oil spills. However, the intent with regard to the statement highlighted above is unclear. Has Transport Canada been provided with this document for commentary? Please provide a copy of the Shipboard Oil Pollution Emergency Plan for EC review.

MKI Response

The M/V Sanco Spirit has a DNV approved Shipboard Oil Pollution Emergency Plan. In addition, for the work in Newfoundland, MKI has entered into a contract with ECRC (Eastern Canadian Response Corporation). The ECRC within its Geographic Area of Response is the provider of choice for marine ships and designated oil-handling facilities for oil spill response preparedness requirements under the Canada Shipping Act. Upon approval for the vessel to enter Canada, the DNV certified SOPEP that the vessel operates under has met all requirements of Transport Canada. Unfortunately, this document is not available to be put on public website. Appendix 1 - DNV Approval letter of SOPEP, Appendix 2 – ECRC Letter Attached.

EC 2.4.1.1 Shipboard Oil Pollution Emergency Plan (SOPEP) Page 10, last Paragraph and Page 11, paragraph 1.

Further, the purpose of the Plan is to provide the Master, officers and crewmembers with a practical guide to the presentation of oil spills and in carrying out the responsibilities associated with regulation 26 of Annex I to MARPOL 73/78. Reporting procedures to report an oil pollution incident, Coastal State contacts to be contacted in the event of an oil pollution incident, response actions or reduce or control the discharge of oil following an incident, - co-ordination with national and local Authorities in combating oil pollution. Putting this passage into the appropriate local context would be helpful. EC understands the “Coastal State” to be contacted in the event of an oil spill for off-shore Newfoundland) is the Marine Safety Branch, Transport Canada (709 772 5166). This should be confirmed and put in the plan.

MKI Response

As mentioned above.

EC 2.6 Potential Malfunctions and Accidental Events Paragraph 1

There are unplanned situations that may be encountered during seismic operations. Potential hazards are addressed during site-specific planning as part of emergency response planning. Procedures are developed by MKI to ensure that such events are managed in a safe and environmentally sound manner. MKI have policies, plans, and procedures to prevent or mitigate effects of malfunctions and accidents. These policies, plans, and procedures will be located on the seismic vessel, and in MKI St. John's (shore office). During seismic surveys, there will be limited amounts of marine fuel and lube oil onboard that could potentially be spilled to the ocean. All of the vessels involved in the survey will use diesel fuel. The fuel capacity of seismic ships can range up to 1,550 t for large 3-D vessel. Any accidental spill will be reported to the C-NLOPB immediately.

The first part of the statement highlighted above should be quantified as “limited amounts” is subjective. The second part appears to be out of context from the earlier statements as a release of these volumes would be expected to be a result of a much more significant event.

MKI Response

“Limited amounts” of petroleum hydrocarbons such as lubes and oils and a barrel of diesel are normal vessel operation products. The marine engineers at C-NLOPB will be familiar with engine room petroleum products and their quantities. An inventory was not provided for this EA. Such an inventory can be provided if required, however, the same information has been provided in other EAs with no concern. The discussion of capture, treatment and discharge of such limited amounts that may spill on the deck or in the bilge is addressed in the EA.

The second quantity relates to the significant amount of fuel. The fuel for this ship is for propulsion. An accidental spill of the fuel would be a result of a severe vessel emergency such as collision or loss of the vessel. The C-NLOPB as well as other emergency agencies will be notified in such an event via the MKI emergency response plan.

EC 4.2.1 Identification of Valued Environmental Components, Table 4.1 Selection of Valued Ecosystem Components

Migratory birds other than avian species at risk (SAR) have not been included as a Valued Ecosystem Component (VEC). Species at Risk cannot act as indicators for environmental effects on migratory birds. The degree of severity of impact of a project may be more serious when an avian SAR is affected. However, a lack of impacts on avian SAR cannot be interpreted as no effect or no significant effect on all migratory birds.

MKI Response

The wording “bird species at risk” in section 4.2.1 should not be mistaken for *Species At Risk (SAR)* as identified by COSEWIC or SARA. This word structure indicates that any migratory bird species which have the potential to be affected by the project will be assessed.

Agreed. Section 4.2.1 should read, “An assessment of the potential adverse environmental effects on all bird species will be undertaken. Bird species on IBAs will be discussed under Special Areas and Species at Risk”. Sections 6.1 to subsection 6.1.4.5, discuss Effects Assessment of Project Activities on Marine and Migratory Birds, and include both SAR bird species, and non-SAR bird species. Furthermore, subsections 6.5.2, and 6.6.4.1 also includes all migratory birds.

EC Section 5.4.3 Marine and Migratory Birds, First Paragraph:

EC-CWS recommends revising the environmental assessment report to include all information concerning seabirds that are relevant to this assessment. Though the proponent may use the information contained in the listed documents to make its own revisions, interpretation of this information within the context of this Environmental Assessment and associated impacts has not been undertaken for the effects of this project upon migratory birds.

MKI Response

Respectfully disagree. While section 5.4.3, para.1 may reference several other EAs, within this Environmental Assessment, sections 6.1 to subsection 6.1.4.5, discuss Effects Assessment of Project Activities on Marine and Migratory Birds, and include both SAR bird species, and non-SAR bird species. Subsections 6.5.2, and 6.6.4.1 also includes all migratory birds. In addition, the proponent strongly feels that the level of detail provided in subsection 5.4.3.1 “Distribution” and the distribution maps (pg’s. 76-95) are far superior to that which are provided in other EAs, which had been approved without similar recommendations.

EC Section 5.4.3 Marine and Migratory Birds, Third Paragraph:

The seabird survey program that is/was conducted on DFO AZMP surveys should be referred to as the “Eastern Canada Seabirds at Sea” (ECSAS) program. This program can be cited as:

Gjerdrum, C., D.A. Fifield, and S.I. Wilhelm. 2011. Eastern Canada Seabirds at Sea (ECSAS) standardized protocol for pelagic seabird surveys from moving and stationary platforms. Canadian Wildlife Service Technical Report Series No. 515. Atlantic Region. vi + 36 pp.

MKI Response

While this may in fact be true, the information in section 5.4.3, para. 3 was found in Fifield et al. (2009) page 18, para. 2.

EC Section 5.4.3.1 Distribution:

The term “hotspot” is a scientific term that is used extensively in the literature to describe important areas for various taxa. EC-CWS recommends that this term be appropriately defined as it is being used in the document and/or an alternative descriptor be used (with definition provided).

MKI Response

Other than in subsection 5.4.2 “Benthos” which uses the word “hotspots” once to describe high densities of coral near Funk Island Spur, Southwest Grand Banks, and the southeast portion of the Southeast Baffin Shelf as noted by Wilkinson and Edinger 2009 in Campbell and Simms 2009, the term “hotspots” appears minimally thereafter in subsections 5.4.3.1 “Distribution” and 5.4.3.1.1 “Waterbirds”. In the former, the term is used as it is in Fifield et al. (2009). In the latter, it is used to describe areas of high waterbird and Northern Fulmar densities, relative to the densities of these birds experienced elsewhere within the Study Area.

If the term “hotspots” is meant to describe an “important (area) to one or more species/groups in one or more seasons” (Fifield et al. 2009, pg. 59), then the Proponent agrees that term “hotspots” in

subsection 5.4.3.1.1 should read “large densities of 10.01-100 birds/km”. It should be noted that these large densities were observed in such “hotspots” such as the Grand Banks.

EC Section 5.4.3.1 Distribution, Table 5.3 Sea Bird Hotspot Summary:

EC-CWS recommends revising the names of the seabird species given in Table 5.3 and throughout the text. Bird species should be referred to without pluralization when referring to a singular species (i.e. Dovekies become Dovekie, Northern Fulmars become Northern Fulmar, Northern Gannets becomes Northern Gannet, etc.). When referring to Gulls, it is acceptable to use the plural form, because more than one species is being referenced.

MKI Response

Agreed. The names of bird species should not be pluralized, except for Gulls in the context of Table 5.3.

EC Section 5.4.3.1 Distribution, Table 5.4 Distribution and Abundance of Seabirds Known to Occur in the Study Area

The common names of two species have been recently updated, and EC-CWS recommends changing the names of these species throughout the text to reflect their proper nomenclature. “Greater Shearwater” should be referred to as “Great Shearwater”. “Greater Black-backed Gull” should be changed to “Great Black-backed Gull”.

