



29 July 2013

Elizabeth Young

Darren Hicks

Canada-Newfoundland and Labrador Offshore Petroleum Board

Re: GX Technology's LabradorSPAN marine survey – possible increase in length of seismic streamer (hydrophone cable)

GXT is seeking approval for flexibility in the length of seismic streamer it may use within the scope of its current LabradorSPAN Environmental Assessment (EA) (Environmental Assessment of GXT's LabradorSPAN 2-D Seismic, Gravity and Magnetic Survey, 2013-2015).

Currently, GXT's EA states (Section 2.2.7) that "The seismic ship will ... tow a single seismic hydrophone cable (streamer) up to 9 km long". This year, and possibly in future years, GXT would like the option of using a single hydrophone streamer up to 12 km in length.

We are requesting this change based on recent advice from project geophysicists and client input which suggest that – considering what is currently known of the local geology - a longer cable might be needed to image adequately the very deep structures which are the subject of our special basin span investigations (see EA Section 2.2.1). Although it is not certain that a longer streamer would be used, it is now thought that the additional length could be needed. A longer streamer will be able to pick up more data, on up to 1,920 additional hydrophone sensors, over a longer offset and time window, allowing more and potentially deeper acoustic returns to be collected – for the same level of sound energy. (Note that there is no request to increase the size or output of the seismic array.)

The reason that there is some uncertainty about the length of streamer needed is because there is currently little precise knowledge about these deep structures. (One of the purposes of this investigation is to increase our understanding of the region; at the same time, there is a growing interest in from oil and gas companies.) GXT's aim will therefore be to evaluate the relative advantage of a longer streamer during work on the initial acquisition lines, though the general view is that a 12 km streamer will probably perform best. Acquisition now with the optimized (and deepest) imaging should also help avoid requests for repeating the lines if a 9-km design did not produce the imaging industry needs.

As noted below (Attachment), the cable itself will be fully equivalent to that described in the EA with the exception that additional sections of cable would be added until the most effective geophysical imaging is achieved, potentially resulting in a total cable length of 12 km.

The following Attachment provides an assessment of the environmental implications of this potential change. Because the other aspects of the project description (components, method, logistics), EA scope (total acquisition, temporal and geographical), and the mitigations (EA Section 5.6) would remain the same, this document focuses exclusively on the environmental implications of the potential change in streamer length. As discussed below, the increase in streamer length would not affect the conclusions of our environmental impact assessment in any way.

Please let us know if there is anything else you need from us in this regard.

Sincerely,



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cc:

David Burley, C-NLOPB Manager, Environmental Affairs

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**Attachment:** Assessment of the Environmental Implications of the use of a 12- km Streamer for GX Technology 2013 LabradorSPAN 2D marine survey

## **Assessment of the Environmental Implications of using a 12- km Streamer for GX Technology's 2013 LabradorSPAN 2D Marine Survey**

### **Proposed Modification**

GXT would like the option of using a single hydrophone streamer up to 12 km in length. Section 2.2.7 of GXT's EA now states, "The seismic ship will ... tow a single seismic hydrophone cable (streamer) up to 9 km long". The extent of the modification would be to state "The seismic ship will ... tow a single seismic hydrophone cable (streamer) up to 12 km long".

Other aspects of the project description (components, method, logistics), EA scope (total acquisition, temporal and geographical elements), and the mitigations would remain the same. There would be no increase in the size or output of the seismic array. As described in the EA, the streamer will be solid core; streamers are passive, recording sound energy, but emitting none. The frequency of the seismic pulses (shot points) would remain the same at every ~20 seconds/50 m.

Further, there would be no change in the size or extent of the Project Area (PA) as described in the EA. The PA now allows for a 6 km turning zone; if it is found that a longer turning zone will be needed for a longer streamer, the seismic lines would be terminated earlier to ensure that all activities stay within the geographical scope of GXT's EA, and do not enter the Nunatsiavut Zone.

### **Reason for Modification Request**

GXT requests this change based on recent analysis and advice from project geophysicists and on client input. Their best advice now is that a longer cable might be needed to provide the best imaging of the very deep structures which has been the objective of our world-wide basin span investigations (as described in EA Section 2.2.1). Although it is not certain that a longer streamer will be have to be used, it is now thought that the additional length will likely be needed. A longer streamer will be able to pick up more data, with up to 1,920 additional hydrophone sensors, over a longer offset and time window, allowing more and potentially deeper acoustic returns to be collected. This would be obtainable with the same level of sound energy being emitted.

There remains some uncertainty about the length of streamer needed since there is little precise knowledge about the area's deep structures. As stated in the EA, one of the purposes of this investigation is to increase our understanding of the region. GXT's aim will therefore be to evaluate the relative advantage of a longer streamer during work on the initial acquisition lines, though the general view is that a 12 km streamer will probably perform most effectively.

