

**GX Technology Canada Ltd. 2-D Seismic, Gravity and
Magnetic Survey for the Labrador Shelf Area, 2013 to 2015
Environmental Assessment**

**Responses to Environmental Assessment Addendum
Review Comments**



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Context / Purpose

GXT has proposed to conduct a 2-Dimensional (2-D) single streamer marine geophysical survey or surveys (GXT 2013 – 2015 LabradorSPAN 2-D Seismic, Gravity and Magnetic Survey), potentially 2013 – 2015, to collect seismic, gravity, and magnetic data focused in open (ice-free) waters of the Labrador Shelf region, potentially starting in June and concluding as late as the end of November.

As part of the regulatory permitting process through the Canada-Newfoundland and Labrador Offshore Board (C-NLOPB), in March 2013 GXT filed an Environmental Assessment (EA) for its proposed program. The EA was designed to apply to the Project (i.e., all geophysical surveys seismic, gravity and magnetic) conducted over the area of operations (Project Area) during the proposed potential three-year period, within June – November.

Comments were received by the Board until 21 June, and GXT filed its final responses to these comments with the Board on 1 July (the Addendum). Responses to the Addendum were received by the C-NLOPB and on 22 July 2013 the C-NLOPB communicated to GXT (D. Hicks to R. Pitt):

The Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB), in consultation with the Board's fishery and environmental review agencies, have reviewed the above referenced environmental assessment (EA) addendum.

The EA document does not satisfy all of the information requirements outlined in the Scoping Document provided to GX Technology Canada Ltd. on March 26, 2013. In order to complete the Screening Report, the attached comments should be addressed.

The following provides responses to the comments referred to GXT by the C-NLOPB, specifically additional comments from the Fish, Food and Allied Workers (FFAW) Union and the Government of Nunatsiavut (NG).

Organization of Addendum Responses

The following responses to the EA Review Addendum Comments reproduce the text of each of the comments referred to GXT by the C-NLOPB, and then provides (immediately thereafter) GXT's responses/ replies addressing the comments. These responses follow the organization of the C-NLOPB's Consolidated EA Addendum Review Comments document, as received from the Board (22 July 2013). The comments and responses are numbered (FFAW 1 – 7 for the FFAW comments, and NG 1 – 5 for the Nunatsiavut Government comments).

Responses to GXT 2013-15 EA Addendum Review Comments

FFAW Comments

Comment FFAW 1: Re: Response to [FFAW Comment] A1: The proponent rationalizes a portion of their Environmental Assessment (EA) document with the comments made by the Premier of Newfoundland & Labrador. This although the comments made by the Premier were only made at the NOIA conference June 17th-20th, 2013. The EA however was submitted prior to this; it is not tenable to pre-date comments made by a politician to rationalize statements made in the context of hoped development. The Fish, Food and Allied Workers Union (FFAW) appreciates that there might be plan changes to what GX Technology is looking to pursue. However, it would be of benefit for the mitigation effort to present what plans at least are in place before they are changed. Full context is paramount when giving considerations to proposed activities in any context.

Response: The above reference to the Premier's presentation is taken out of context from the response GXT provided for FFAW Comment A1. What was stated in GXT's response was the following: "Where the specific seismic lines will be within the Project Area during a second or third year of acquisition is not yet known, and will depend on several factors that can change with circumstances, such as the information gained from the 2013 survey, changing client interests and priorities, the licensing block format change (announced by the Premier at the 2013 NOIA conference), etc."

As explained, the Premier's June comments were cited as an illustration (among the other factors mentioned) of the kinds of things that can influence future plans and priorities - in the second or third year in the case of that example.

In terms of the lines being permitted for 2013, GXT has provided a copy of these in high resolution with bathymetry, as requested by the FFAW at a recent meeting, as well as maps of the lines with key species fishing activity overlaid. GXT has also offered to provide the GIS shapefiles for the lines to the FFAW.

Comment FFAW 2: Responses to [FFAW Comment] A2: As the EA is a single document and a magazine is a collection of articles or stories, there is not quite the same context between the two. To rationalize that there are times that using the two letter shortform enhances either emphasis or greater clarity is questionable. One can just as easily move and say that the international two letter abbreviated code NL refers to the Netherlands.

Response: Noted. Wherever NL is used in the Environmental Assessment, the province of Newfoundland and Labrador is intended.