MKI Response

In the case of “Greater Shearwater” – while this in fact might be true, Fifield et al. (2009) does not take this change into account, likely due to the recency of the name change. Given that this Environmental Assessment uses Fifield et al. (2009) as a vetted source, the EA was written as such.

In the case of “Greater Black-backed Gull” – Agreed, the name of this species should read “Great Black-backed Gull”. It should be noted that both versions appear in this EA, and that the former name as visible in subsection 5.4.3.1, Table 5.4 was likely typed in error, as the correct name appears two more times, in Table 5.5 and Appendix VIII.

EC Section 5.4.3.1.1 Waterbirds

EC-CWS recommends that the following changes be made in the text of this section:

- Bird density should be reported as birds/km².
- The level of survey effort in September and October should be indicated when making statements concerning bird density at those times.
- Densities are reported as 10-100 in Figure 5.23, but are reported as 1-10 in the text; the proper density should be specified.

MKI Responses

Agreed. Birds/km should be changed to birds/km².

As previously noted in this EA (Subsection 5.4.3) “Survey trips were restricted most during the fall. During this time, with the exception of parts of the Grand Banks, other more exposed regions of the Atlantic received relatively less effort”. A similar statement should be inserted into subsection 5.4.3.1.1 as requested.

Agreed. Densities should be changed from 1-10 to 10-100 as visually represented on in Figure 5.23.

EC Section 5.4.3.1.1 Waterbirds, Figures 5.23- 5.42:

Density should be presented as birds/km². For each density presented, the report needs to refer to a figure. It should be noted in the figure titles that these figures were taken directly from Fifield et al. 2009. As such these figures should provide appropriate citation.

MKI Response

Agreed. Densities throughout this section should read "birds/km²".

Referring to figures for each density as suggested however, is redundant and provides no more clarity than how each section is already written. The first sentence for each species group already refers the reader to the corresponding figures. Each figure accounts for two periods of density and location mapping, therefore, while it is possible to refer to figures for densities for May to August for example, this would direct to reader to looking at two maps. In this EA, each density number is preceded with the period for which they were observed in. Also, each section is a short, concise paragraph, followed immediately by the corresponding figures. As such, the reader is reading volumes of text before arriving at the figures.

Each figure already has "(modified after Fifield et al. 2009)" as a reference on the bottom. The actual maps in Fifield et al. (2009) represented more spatial data, and for this EA had to be zoomed in on, and the Study Area overlaid.

EC Section 5.4.3.1.1 Waterbirds – Northern Fulmar (etc.)

For each species-specific section (i.e. Northern Fulmar, Storm-Petrels, etc), statements of density and distribution should be revisited following the recommendations in EC-08 and EC-09 and through consultation of Fifield et al. 2009.

MKI Response

Agreed. Densities throughout this section should read "birds/km²".

Agreed. Birds/km should be changed to birds/km².

Agreed. Densities should be changed from 1-10 to 10-100 as visually represented on in Figure 5.23.

EC Section 5.4.3.2 Prey and Foraging Habits:

"Surface-feeding gull species are foragers." This sentence should be clarified by making a statement to diet, behaviour, etc.

MKI Response

While the reader is already directed to this information contained in two other EAs, a statement of clarity to be included in this EA should read "Gulls prey on fish, crustaceans, and offal through surface feeding, shallow plunging, and scavenging. Time spent underwater is brief and dive depths are < 0.5 m."

EC Section 5.4.7.1 Marine and Migratory Birds, Table 5.19 Marine & Migratory Species Found Within The Study Area Having SAR and/or COSEWIC Designations - Ivory Gull:

The text in Table 5.19 should be revised to reflect the text in Section 5.4.7.1. The breeding distribution stated in Table 5.19 should be updated with information from COSEWIC 2006.

MKI Response

The last sentence in the paragraph for Ivory Gull should actually read, "Table 5.19 provides additional information on the Ivory Gull, including reason for designation."

The statement in Table 5.19 has been taken from COSEWIC's website, and does not contain information on the breeding distribution, but rather the reason for designation. Was the suggestion for the information cited from Renaud and McLaren 1982 in section 5.4.7.1?

EC Section 6.1.3 Significance Criteria:

EC-CWS recommends that the following changes be made in the text of this section:

- "Destruction or adverse effects of critical habitat" should be replaced with "destruction or adverse effects on critical habitat";
- "Marine birds and migratory" should be replaced with "marine migratory birds".

MKI Response

The C-NLOPB provided the category of VECS, and the marine resource of avifauna is Marine and or Migratory Birds.

EC Section 6.1.4.1.3 Attraction to Lights:

In offshore areas, coastal lighting is sufficiently distant as to be of negligible effect on seabird attractiveness in fog. Light provided by ships is likely to be of greater influence in the survey area. EC-CWS requests to review the protocol for routine checks for stranded birds. The protocol should contain information as to what data will be recorded, how often checks will be done, etc. Please refer to the Williams and Chardine protocol (attached) to help with protocol design.

MKI Response

The following paragraph located on page 181 makes this exact reference.

EC Section 6.1.4.1.3 Attraction to Lights, First Paragraph

EC-CWS notes that it is not clear as to what observations are being recorded, or as to whether the report is actually referring to bird strandings. This should be clarified in the revised version of the environmental assessment report.

MKI Response

This is referring to bird stranding as indicated by the paragraph on this topic. CWS has made the request in previous EAs to supply bird data. MKI is making that commitment.

EC Section 6.1.4.1.3 Attraction to Lights, Second Paragraph

The effect of light attraction on marine birds has not been verified. More data on the distribution and abundance of marine birds in the vicinity of the study area are essential for assessing the accuracy of predictions. Globally significant concentrations of marine birds are known to use the Grand Bank, and may concentrate in the vicinity of the proposed survey area. Data on marine birds are required from the project in order to assess risk and mortality should an accident occur.

MKI Response

There is literature on the effect of birds from ship lights. Albeit limited information, but it is noted in this EA and within previous EAs that have been approved without the challenge of verification. There are no incidental or published reports from the many vessels that ply the offshore Grand Banks for many decades or from the many platforms on significant population impacts to marine or migratory birds. Some operators take the expense to fly individual stranded migratory birds (one-ofs and not flocks) back to shore. The one documented event where a massive flock of seabirds landed on one vessel that the vessel stability was in jeopardy, not the birds.

EC Section 6.1.4.1.3 Attraction to Lights, Second Paragraph:

As stated in the EC-CWS reply to the scoping document, mitigation measures related to adverse effects of seismic activities should be identified. Measures should be consistent with the Migratory Bird Convention Act, 1994, the Migratory Bird Regulations, and the Species at Risk Act and with applicable management plans, recovery strategies and action plans. Mitigation should reflect a clear priority on impact avoidance opportunities. The following specific measure could be among those which are considered in preparing a mitigation strategy:

- Ramping-up the air gun array over a 30-minute period - a procedure typically used for other animal groups - may encourage marine birds to leave the survey area and may reduce the potential for adverse interactions between the project and marine birds accordingly.

MKI Response

This request is not consistent with reviews of recent EAs, eg. LGL Limited (2011a), LGL Limited (2011b), and LGL Limited (2011d), all of which have been approved. All of these EAs including this Environmental Assessment share a commonality, that seismic activity is likely to have little adverse effects on marine migratory birds. Furthermore, Davis et al. (1998) suggested the lack of data

regarding seabirds and seismic-related surveys reflects the minimal evidence that any effects occur. In addition, research by Lacroix et al. (2003), Stemp (1985), Turnpenny and Nedwell (1994), and Evans et al. (1993), further suggests that disturbance due to seismic exploration surveys has revealed negligible results. Seismic noise emissions are directed downwards (not upwards) from air sources that are located about 9 metres below the surface. These arrays are towed behind the vessel. Thus the vessel steaming at the same rate as a fishing vessel with gear deployed would have no more effect from vessel presence and would encourage birds to take flight off the water well before the air source array passed. Incidental observation by Environmental Observers offshore Nova Scotia have seen Shearwater feeding near the active arrays.

Ramping-up air gun arrays over a 30-minute period is already a mitigation procedure identified in this EA. As far as noise emissions are concerned, there have been few studies on the effects of air source-based seismic surveys on birds. However, there are no data showing that impacts exist. This EA does recognize that it is possible that birds on the water at close range would be startled by the sound, however, the presence of the vessel and associated gear dragging in the water should have already warned the bird of unnatural visual and auditory stimuli.