### **Potential Environmental Implications of Modification**

A review of GXT's EA in light of this proposed modification – if required – has identified only one potential interaction with the VECs discussed in the EA (Section 5.3). That is, the potential for gear conflict (i.e. with fixed fishing gear) could increase slightly, since there will be a longer streamer

towed in the water. However, the increase in the potential for fishing gear / streamer conflict is small (even without mitigations) since the 9-km tow already assessed would pass through nearly the same area as the increased-length tow. In any case, the tail buoy (emitting a locational signal) at the end of the streamer will ensure that its location is always known.

This modification will not change airgun array sound-related issues except that the array will likely be powered down perhaps 2 – 3 km earlier on the seismic lines to allow for the longer turning radius.

There are no additional implications for other VECs, including fish, fish habitat, marine birds, marine mammals and sea turtles, including Species at Risk as the result of lengthening the streamer. (In terms of a potential for marine animal entangling, for example, even for 3-D surveys which use multiple streamers sometimes ~100 km in total length, conflicts are exceptionally rare, and – as discussed in the EA p. 246 - sea turtles are more likely than other marine animals to become entangled; however, the Labrador Shelf, including the Project Area, is not a breeding area for sea turtles and it is not known or thought to be an important feeding area, and thus it is not expected that high concentrations of sea turtles could potentially be physically affected.)

There are no additional implications for cumulative effects related to a longer streamer.

Because the additional streamer sections would also be solid core, there is no increased risk of a fluid leakage / effect on water quality.

## **Relevant Mitigations**

Mitigations to prevent fishing gear / hydrophone streamer conflicts are those already included in EA Section 5.6. The relevant measures (summarized) are

### *Survey Layout and Location*

- Line layout with very long and widely spaced lines.
- The survey will not enter the Nunatsiavut Zone (the Tidal Waters of the Labrador Inuit Settlement Area), or within the Hawke Channel, which is a highly concentrated fixed-gear fishing area.

### *Communications and Liaison*

- Continuing discussions and information exchange with relevant fishing groups (e.g. the Torngat Co-op and FFAW PIP) to ensure that the program does not operate in the area of active fisheries.
- Advanced survey plans sent to fishing groups to allow time to respond if there are remaining fishing issues in the area planned for acquisition
- Use of Fisheries Liaison Officers (FLOs), one FFAW and one Labrador Inuit on the seismic ship to communicate with fishing vessels at sea, and relay information to shore as needed, as described in the One Ocean Protocol document.
- Issuing a Notice to Shipping for the work area
- Use of a shore-based Single Point of Contact (SPOC) to facilitate communication between the Project and other marine users, and particularly with fisheries.

- Accessing near-real-time VMS data to understand and help avoid fishing locations and monitor other area marine activities.
- Pre-survey start-up sessions with the project ships' crews to ensure they understand our commitments and the requirements.
- Other communications, such as notices to CBC Fisheries Broadcast, OK radio system on the Labrador coast, a project web site, contact information.

#### *Fisheries Avoidance*

- Avoiding active fishing areas during the seismic survey, based on the communication and liaison information sources in order to work away from those grounds when fishing is active there.
- GXT understands that fish harvesters are not required to move their vessels or gear from the seismic survey program area and will not be told to do so; this information has been clearly communicated at the start-up meetings (described above).
- No gear deployment enroute to the survey area. GXT will not deploy the streamer (or the array) in Newfoundland and Labrador waters except within the EA Project Area.
- Avoidance of fisheries science surveys; GXT will maintain a 30 km spatial separation from fixed gear, so that no extra potential for gear conflict would result from a longer streamer.
- Use of the scout vessel as needed to check ahead along the planned route of a survey line, to make sure there are no fishing boats or gear in the area.

#### *Fishing Gear Damage Program*

- The program (as described in the EA) covers any damage to fishing gear (or vessels) caused by the survey vessels or survey gear, including the value of any harvest lost as a direct result of an incident.
- Incident investigation and claims will be supported by the SPOC and FLO and a toll free telephone and email information will be broadcast on the Notices to Shipping.
- The program would serve as a final and full mitigation of any residual economic impacts if the longer streamer did result in any additional risk.

No additional mitigations are required.

### **Assessment / Conclusions**

With the mitigations in place, effects of the use of a streamer with a length up to 12 km on the commercial fisheries VEC will not change from the conclusions of the EA's Assessment of Effects of Project Activities on the Fisheries VEC (EA Tables 5.7) for a 9 km streamer, nor will the Significance of Potential Residual Environmental Effects (Table 5.8). Effects of vessel presence, including all gear being towed by the seismic vessel, on the Fisheries VEC are predicted to be a negligible to low magnitude during 1-12 months over an area of <1 to 11-100 km<sup>2</sup>. Based on these criteria ratings, the reversible residual effects of vessel/seismic gear presence during the seismic program on the Fisheries VEC are predicted to be not significant.