Comment FFAW 3: Re: Responses to [FFAW Comment] A3: For consistency one or the other and not both should be employed – in the opinion of the reviewer. This is particularly prudent

in light of the many acronyms used in the document, of which not all were made clear in the first production of the EA document.

Response: Agreed. Consistency is preferred.

Comment FFAW 4: The Re: Responses to [FFAW Comment] A4: What the reviewer was pointing out was that it is indeed appropriate for the scientific name be provided with the first substantive reference to a particular species. However, this principle did not appear to be followed in the context of the EA document in question.

Response: Noted.

Comment FFAW 5: Re: Responses to [FFAW Comment] A6: For the understanding and context of harvesters all factors pertinent for the consideration should be included in single figures. Disconnecting the proposed seismic survey lines, NAFO regions and harvest locations will only serve to limit the context for input from harvesters. This should be seen in the light of harvesters having expressed that all proponents need to overlay their proposed activities on appropriate nautical charts.

Response: Agreed. As noted in GXT's original reply to FFAW Comment A6 (and DFO Comment A4), in the EA figures displaying any distributions related to commercial fisheries do include all relevant NAFO areas. The one exception where the text (in EA Section 4.3.3, Industry and DFO Research Vessel Surveys) mentions NAFO zones without showing them was EA Figure 4.42 (Locations of DFO-Industry Collaborative Post-Season Snow Crab Trap Survey Stations in Relation to the Project and Study Areas), and this was provided in a new map in Appendix 1 of GXT's last responses to comments.

Also, as noted above (Response to Comment FFAW 1) GXT has now provided to the FFAW a high resolution map/chart file of GXT's potential 2013 lines with detailed bathymetry, as discussed with the FFAW at a recent meeting. GXT has also offered to provide the GIS shapefiles for the lines which could be overlaid on electronic marine charts.

Comment FFAW 6: Re: Responses to [FFAW Comment] A7: GX Technology aptly manages to reference its own document as a rationale for what temporal and spatial separation will be utilized. What remains is that GX Technology mentions temporal separation in the context of avoidance of a collaborative science effort. It would be prudent to discuss this with both participants in said science – as was indicated appropriate in FFAW's initial comment. Further, there is no addressing of providing a direct indication of which program had said seven day quiet time separation. As an equal partner in the Industry-DFO Collaborative Trap Survey for Snow Crab, the FFAW Science has at no point been either directly consulted or agreed to employ the mentioned temporal separation – this holds true for this program and any seismic program since the aforementioned Survey commenced.

Response: GXT acknowledges that any particular sampling station of the Industry-DFO Collaborative Trap Survey for Snow Crab is considered "active" from the time that fishers deploy gear at that station until the time that they retrieve the gear, thereby completing the

sampling. GXT commits to maintaining at least a 30 km spatial separation between the seismic vessel and “active” survey stations. GXT also commits to not conducting seismic operations within 30 km of any particular crab survey station during the seven day period prior to that station becoming “active”. These commitments have been documented on page 162 of the EA. DFO did not take issue with either of these avoidance mitigations.

Comment FFAW 7: Although Fisheries and Oceans Canada has not expressed any concern, it is evident that the FFAW has.

Response: The concern expressed by the FFAW is noted again. The consistent aims of the mitigations presented in the EA are prevention of any significant impacts on either harvesting or fisheries science. GXT will continue its discussions with the relevant parties as stated in the EA.

Nunatsiavut Government Comments

Comment NG 1: The Nunatsiavut Government (NG) commends GXT for agreeing to hire and train an Inuit Fisheries Liaison Officer and committing to target Labrador Inuit as full crew members on the Polar Prince. However in order for this to become a reality, Labrador Inuit will need to be trained and provided the opportunity to attain the certifications necessary to become a full crew member. It is essential that GXT take an active role, in consultation with the Nunatsiavut Government, to ensure that this training and certification take place for Labrador Inuit.

Response: Understood. GXT will continue to pursue its policy of hiring from Nunatsiavut coastal communities and will continue its discussions with the Nunatsiavut Government of optimizing these opportunities,

Comment NG 2: The comparison made between the annual offshore seismic of 2009-2012 and of 2004-2007 does not address the issue of Catch per Unit Effort (CPUE). When the quantity of annual offshore seismic is compared to CPUE in Division 2) for Snow Crab. There is an inverse relationship between CPUE and seismic activity during 2007-2011. This is concerning given that there was 1072 km of seismic acquired in 2007, expanding to 11,572 km of seismic in 2012, and for 2013 there is well over 20,000 km of seismic proposed for the Labrador Coast. Given the uncertainty associated with the impacts of seismic. A recent decrease in CPUE and fishers reporting limited catches after the presence of seismic vessels, seismic activity on the Labrador Coast should be limited or stopped until a complete and thorough understanding of the impacts of seismic is gained.