EC-18, Page 182, Section 6.1.4.3 Vessel Discharge and Accidental Events, Second Paragraph:

The Williams and Chardine protocol is not appropriate for dealing with oiled birds, but rather is used for stranded Leach's Storm-petrels. Since even small spills of oil can have very serious effects on migratory birds, every effort should be taken to ensure that no oil spills occur. The proponent should ensure that all precautions are taken by contractors and staff to prevent fuel leaks from equipment, and that a contingency plan in case of oil spills is prepared. In order to assist proponents in preparing a plan for dealing with an oil spill which would potentially threaten birds, EC-CWS has prepared a guidance document (attached; still in draft form), as well as a sample protocol document used for oiled birds on beaches. A protocol for handling non-oiled but dead birds found on the vessel is also attached. Please note that a federal permit, under the MBCA, is required for handling migratory birds.

MKI Response

In subsection 6.1.4.5 in this EA, it is written that the Proponent will comply "with OWTG (NEB et al. 2010) and MARPOL for all discharges".

CWS provided the handling protocol for birds that land on vessels and may get some oil on them from the deck. MKI does possess a bird handling permit. The program is not expect to create small or massive oil spills, as implied or anticipated from bilge discharge from the shipping industry or platform blowouts.

EC Section 6.1.4.3 Vessel Discharge and Accidental Events, Third Paragraph:

See EC-01. Unexpected discharges of oil should be considered in the environmental assessment, and the oil spill response plan for this project should be sent to EC for review.

MKI Response

In subsection 6.1.4.5 in this EA, it is written that the Proponent will comply "with OWTG (NEB et al. 2010) and MARPOL for all discharges". As indicated above, the vessel has an approved DNV SOPEP Plan.

EC Section 6.1.4.3 Vessel Discharge and Accidental Events, Page 182, paragraph 6

How is oil suspected to be in the water? It should be detected.

MKI Response

Agreed.

EC Section 6.1.4.4 Monitoring and Follow-up:

EC-CWS has attached an updated protocol for pelagic seabird surveys (Gjerdrum et al. 2011), which is a finalized version of the draft protocol listed in the EA report. This final version should be used in the revised EA report.

MKI Response

While the suggested protocol was not available during the preparation of this EA, the Proponent will utilize the Gjerdrum et al. (2011) final version instead of the Interim protocol as noted in section 6.1.4.4.

EC Section 6.1.4.4 Monitoring and Follow-up:

“MKI will ensure that CWS is provided field data collection with respect to marine birds.”

In an effort to expedite the process of data exchange, EC-CWS requests that the raw data (pertaining to migratory birds and species at risk) collected from these surveys and summary reports be forwarded in digital format to our office.

MKI Response

Agreed. Survey data will be sent to EC-CWS in digital format as we have in the past for other programs.

EC Section 6.1.4.4 Monitoring and Follow-up, Table 6.1: Summary of Environmental Assessment for Marine and Migratory Birds (Interactions and Issues):

“Disturbance from vessel noise and lights” should be changed to “Disturbance and death from collisions due to vessel noise and lights”.

MKI Response

It is felt that the word ‘death’ in this statement is excessive and inflammatory. As mentioned in EC-17, “seismic activity is likely to have little adverse effects on marine migratory birds”. As such, the likelihood that birds will die as a result of vessel noise and lights is extremely rare. Furthermore, recently submitted and approved EAs, eg. LGL Limited (2011a), LGL Limited (2011b), and LGL Limited (2011d), do not mention death of seabirds as a result of collisions due to vessel noise and lights. CES has never requested this descriptor before.

EC Section 6.1.4.4 Monitoring and Follow-up, Table 6.1: Summary of Environmental Assessment for Marine and Migratory Birds (Impact Analysis)

The effect of light attraction on marine birds has not been verified. More data on the distribution and abundance of marine birds in the vicinity of the study area are essential for assessing the accuracy of predictions. Globally significant concentrations of marine birds are known to use the Grand Bank, and may concentrate in the vicinity of the proposed survey area. Data on marine birds are required from the project in order to assess risk and mortality should an accident occur.

MKI Response

Accident is not defined in the comment. The response to EC-16 applies.

Section 6.1.4.5 Table 6.1 Summary of Environmental Assessment for Marine and Migratory Birds (Mitigation)

A dedicated observer will be on board the seismic vessel to record marine birds and incidents of collisions, oiling and stranding Vessel compliant with audit prior to survey. Maintenance of equipment and responsible management of such equipment. Compliance with OWTG (NEB et al. 2010) and MARPOL for all discharges.

It is not clear how all of the above measures list can be considered mitigation. For example, observing and recording incidents is not considered mitigation. In the second bullet there should be some

reference to specific audit protocols, and in the third there should be some reference maintenance and management protocols, plans and standards.

MKI Response

The C-NLOPB EA scoping document did not require submission of a corporate/vessel management system. Such documentation is provided to the health and safety division of the C-NLOPB for vessel permitting. CWS has never requested this documentation in previous EAs nor requested it for inclusion during the FEAC process.

Section 6.2.4.2.5 Page 201, paragraph 4

Mitigation measures to minimize the impact of seismic operations on fish spawning include:

- To minimize sudden changes in noise levels, a ramp up procedure will be implemented;
- All discharges will comply with Offshore Waste Treatment Guidelines;
- A Spill Prevention Program will be implemented; and
- An Emergency Spill Response Plan will be developed and implemented when required.

Concerning the last item in the above list, an Emergency Spill Response Plan should be developed, tested and in place before it is required.

MKI Response

MKI is set up with the Eastern Canadian Response Corporation and has a DNV approved Shipboard Oil Pollution Emergency Plan.

EC Section 6.5.4 Effects Assessment

Each of the issues identified earlier in the text for migratory birds in general (e.g. sound, lights, oil, etc.) should be further considered for the Ivory Gull as a species at risk potentially affected by project activity in this area.

MKI Response

Ivory Gull occurrence in the Study Area is very scarce during the months of January to April. Gilchrist and Mallory (2005) noted that Ivory Gulls are associated with pack ice at all times of year. Given that this Project's temporal boundary is May to November, the likelihood of encountering Ivory Gulls is probably non-existent. Furthermore, recently submitted and approved EAs, eg. LGL Limited (2011a), LGL Limited (2011b), and LGL Limited (2011d), do not discuss issues such as sound, lights, oil, etc. on the Ivory Gull.

EC Section 6.5.4.1 Marine and Migratory Bird Species at Risk:

EC-CWS notes that the study area is offshore and that any incidental presence of the Ivory Gull will occur in the offshore during the winter season (i.e. over-wintering in the Study Area).

MKI Response

Given that this Project's temporal boundary is May to November, the likelihood of encountering over-wintering Ivory Gulls in the Study Area is probably non-existent.

FISHERIES AND OCEANS CANADA

Section 2.2 Project Overview Page 6, Table 2.1

It would be helpful if the airgun array operating value was also provided in the same units as the CEAA trigger (kPa).

MKI Response

1 kPa = 0.01 bar

138 -172 bar-m = 13800 - 17200 kPa

Section 5.1 Marine Physical Setting Page 32, Figure 5

This Figure should show the Labrador Basin and the Labrador Current as referenced.

MKI Response

Comment noted. If an update report is required for next year's program, then these labels will be added to the map.

Section 5.4 Ocean Resources Page 104 (Skates)

More explanation and a primary literature reference should be provided for the following statement, "... distribution and densities within these areas (NAFO Div. 3LN) are diminishing."

MKI Response

Simpson, M.R., Mello, L.G.S., Miri, C., Treble, M.M., and Siferd, T. 2011. A pre-COSEWIC assessment of thorny skate (*Amblyraja radiata* Donovan, 1808) on the Grand Bank, Newfoundland Shelf, Labrador and northern waters. DFO Can. Sci. Advis. Sec. Res. Doc. 2011/084. iv + 56 p.

"Research survey indices of relative abundance and distribution varied little since the 1970s in Div. 3OPs (southwestern Grand Bank and Laurentian Channel); whereas in Div. 3LN (northern and eastern Grand Bank), *A. radiata* experienced considerable declines in abundance and area occupied during the early 1990s". Survey catch data indicate that the distribution of *A. radiata* on the Grand Bank (Div. 3LNO) has changed over time. During the 1970s and 1980s, *A. radiata* concentrations were more widespread and occupied most of the Grand Bank; but abundance declined in the northeast Grand Bank in the late 1990s, and became more concentrated along the southwest extent of the Grand Bank. According to catch distributions from both series, the concentration has its centre of distribution located over the Grand Bank in NAFO Div. 3LNO and extending into Subdv. 3Ps along the shelf slope. Fall plots confirm mostly low fish densities elsewhere (<1 kg/tow).

Important declines in both fish density and extent of distribution occurred in the northern and eastern Grand Bank areas (Div. 3LN), which have persisted since the 1990s. High density tows have been mostly absent from these areas; except along the eastern Shelf edge from 2000 onwards. The detected changes happened several years prior to the surveys changing from Engel to Campelen trawl (1995-96), and thus were not related to changes in gear type. Area occupied in spring by *A. radiata* in Div. 3LNO declined from 92 % in 1981 to 45 % in 1995, and then varied between 39-60 % during the last decade.

Considerable declines in *A. radiata* abundance and extent of distribution occurred in Div. 3LN during the early 1990s; and (v) some signs of stock recovery have been detected, as the indices of relative abundance tended to increase in most areas during the last decade.

Concurrent with the decline in survey indices of abundance, commercial catches of *A. radiata* reported by NAFO in Div. 3LNO declined from an average of 18,000 t annually (1985-91) to 7,500 t in 1992-95, and since 2000 estimated catches have averaged 9,000 t; although catch over the last 5 years averaged 5,300 t. Of note, survey indices for the same areas have been mostly stable since 1996, and that increasing trends in abundance and area occupied occurred only in recent years (2002-08). These statistics suggested that fisheries removals is a potential factor influencing *A. radiata* population dynamics on the Grand Bank.

5.4 Ocean Resources, Table 5.16, Table 5.17 and Table 5.18

There are inconsistencies between COSEWIC designations and the text. The COSEWIC designated populations and the most recent designations need to be cross-referenced and the most recent information sources referenced (e.g., Atlantic Cod Science Advisory Report (2011/026), Can. Sci. Advis. Sec. Proceed. Ser. 2010/053; Blue Whale, Atlantic Population – Recovery Strategy, Feb 2012).

MKI Response

The dates that appear in Tables 5.16, 5.17 and 5.18 beside the COSEWIC designated species are those provided by COSEWIC and refer to the year that the designation was established. This date is not linked to any DFO publications such as that referred to (e.g. 2011 article on the Blue Whale recovery strategy).

5.4.4 Marine Fish and Shellfish

Species distribution maps from 1998-2000 survey data are outdated. Current distribution maps of fish species could be generated from recent DFO Spring and Autumn RV survey data which is available from DFO upon request.

MKI Response

Agreed. Mr. Kulka has privately consulted previously and contributed to the production of such distribution maps to EAs, however, the delivery of such maps due to his considerable commitments on other matters would have delayed this EA significantly by several months. These maps were used in the 2009 SEA report.

5.4.4 Marine Fish and Shellfish Page 98: The study area covers a section of 3N; therefore 3NO cod should be included.

MKI Response

Agreed. Cod in 3NO should be added to the table.

5.4.4 Marine Fish and Shellfish Page 100: The description of American plaice should incorporate discussion of Morgan (2001, *J. Northw. Atl. Fish. Sci.* Vol. 29, p41-49).

MKI Response

In addition, the Div. 3LNO population as a whole was found in deeper waters (Morgan and Colbourne, 1999; Morgan, 2001). This raises the possibility of mixing between the two populations, at least in the area of the Flemish Pass.

Morgan, M.J. 2001. Time and location of spawning in American plaice in NAFO Divisions 3LNO. *J. Northw. Atl. Fish. Sci.*, **29**: 41-49.

5.4.4 Marine Fish and Shellfish Page 104: "... The Atlantic population of deepwater redfish is designated as threatened under COSEWIC..." There are two species of redfish that would reside within the study area but only the deepwater redfish is mentioned (Acadian redfish is not included).

MKI Response

Page 104 of the EA states “The Atlantic population of the deepwater redfish is designated as threatened under COSEWIC and is discussed in that context below. This species is discussed in Table 5.16 under SAR.

§ 5.4.4 Marine Fish and Shellfish Page 128: A primary reference should be identified for the following statement, “Wolffish and roughhead grenadier, amongst other species are known to use EBSA and it is important area for the reproduction and survival of striped wolffish (CPAWS 2009)”.

MKI Response

Not provided in CPAWS 2009

5.4.6 Species at Risk Page 131

Reference to Figure 5.52 showing the VMEs and EBSAs within the Study Area would be helpful.

MKI Response

Provided in Figure 5.54.

5.4.7 Sea Turtles Page 134

The Leatherback turtle/Southeast Shoal EBSA discussion should include a reference to Figure 5.52.

MKI Response

There is no specific leatherback turtle EBSA, yet. The Southeast Shoal is discussed in detail, mapped and referenced in Figure 5.52. Page 138 “Four EBSAs overlap the Study Area as shown in Figure 5.52”

5.4.8 Sensitive Areas Page 136

Establishing Areas of Interest of Marine Protected Areas are not the only management options for EBSAs. Additional EBSA management models should be incorporated in the discussion. The Southern Newfoundland Strategic Environmental Assessment <http://www.cnlopb.nl.ca/pdfs/snses/snseaapp1.pdf>) would facilitate this discussion.

MKI Response

Noted for future EAs, but an extensive discussion is provided in this EA on the various management areas.

5.4.8 Sensitive Areas Page 142

A Total Allowable Catch (TAC) has been re-established for Redfish in 3LN and is therefore not a NAOF Fishing Closure.

MKI Response

Current date at the time was used in the EA. Noted for future reviews of commercial fisheries in the Study Area.

5.5.1 Commercial Fisheries

Nearshore and offshore fleets harvest different species and have different requirements (i.e., fishing patterns). Separate information for each of these fleets should be provided, including the number of vessels and relative species dependency. In order to benchmark the value of the fishery in the study area, the average landed value per species over the 2005-2010 period should be provided.

MKI Response

The Study Area is located far offshore. Providing inshore fleet information would be irrelevant. The rationale for not using landed value was provided in the EA. Landed weight is a much better metric to benchmark as weight of fish does not fluctuate as does price per weight. This has not been a requirement of previous EAs in the Newfoundland offshore.

5.5.1 Commercial Fisheries Page 162

The Statement, "However, concerns for over-fishing have reduced the quotas in the last two years." is inaccurate. While there was a biomass reduction, the cause was not identified as over-fishing by DFO or NAFO.

MKI Response

Comment noted.

5.5.1 Commercial Fisheries Page 167

The source of the following statement should be identified, "... An annual survey review document is produced to summarize the results of the survey and is provided to Fisheries Management to assist them in deciding which stocks require a more complete assessment."

MKI Response

DFO 2012. Multi Species Trawl Surveys. <http://www.mar.dfo-mpo.gc.ca/e0011829>

5.5.1 Commercial Fisheries Table 5.22

The figures for SFA 7 should be 18,325 t for 06/07 and 15,994 t for 10/11.

MKI Response

Correction noted.

6.2 Marine Finfish and Shellfish page 185

Reference should be provided for the following statements:

"... recent concerns expressed by Newfoundland fishers on their observation or harvest results following seismic programs in 2011."

"... The effects of intense and potential harmful sound on fish hearing and behaviour are poorly understood. Such noise may disturb fish and may produce temporary or permanent hearing impairment in some individuals, but is unlikely to cause death or life threatening injury."

MKI Response

Reference on "concerns by fishers" is from conversations with fishers at FFAW meetings.

Read pages 186 to 202 of the EA for discussion of effects and the accompanying references.

6.2 Marine Mammals page 205

Mortality or life-threatening injury to individuals of a species at risk should be an independent significance criterion for marine mammals as it is for marine fish.

MKI Response

Can be made verbatim, however the first bullet does address SAR marine mammals in this manner.

6.4 Sea Turtles page 217

Define "short" and "long-term" displacement from preferred or critical habitat by sea turtles.

MKI Response

Long term would imply a multi year period. Short term would be less than a year.

6.5 Species at Risk page 226

The statement, "... There are no recovery potential assessment or recovery strategies finalized or developed yet for roughhead or roundnose grenadier" is inaccurate. A recovery potential assessment was conducted for roundnose grenadier in 2010 (DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2010/021).

MKI Response

Correction noted.

6.5 Species at Risk page 226

There are Recovery Potential Assessment documents now available (CSAS) for Roundnose Grenadier, Acadian and Deepwater Redfish and Atlantic Bluefin Tuna.