Response: It is not possible to determine the reason(s) for decreasing snow crab CPUE off Labrador during 2007-2011. Many factors potentially contributed to this observed trend. The existing scientific literature does suggest that CPUEs for some fishes have been temporarily affected by exposure to airgun noise (e.g., Løkkeborg et al. 2012). However, that same suggestion has not been made with respect to crab and other invertebrate fisheries.

Comment NG 3: In response to comment A8 (pg. 7), GXT states: "If any larger-scale or general negative effect on the Inuit fishery and/or subsistence fishing were suspected, GXT would expect

that any investigation of causes would need to be conducted by an independent agency, such as the C-NLOPB or DFO."The NG believes that this investigation should be undertaken prior to negative impacts on the Inuit fishery and/or subsistence fishing. The fishery is essential to Labrador Inuit and any long-term impacts would be highly detrimental. Therefore, properly understanding the impacts of seismic on the marine system is essential before moving forward current or future seismic work.

Response: This is outside the scope of GXT's Project / EA.

Comment NG 4: GXT states (response to FFAW Comment AS, pg. 24): "The conclusion of 'no significant effects' on commercial fisheries from the proposed seismic program was based on existing scientific literature and professional judgment." The Nunatsiavut Government requests that all scientific literature be identified and provided and that GXT expand on what professional judgment entails.

Response:

a. Identify and provide scientific literature. The scientific literature used in the EA to reach the assessment conclusion of "no significant effects" on commercial fisheries has now been provided to the NG Environmental Assessment Manager by GXT, via internet download link (25 July 2013).

b. Expand on what professional judgment entails. Professional judgment involves reaching a conclusion based on advanced scientific training in the relevant field, a thorough and up-to-date knowledge of the scientific literature in the area of enquiry, direct scientific investigation, and extensive experience with the subject matter and in making similar judgements in the past, and discussion and consultation with other scientists. The lead professional marine biologist who concluded "no significant effects" on commercial fisheries from the proposed seismic program has been working in this specific field for twelve years. Not only is he very familiar with the relevant scientific literature but he was also lead scientist during a Newfoundland field study of the potential physical and behavioural effects of exposure to airgun noise on snow crab, and he participated in another study of the same issue conducted in the southern Gulf of St. Lawrence. In addition, he has attended numerous conferences focused on this question and discussed the issue with other scientists. All of the sources of knowledge indicated above allow one to use "professional judgement". In science, very few questions are answered definitively. The questions associated with the potential effects of airgun noise on marine biota are no different. All scientists use "professional judgement" to determine what they consider to be justified conclusions. This lead professional marine biologist has worked on more than 50 assessments within Atlantic Canadian jurisdictions, including those for major Government projects and Strategic Environmental Assessments, and on many other EAs in other jurisdictions around the world, which have all applied such professional judgement.

Comment NG 5: Furthermore, in the consultation report, as well as in responses within the addendum, GXT fails to address the direct impact that seismic may be having on harvested species. A lack of data and scientific information on the impacts of seismic on a marine system does not indicate that there are not impacts due to seismic process. The burden of proof does not, and should not; rest on the shoulders of Inuit stakeholders to demonstrate a cause and effect relationship with seismic processes and the fisheries.

The importance of understanding impacts prior to moving forward with a seismic program is highlighted by the decisions currently being made regarding seismic on Nunavut's coast, east of Baffin Island. The National Energy Board has "evidenced deficiencies regarding the assessment of socio-economic impacts and Inuit consultation" in regards to a proposed seismic program off East Baffin Island. The issues raised by Inuit in Nunavut are no different than the concerns raised in Nunatsiavut. These issues include seismic effects on the movement and behaviour of fish and wildlife and understanding acoustic properties and movement (I.e. modeling of marine seismic, including information indicating how far sound travels within the project area). If a proponent cannot demonstrate explicitly that there will not be impacts on wildlife, the environment and the fisheries, the seismic program should not move forward until these issues have been completely resolved, as is the case in Nunavut.

Response: This is outside the scope of GXT's Project / EA.