MKI Response

Noted. These were not available at the time of preparation. The issue with commercial fisheries is the massive extraction from harvesting. Seismic exploration is not considered a significant threat to fish populations. Seismic exploration issues with harvesting is primarily sharing the space with fishers and minimizing the effect upon their catches.

6.5 Species at Risk page 234

MKI has committed to plan the survey lines for each annual survey "to avoid the EBSAs in May to July as per each EBSA specific sensitive species, until spawning has ceased." Although DFO is pleased with this measure, it is unclear whether it also applies to the Bonavista Cod Box.

MKI Response

Affirmative

6.8 Commercial Fisheries and RV Surveys page 238

There is a spring multi-species bottom trawl survey in NAFO Divs. 3PsnLNO and autumn multi-species survey in NAFO Divs. 2H-3O.

MKI Response

Noted.

8.0 Cumulative Effects page 246

The reference to the Joint Review panel for the Express Pipeline Project in Alberta is a case study. The cumulative effects assessment (e.g., CEAA CEA Practitioners Guide) for a single project should do the following:

1. Determine if the project will have an effects on a VEC;
 2. If such an effect can be demonstrated, determine if the incremental effect acts cumulatively with the effects of other actions, either past, existing or future.
 3. Determine if the effect of the project, in combination with other effects, may cause a significant change now or in the future in the characteristics of the VEC after the application of mitigation for that project.
- http://www.ceaa-acee.gc.ca/43952694-0363-4B1E-B2B3-47365FAF1ED7/Cumulative_Effects_Assessment_Practitioners_Guide.pdf

A CEA should examine the effects of each VEC until the incremental contribution of all activities and of the project (total cumulative effect), is understood. Based on this it is recommended that a summary table of environmental effects should be completed for each VEC (e.g., Table 6.12, Page 243).

MKI Response

Comment noted for future EAs.

8.2 Marine Fish pages 247-248

Exposure to low-frequency ship noise may be associated with chronic stress in whales. If available, please incorporate: Rolland, R.M., Parks, S.E., Hunt, K.E., Castellote, M., Corkeron, P.J., Nowacek, D.P., Wasser, S.K., and Krauss, S.D. 2012. Evidence that ship noise increases stress in right whales. Proceedings of the Royal Society B: Biological Sciences (In press.)

MKI Response

This article is not yet available and noted for future EAs. This EA was prepared well in advance of this article.

8.2 Ocean Resource Users page 250

The statement, "In the event of another seismic survey being conducted in the vicinity within the proposed timeframe, a significant distance between surveys will be necessary to prevent both operational conflict and acoustic interference." "A significant distance", should be given a numerical value.

MKI Response

Typically this distance is between 40 and 50 km, as noted in section 8.3.2.

9.2 Conclusions/Executive Summary

The executive summary concludes; "With the application of mitigative measures, this environmental assessment predicts that potential adverse environmental effects on the above VECs will not be adversely significant because the potential extent of physically harmful sound levels on fish occurs within 20 m or less of the air gun source. No other marine species is expected or known to experience physical harm by these surveys."

Similarly, the summary of environmental assessment for marine fish and shellfish states: "Although there are few studies on the effects of seismic surveys on specific fish species in Newfoundland waters, research studies show that mortality or serious injury is unlikely beyond a distance of approximately 2 m from the sound source."

These statements are based on limited (one to three airguns) studies to investigate mortality or overt pathological effects. These statements should acknowledge the knowledge gap with respect to recent studies on distance-effect relationships as well as physiological effects of sound on fish and shellfish.

MKI Response

These statements are based on the many scientific research observations of full arrays as well as the DFO benchtop studies.

CANADA-NEWFOUNDLAND AND LABRADOR OFFSHORE PETROLEUM BOARD

1.1 Purpose and Need for the Project, 2nd para., pg 1 – Is the statement "fulfilling work commitments....the C-NLOPB" relevant.

MKI Response

No.

1.3 Regulatory Context, pg 4 – The *Geophysical, Geological, Environmental, and Geotechnical Program Guidelines* have been revised. Please refer to the January 2012 version.

MKI Response

Comment noted. The SOCP statement in the 2011 version referred to is still valid in this EA.

1.5 Stakeholder Consultation, pg 4 – Details of the stakeholder consultation should be provided. When were the consultations conducted? Who was contacted? What information was provided? What were the results of the consultation process? How and where were they incorporated into the EA Report. Table 3.1 on page 22 should not be considered a report on stakeholder consultation.

MKI Response

The reference list is the proposed list for the consultations, not a report. See Table 3.1. This level of information in previous EAs for the C-NLOPB has been acceptable and approved. Comment noted for future consultations. These are ongoing with the FFAW.

Consultations were conducted in early 2012 in preparation for the EA. In person meetings were held on February 7th with FFAW, Once Ocean, and Harvesters. MKI returned to meet with FFAW, One

Ocean on March 13th at their request. Both the existing Labrador 2012 program and the Northeast NF Slope program were discussed. The FFAW was shown in confidence a map of the program lines and a dialogue was opened on best timing with regards to both programs. Environment Canada, DFO, CWS were constantly communicated with in preparation of the EA via telephone and email with Yolo Environmental. Fisheries data, CWS data were incorporated into the EA in the Figures and in the text.

2.1 Project Name and Location, pg 5 – The coordinates for the “Project Area” should be provided as well. MKI should also include the area where the 2012 program will be conducted. There are four coordinates identified for the “Study Area” but the Study Area identified on Figure 1.1 is not square in shape. Please review and provide accurate coordinates.

MKI Response

The four coordinates shown represent the maximum extents of the study area.

Coordinates for the Study Area are provided in Appendix 3. Coordinates for the Project Area are provided in Appendix 4.

2.2 Project Overview, 1st para., pg 6 – It is not clear what is meant by the statement “Although the environmental assessment...geophysical surveys”. When will environmental mitigations for the planned geophysical surveys be addressed?

MKI Response

MKI confirms that an MMO and FLO will remain onboard for the duration of the program. This statement was meant to mean they had not already been contracted.

2.3.2.2 Alternatives to Program Timing, pg 8 – It is stated that “MKI have scheduled their 2012 survey to minimize interference with shellfish harvesting”. It is important that a change in this schedule should be communicated well in advance of project commencement

MKI Response

This mitigation is repeated throughout the commercial fisheries section as a result of meetings with FFAW during the early part of 2012.

2.4 Project Components, pg 8 – “a support chase/picket vessel”. Please confirm that a dedicated chase vessel will be included as a component of the 2-D survey. It is stated on page 17 that the “support vessel’s” primary function is to provide supplies for the seismic vessel and to assist in emergency situations (including oil spills).

MKI Response

MKI confirms that there will be a dedicated support vessel for the duration of the program..

2.4.1 Seismic Vessel, pg 9 – Is it MKI’s intention to use the “M/V Sanco Spirit” for every survey conducted between 2012 and 2017? If not, it should be confirmed that it is only for the 2012 program and that other vessels with similar specs may be used between 2013 and 2017.

MKI Response

It is MKI’s intention to use the M/V Sanco Spirit for the 2012 season. Should this not be the vessel for future surveys another vessel with similar specifications may be used between 2013 – 2017.

2.4.1 Seismic Vessel, last para., pg 10 – “It is estimated that...identified survey area”. The Project Area should include the area required for the survey vessel turning radius.

MKI Response

Confirmed that it does.

2.4.1.1 Shipboard Oil Pollution Emergency Plan (SOPEP), 1st para., pg 10 –It is not clear what is meant by the following sentence “*Used correctly in a given situation, you and we as ship operator will, avoid any claims and responsibility from official authorities*”.

MKI Response

Operators prepare for Operations, by having approved SOPEP Plans to assist them to avoid situations as best possible.

2.4.1.1 Shipboard Oil Pollution Emergency Plan (SOPEP), 3rd para., line 9, pg 10 – Should “presentation” be “prevention”.

MKI Response

Correct

2.4.1.2 Waste Management – Sanco Shipping AS, pg 11 – “Office Manual”. The name implies that it is available in the office. Is it also applicable and available to personnel on the vessel?

MKI Response

Yes

2.4.2 2-D Seismic Survey Towed Array, 1st para., pg 14 –“MKI will include a 10-12 km vessel turn around perimeter around the “survey area”

MKI Response

“MKI included a 15 km vessel turn-around perimeter within the Project area”. Page 14, correction “survey Area” should be replaced with “Project Area”

2.4.4 Logistical Support, 2nd para., last line, pg 17 – Do you mean “fishers” instead of “fisheries”.

MKI Response

Fishing equipment is correct.

2.5.2 Atmospheric Emissions, pg 18 –The term “minor” has not been defined.

MKI Response

Minor in the context of global and regional hydrocarbon engine emissions.

2.6 Potential Malfunctions and Accidental Events, last para., pg 20 – “*if wave heights reach or exceed unacceptable limits*”. What are these limits?

MKI Response

Typically this is 2-3 meters for conventional hydrophones; however, the PGS proprietary GeoStreamer® system can operate in more severe weather conditions, with wave heights of up to around 4 meters.

3.1 C-NLOPB Scoping Requirements, pg 21 – The C-NLOPB identified “potential issues” to be “considered” not “issues of concern”.

MKI Response

Comment noted.

Section 4 Environmental Assessment Methodology, pg 23 – The correct reference for the “Canada-Newfoundland and Labrador Offshore Resources Accord Implementation Act” is the *Canada-Newfoundland Atlantic Accord Implementation Act* and the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act*.

MKI Response

Comment noted.

Section 4 Environmental Assessment Methodology, pg 23 –All the factors in subsection 16(1) of the CEAA should be listed.

MKI Response

Comment noted. Previous EAs have been approved without this complete list. Those projects were found to be not significant to the marine environment.

4.1 Approach, 2nd para., pg 23 – “valued environmental components (VECs)” should be “valued ecosystem components (VECs)”. Also applicable in Section 4.2.1.

MKI Response

Comment noted

4.2.3.1 Temporal Boundaries, pg 25 – Please define the “licence area”.

MKI Response

Replace “licence area” with “Study Area”.

4.2.3.2 Spatial Boundaries, pg 25 – There appears to be some confusion with regard to Spatial Boundaries. Section 5.1 of the “Multi Klient Invest AS Northeast Newfoundland Slope Area Seismic Program 2012 – 2017 Scoping Document” (C-NLOPB January 4, 2012) states that *The proponent shall clearly define, and provide the rationale for the spatial and temporal boundaries that are used in its EA*. Specifically, the EA report shall clearly describe the spatial boundaries (e.g. Project Area, Study/Affected Area, Regional Area). The “Project Area” should be defined and as stated in the Scoping Document and should be *“the area in which seismic survey activities are to occur, including the area of the buffer zone normally defined for line changes”*. There is inconsistency in terminology used throughout the EA Report for the “Project Area” (e.g. Study Area, Licence Area, Project Activity Area, Survey Area). This should be reviewed and corrected.

MKI Responses

Licence Areas are used to refer to other operators with licensed areas.

The Project Area represents acquisition and line turns. The Study Area represents an additional 20 km (known as the “affected area”).

On page 5 where it reads “survey area”, it should read “Study Area”

Page 10 reads “... depending on the size of the survey area. Reaching the end of the track will take two to three hours to turn around. It is estimated that the survey vessel will require a turning radius of 10 km to 12 km outside the identified survey area”. It should read, “... depending on the size of the **Project** area. Reaching the end of the track will take two to three hours to turn around. It is estimated that the survey vessel will require a turning radius of 10 km to 12 km **inside** the identified **Project** area”.

Page 14 reads, “MKI will include a 10 to 12 km vessel turn-around perimeter around the survey area.” should be corrected to read “MKI will include a 10 to 12 km vessel turn-around perimeter **within** the **project area**.”

Page 20 reads, “... who may have gear deployed in the Project Activity Area...” It should read, “who may have gear deployed in the **Project Area**...”

Page 168 reads, “...and occur within the Survey Area...” It should read, “...occur within the **Study** Area...”

Page 227 reads, "...The Survey Area is not located in..." should read "The **Study Area** is not located in..."

Page 239 reads "Survey Area" and should read "Study Area"

4.2.4 Interactions Between Project Activities and VECs, Table 4.2, pg 27 – Table 4.2 does not appear to be complete. Please update and include the complete list of identified VECs, as per the reference to Section 6.

MKI Response

Table.1: Potential Project-environment Interaction Matrix

Valued Environmental Component	Marine and Migratory Birds	Marine Fish and Shellfish	Marine Mammals	Sea Turtles	Species at Risk	Special Areas	Commercial Fisheries	Marine Traffic	Petroleum Industry	Military Operations
2-D Seismic Survey - Noise Emissions (Acoustic Array)	X	X	X	X	X	X	X			X
Vessel Presence	X	X	X	X	X		X	X	X	X
Presence of Streamers and Cables			X	X	X		X	X	X	X
Accidental Spills	X	X	X	X	X	X	X			

5.1.2 Seafloor Stratigraphy, Figure 5.2, pg 34 – Please revise figure to ensure that the legend can be read. This is also applicable to other figures throughout the report.

MKI Response

The large scale nature of the Study Area makes it difficult to make all legends a large font. The figure supports the text in Figure 5.2. This is a seafloor geology map and has very little bearing on the environmental assessment outcome of a seismic program. There are more than 80 figures in this report and the vast majority are legible.

5.4.8.7 Corals and Sponges, figure 5.53, pg 141 – NAFO Divisions are not on the figure.

MKI Resources

Agreed. The coral areas are dictated by NAFO but it is not fisheries harvesting related.

5.5.2.1 Commercial Marine Traffic, pg 169 – "light to moderate and light to very light". These terms have not been defined. Data to support this conclusion should be included.

MKI Response

Based on traffic density data from Department of Fisheries and Oceans Canada – ECAREG (2007d))

5.5.5 Petroleum Industry, pg 172 – Please provide the source of this information.

MKI Response

Source of the information is from the C-NLOPB website of active and completed project EAs.

6.6 Sensitive Areas, pg 232 – This section should reference Figure 5.52. Southeast Shoal and Tail EBSA, as identified on Figure 5.52 is outside the Study Area.

MKI Response

In the past DFO has been concerned about any EBSA inside or outside of the Study Areas and has raised queries to that effect. Lessons learned from previous EAs and regulatory queries are incorporated into this EA.

6.8.1.2 Potential Interactions and Issues, pg 236 – Reference is made to 3Ps, 3Pn and 4Vn. The figure identifying these areas should be referenced. Figure 5.55 on page 145 does not include 3Ps, 3Pn and 4Vn.

MKI Response

Correction required, the NAFO divisions in the Study Area are not inclusive of 3Ps, 3Pn and 4Vn.

6.8.1.4.1 Vessel Presence, 1st para., last sentence, pg 237 – “For the 2-D survey....but not in any one area”. As requested above, please provide details of the 2012 survey. It has already been stated that a plan has been developed and provided to FFAW, fishers, and One Ocean. Survey activity can only occur in the Project Area that has been identified in the EA Report.

MKI Response

Details of the 2012 survey are provided in the project description section. Survey lines were provided in confidence to the FFAW for discussion purposes with the fishing captains. This sentence does not state that the survey will occur outside of the Study Area. MKI confirms that survey activity will only occur in the Project Area that has been identified in the EA.

6.8.1.4.1 Vessel Presence, pg 238 – Mitigations measures.....

Avoidance Mitigation – “avoiding active fixed gear fishing areas”. Active fishing areas should be avoided, not just fixed gear fishing areas.

Avoidance Mitigation – “streamer deployment during transits to a survey area”. If it is the intention to deploy streamers outside the Project Area, then this activity should be included in the assessment. In particular, for the 2012 program, if the vessel is entering the Project Area from the Labrador Shelf Project Area after completion of this program, then this activity should be addressed.

Avoidance Mitigation – “As noted above, a route analysis...undertaken before the transits”. Adequate time should be allowed for these discussions.

Communications Mitigation, 1st para, last sentence – It should read “Open lines of communications between “participants in” the commercial fishery and “MKI” should prevent potential adverse effects”.

Communications Mitigation, 2nd para – The exchange of survey information should be transmitted and obtained well in advance of commencement of the survey.

MKI Response

All fisheries discussions have occurred with respect to active heavily fished areas and gear sensitive areas and discussions will continue to occur as the program progresses.

It is not the intention to deploy the Streamer outside the Project Area. Comment noted regarding transit between Labrador Shelf program and this program.

6.8.1.4.1 Vessel Presence, last para., pg 239 – “The long term observations and experience with seismic program offshore Nova Scotia and Newfoundland provides a high level of confidence in this assessment”. Please provide references for this statement.

MKI Response

This is a professional judgement statement. Based on the numerous EAs approved and apparent lack of evidence of significant effects reported by ocean users, there is a high degree of confidence that this statement is valid.

6.8.1.4.2 Noise Emissions, last para., pg 242 – “It was agreed with MKI.....data analysis of reduced landings.” It is not clear what is meant by this sentence.

MKI Resources

This sentence means that MKI has agreed to delay acquisition in certain areas and will acquire these lines upon a mutually agreed date within our 2012 acquisition season. In addition a NRC sponsored study is being conducted to try and determine if there is any evidence of a correlation between seismic and reduced shrimp catches.

6.8.2 Follow-up and Monitoring, pg 243 – “Key shore-based personnel...line scheduling.” Do you mean the SPOC that was identified earlier in the report.

MKI Response

This refers to MKI staff working with the SPOC. Canning and Pitt will be on contract for Single Point of Contact.

7.1 Metocean, 2nd para., pg 245 – “A reflection of climate change”. Please provide the reference for this statement.

MKI Response

Greg Holland National Center for Atmospheric Research
Kossin, J. 2008 Is the north Atlantic hurricane season getting longer. Geophysical Research Letters Vol 35.
Michael Mann, Penn State University
Kerry Emanuel, MIT

7.1 Metocean, last para., pg 245 – “A weather observation and site-specific forecasting program would be “prudent”. Does this mean that MKI will be undertaking this program.

MKI Response

Affirmative

7.1 Metocean, 4th para., pg 245 – “reduced visibility of less than one kilometer occurs from 40 to 50% of the time.” How does this affect the survey program?

MKI Response

Fog is a natural weather condition off the Atlantic coast and technology is available for vessel operation (i.e. radar).

7.2 Ice, pg 245 – “Sea ice and icebergs...limits of these seasonal phenomena”. Please expand on this statement, in particular, how they are expected to be a factor for seismic operations.

MKI Response

Section 5.2.12 describes sea ice conditions. It is possible that sea ice maybe in the area in the early period of their program requiring re-evaluation of data collection areas.

8 Cumulative Effects Assessment, Table 8.1, pg 246 –The source should be identified and reviewed for completeness.

MKI Resources

The source is from the C-NLOPB website on project based environmental assessments.

8.2 Marine Fish, Sea Turtle, pg 249 – “A trained Environmental Observer will keep records of marine turtles within visual range, weather permitting.” What is meant by “weather permitting”?

MKI Response

Weather that permits visual observation.

8.2 Marine Fish, Sensitive Areas, pg 250 – “MKI has committed to avoiding the EBSAs before end of July”. Please make reference to each EBSA and identify the reasoning for avoidance before the end of July.

MKI Response

This end of July 2012 commitment is an accumulation of the windows of avoidance for those spawning sensitive EBSAs. Those EBSAs occur in the same quadrant of the Study Area and avoidable until that month. This avoidance allows for better planning of line surveys.

8.3.1 Marine Traffic, pg 250 – Please define “small” and provide reference to the section of the report where this has been described.

MKI Response

This refers to the marine traffic density, where one seismic vessel traffic is small in density to the collective traffic by commercial and fishing traffic.

8.3.2 Offshore Petroleum Activity, last sentence, pg 250 – “The MKI will not be surveying in the area of the production platform or during exploration drilling areas while they are underway.” There are established safety zones around production and drilling facilities (and other authorized activities) that the survey vessel should not enter. The locations of these safety zones are available from the Coast Guard.

MKI Resources

This is also noted on page ii in the executive summary.

8.3.3 Commercial Fisheries, 1st para., pg 250 – “Seismic vessel activity is minor component of total marine transportation.” Again, define “minor” and reference the section of the report where this has been described.

MKI Response

This refers to the marine traffic density, where one seismic vessel traffic is small in density to the collective traffic by commercial and fishing traffic.

8.3.3 Commercial Fisheries, 2nd para., pg 250 – “As discussed above, shrimp fishers are investigating a sudden decrease...following two WesternGeco surveys.” Please identify where in the report that this has been previously discussed and provide the source for this statement.

MKI Response

Source of this information is the FFAW and the appropriate caveats are discussed in the report.

8.3.3 Commercial Fisheries, 3rd para., pg 250 – “a significant distance”. Please define “significant distance”.

MKI Response

As noted in Section 8.3.2, 40 to 50 km. Alternatively if this is not practical then time sharing planning is then a further option.

9.1 Summary of Mitigation and Follow-up, Table 9.1, pg 252 – See previous comment regarding complete list of mitigation measures.

MKI response

With respect, this is a vague reference; there were many queries on mitigation.

9.1 Summary of Mitigation and Follow-up, Table 9.1, pg 252 – Please review and ensure that all mitigation measures for all VECs are included.

MKI Response

Table 9.1: VEC – Specific Mitigation Measures and Follow-Up

VEC	Mitigation Measures	Follow-Up
Marine and Migratory Birds	A trained Environmental Observer will be onboard the seismic or chase vessel throughout the duration of the survey will record sightings of marine mammals, seabirds and sea turtles on a daily basis.	A trained observer will record marine mammal, sea turtles and seabird observations.
Marine Mammals	The Fisheries Liaison Officer will be onboard the seismic vessel	Records of sea turtle sightings will be reported to the Atlantic Leatherback Turtle Working Group.
Sea Turtles	Adherence to the Statement of Canadian Practice on the Mitigation of Seismic Noise in the Marine Environment, to the extent reasonably practical.	Sightings data for seabirds, marine mammals and sea turtles will be summarised in a monitoring report which will be made available to C-NLOPB for their distribution to DFO and CWS.
Species at Risk	A 20 to 40 minute ramp-up procedure will be undertaken. Ramping up will be delayed if a marine mammal at risk or sea turtle is observed in the 500 m safety zone. Airguns will be shut down or reduced to a smaller airgun while the vessel is doing turns between survey lines. The Environmental Observer will ensure the delay or shut down of seismic operations if endangered or threatened whales are present within 500 m. Any re-start of the airgun array will follow the ramping up procedure. vessels will maintain a steady course and speed, and use existing travel routes, where possible. Compliance with MKI WMP, Canada Shipping Act and MARPOL for all discharges. Turtle/debris guard attached to tailbuoy Any handling of stranded birds will follow CWS and industry protocols.	All spills will be reported to the C-NLOPB and Coast Guard.
Marine Fish and Shellfish	Sensitive areas and sensitive time periods (<i>i.e.</i> , cod spawning) will be avoided. Adherence to the <i>Statement of Canadian Practice on the Mitigation of Seismic Noise in the Marine Environment</i> , to the extent reasonably practical. To minimize sudden changes in noise levels, a 20 to 40 minute ramp up procedure will be implemented	No follow up or monitoring required for routine activities

VEC	Mitigation Measures	Follow-Up
Sensitive Areas	Operations will not take place within the EBSA until after July.	No follow up or monitoring required for routine activities All spills will be reported
Ocean Resource Users	<p>Before start of the operations, a meeting will be held with FFAW and MKI representatives to review sail lines, scheduling, anticipated fishing vessels and gear types, mitigating measures, expectations of all parties and Emergency Response Plans.</p> <p>A Notice to Mariners on the location and scheduling of seismic activities will be issued.</p> <p>Communication mechanisms will be developed with the fishing industry and DFO research surveys.</p> <p>Fisheries observers on the seismic vessel will monitor fishing activity and serve as a liaison between the fishing and seismic vessels;</p> <p>A Notice to Shipping and notification on the CBC Fisheries Broadcast on the location and scheduling of seismic activities will be issued.</p> <p>MKI will comply with C-NLOPB's compensation guidelines.</p>	The FLO report will be document daily vessel activities and fisher interactions and submitted to the C-NLOPB upon completion of the program

9.1 Summary of Mitigation and Follow-up, Table 9.1, pg 252 – Species at Risk, line 1 – “a meeting”. Who will be attending the meeting?

MKI Response

Meetings will be held between FFAW and MKI to arrange use of ocean space to avoid conflicts.

Appendix 1

DNV Approval Letter (SOPEP)



Vaagland Båtbyggeri AS
6683 VÅGLAND
Norway

Att: GUDMUND E. HILLESTAD

DET NORSKE VERITAS AS
DNV Maritime, Region Nordic
Countries, the Baltic and Germany
Statutory
Veritasveien 1
1322 Hovik
Norway
Tel: +47 67 57 99 00
Fax: +47 67 57 99 11
<http://www.dnv.com>
Org. No: NO 945 748 931 MVA

Your ref.:

Our ref.:

MNBNA843/EGIL/D28166-J-360

Date:

2009-04-28

"SANCO SPIRIT" - VAAGLAND BÅTBYGGERI AS 141, Id.No. D28166

Reference is made to your letter dated 2009-03-18. Please find enclosed 3 copies of the following document (SOPEP front page) stamped 2009-04-28:

Drawing No.	Rev.	Title	Code	Status
141102105	A	Shipboard Oil Pollution Emergency Plan (SOPEP)	950.11	Approved

Drawing No. 141102105/ A, "Shipboard Oil Pollution Emergency Plan (SOPEP)" is approved in accordance with the requirements of MARPOL 73/78, Annex I, Reg.37 in compliance with amended IMO Resolution MEPC.86(44).

You are kindly requested to forward the vessel one complete approved SOPEP.

Our file is updated accordingly.

Yours faithfully
for DET NORSKE VERITAS AS

Alf Roger Skevig
Head of Section
MARPOL

Egil Andresen
Contact Person

Copy to : DNV Kristiansund N



DET NORSKE VERITAS

DNV Id No.: 28166

**SHIPBOARD
OIL POLLUTION EMERGENCY PLAN
(SOPEP)**

This manual is approved by Det Norske Veritas AS
on behalf of the government of

GIBRALTAR
(Gibraltar is an overseas territory of the United Kingdom)

The plan includes the requirements of MARPOL 73/78,
Annex I, Reg. 37.

Name of ship: "SANCO SPIRIT"

IMO number: 9429936

IF CHANGING VESSEL'S OWNERSHIP / MANAGEMENT
THIS PLAN IS SUBJECT TO REVISION AND RE- APPROVAL



Appendix 2

ECRC Letter



ECRC / SIMEC

T100439.

May 30, 2012

Ladies and Gentlemen

Sanco Holding AS
C/O Marine Acquisition

PGS Geophysical
15150 Memorial

Houston

Texas

77079-4320

USA

Fax: 1-281-509-8086

Contract: C001-07512

Expiration Date: July 15, 2013

Ladies and Gentlemen

The above Membership Agreement currently in effect between The Response Organization Group (ECRC., Atlantic Emergency Response Team Ltd. and Point Tupper Marine Services Limited) and the Company named above will expire as indicated.

In accordance with the provisions of the Agreement, it shall be automatically renewed for successive one-year terms unless:

(a) One party gives notice to the other at least 60 days prior to the date on which either the initial or any subsequent one-year term is due to expire that such party does not wish to renew the Agreement, or

(b) Owner has failed to pay any fees when due.

Therefore, if the vessel(s) DOES NOT require continued coverage, please notify us in writing and we will cancel the contract accordingly. This letter serves as notice that if the owner does not pay the required fees or fails to forward the signed renewal form by the above expiry date, the Agreement is deemed to be terminated.

If the vessel(s) DOES require continued coverage, kindly forward the following:

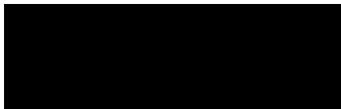
1. A completed renewal form by fax at 613 230-7344 (we do not require an original ink copy) making any modifications directly on the form, and
2. The required amount made payable to ECRC based on the annual registration fee of \$750.00 CAD per vessel listed in the attached renewal form. Payment can be forwarded via Canadian Cheque, Bank Draft or Bank Wire Transfer. Please note that, if you choose to make payment via bank wire transfer, you must add an additional \$10.00 CDN for bank charges to the amount being transferred.

**Our banking details can be viewed via our website: <http://www.ecrc.ca/en/pdf/memfees/BankInfo.pdf>

Please note that the "Person Authorized to Implement Arrangement" must have a 24 hrs phone number. Also, it would be helpful to have more than 1 Person Authorized to Implement Arrangement. The renewal will be confirmed by fax upon receipt of the completed renewal form and payment in full.

We look forward to providing your company with continued service. Please do not hesitate to contact us at 613-230-7369 Ext. 208 if you have any questions or require additional information.

Sincerely



Ann Therrien, Contracts Administrator, atherrien@ecrc.ca

RENEWAL FORM

This renewal form is incorporated into and forms integral part of contract C001-07512

The parties agree that an Agreement shall be granted by ECRC in respect to the following vessel(s) and that, in all respects, the terms of the Agreement shall apply to such vessel(s). When the agreement was entered into the applicable legislation was the Canada Shipping Act. This legislation has recently been replaced by the Canada Shipping Act 2001, and references in the agreement to prior legislation will be deemed to be references to the applicable provisions of the new legislation.

Vessel(s)	Authorized to implement arrangement	Authorized Telephone Number
SANCO SPIRIT	Mr. Joel Zent	1-281-509-8495 1-832-643-6185
		() (Mobile)

Term of Coverage:

Renewal Effective Date: July 16, 2012

Expiration Date: July 15, 2013

Applicable Fees:

Registration Fee: \$750.00 x 1 = \$ 750.00 CAD

Total Amount Payable: \$ 750.00 CAD

ON BEHALF OF ECRC

PF Collins
(Ship Owner/Operator)

By:
(Authorized Signatory)

By:
(Authorized Signatory)

.....
(Print Name) (Date)

John-Paul Ayel *May 30/12*
(Print Name) (Date)

Appendix 3 - Coordinates Study Area
Appendix 3 Coordinates of Study Area

X21NAD83	Y21NAD83
868890	5613850
868901	5614500
868933	5615490
868965	5616140
869019	5616790
869115	5617770
869190	5618420
869286	5619070
869446	5620030
869563	5620680
869701	5621320
869924	5622270
870083	5622910
870263	5623540
870548	5624480
870748	5625100
870968	5625720
871314	5626640
871554	5627240
871815	5627840
872220	5628740
872500	5629330
872630	5629590
872828	5629980
872962	5630230
1125980	6107840
1126150	6108160
1126420	6108640
1126600	6108950
1126930	6109520
1127450	6110350
1127800	6110900
1128180	6111440
1128750	6112230
1129140	6112760
1129550	6113270
1130170	6114030
1130590	6114530
1131030	6115020
1131700	6115730
1132160	6116200
1132630	6116660
1133340	6117330
1133830	6117770
1134330	6118190
1135090	6118810
1135600	6119220
1136130	6119610
1136920	6120180
1137460	6120560
1138010	6120910
1138840	6121430
1139410	6121760
1139980	6122080
1140840	6122550
1141430	6122840
1142020	6123120
1142910	6123530
1143510	6123790

Appendix 3 - Coordinates Study Area

1144120 6124030
1145040 6124380
1145660 6124600
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1173810 6122100
1325900 6038240
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1328450 6036690
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1332560 6033460
1333280 6032790
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1334200 6031870
1334880 6031150
1335310 6030670
1335740 6030170

Appendix 3 - Coordinates Study Area

1336360 6029410
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1337000 6028580
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1606690 5644510
1606760 5644310
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1760480 5153300
1760470 5152650
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1760350 5150360
1760260 5149390
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1760090 5148090
1759930 5147120
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1757820 5139910
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1756870 5137820
1756570 5137240
1756110 5136380

Appendix 3 - Coordinates Study Area

1755790 5135800
1755460 5135240
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1057750 5010500
1057100 5010570
1056450 5010670
1055490 5010830
1054840 5010950

Appendix 3 - Coordinates Study Area

1054200	5011090
1053250	5011310
1052610	5011470
1051980	5011650
1051040	5011930
1050420	5012130
1049800	5012350
1048880	5012700
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1046780	5013600
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1042780	5015820
1042220	5016170
1041690	5016550
1040890	5017120
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869286	5608630
869190	5609280
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869019	5610910

Appendix 3 - Coordinates Study Area

868965	5611560
868933	5612220
868901	5613200
868890	5613850

Appendix 4 - Coordinates Project Area
 Appedix 4- Coordinates of Project Area

X21NAD83	Y21NAD83
888890	5613850
888922	5614830
889019	5615810
889178	5616780
889401	5617730
889686	5618670
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890437	5620480
890635	5620870
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1740350	5155260
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1740480	5153300
1740450	5152320
1740350	5151350
1740190	5150380

Appendix 4 - Coordinates Project Area

1739970	5149420
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