

P.R.

Alan Ehrlich

From: Mieke Vander Valk [mvandervalk@neb-one.gc.ca]
Sent: Monday, July 21, 2003 9:15 AM
To: CottP@DFO-MPO.GC.CA; HannaB@DFO-MPO.GC.CA; stephen.harbicht@ec.gc.ca; PromislowM@inac-ainc.gc.ca; YaxleyE@inac-ainc.gc.ca; eisc@jointsec.nt.ca; Alan Ehrlich; Vern Christensen, Executive Director
Cc: Lori Ann Boychuk
Subject: WesternGeco's response to MVEIRB's recommendations



WG_Comments on JEK_WGValley_Req
MVEIRB recom.pd... uest for Comme...

On July 11th the NEB requested that WesternGeco respond to MVEIRB's recommendations and suggestions in their EA report. Attached is a copy of our original letter and WesternGeco's response.

Please call me if you have any comments.

Mieke Vander Valk
Environmental Specialist
Exploration Production
National Energy Board

444 7th Ave SW
Calgary Alberta T2P 0X8
T: 1(403)292-5048
C: 1(403)519-7121
F: 1(403)292-5876
E: mvandervalk@neb-one.gc.ca

NEB File: 9180-W730-2
MVEIRB File: EA02-002
11 July 2003

Mr. Keith Rosindell
Project Manager
WesternGeco Canada
Suite 2300, 645 - 7th Ave S.W.
Calgary, Alberta T2P 4G8
Facsimile (509) 694-2878
Email: rosindell1@slb.com

Dear Mr. Rosindell:

**WesternGeco Canada Mackenzie/Liard Rivers, NT 2D Seismic Program, 2004
Mackenzie Valley Environmental Impact Review Board Report of Environmental
Assessment - NEB Request for Comment**

Pursuant to our obligations under the *Mackenzie Valley Resources Management Act* (MVRMA), the National Energy Board (NEB) is reviewing the Report of the Environmental Assessment dated 30 June 2003 issued by the Mackenzie Valley Environmental Impact Review Board (Review Board) for the proposal. Pursuant to sub-paragraph 128(2)(b)(ii) of the MVRMA, the Review Board recommended that the approval of the proposal be made subject to the imposition of such measures as it considers necessary to prevent significant adverse impact.

WesternGeco Canada (WesternGeco) is requested to provide its comments on the Review Board's recommended measures and suggestions contained in the Report of Environmental Assessment (Request for Comment attached). A copy of the report is available on the Review Board's web site at: http://www.mveirb.nt.ca/Registry/EAWesternGeco/REA_WesternGeco.pdf

11 July 2003

We request that you provide your response by 16 July 2003 to Mr. Terry Baker, NEB and to the individuals copied below. Should you have any questions or require more time regarding the attached request for information, please contact Mieke Vander Valk at (403) 292-5048 or at <mvandervalk@neb-one.gc.ca>.

Yours truly,

T.M. Baker
Exploration and Production
jek/Attachments

c.c. Mr. Vern Christensen, Mackenzie Valley Environmental Impact Review Board,
fax (867) 766-7074 and email VChristensen@mveirb.nt.ca
Mr. Eric Yaxley, Indian and Northern Affairs Canada, fax: (867) 669-2701, and
email yaxleye@inac-ainc.gc.ca

National Energy Board Request for Comment

Reference:

- (i) Mackenzie Valley Environmental Impact Review Board: Report of Environmental Assessment on the WesternGeco Mackenzie and Liard Rivers 2D Seismic Program, dated 30 June 2003.
 - Appendix 1 – List of Recommendations (attached)
 - Appendix 2 – List of Suggestions (attached);
- (ii) Chapter 17, Gwich'in Comprehensive Land Claim Agreement, Harvesting Compensation (attached); and
- (iii) Chapter 18, Sahtu Dene and Metis Comprehensive Land Claim Agreement, Harvesting Compensation (attached)

Request:

Please review the above report and attached documents and provide WesternGeco's comments and, where appropriate, measures that WesternGeco would undertake in response to:

- (a) each recommended measure (Appendix 1); and
- (b) each suggestion (Appendix 2).

Appendix 1.

List of Recommendations

1. ***The Review Board recommends that WesternGeco submit a mitigation plan for DFO's approval, in order to prevent significant adverse environmental effect on fish by airguns. This will include unconditional shutdown in all areas of known sensitivity as identified by DFO in it's technical Report of 9th June, 2003 and the submission of June 13th, 2003. This mitigation plan shall be approved by DFO before the NEB issues an authorization for this development.***

Response.

The WesternGeco mitigation plan is outlined in Section 11 of the EA. WesternGeco maintains that the implementation of that mitigation is sufficient to ensure that potential negative effects are minimized. That mitigation includes scout vessels ahead and behind the seismic vessel, plus monitors that are both ship-based and shore based. Involvement of local aboriginal people has been optimized in this mitigation plan, with clear protocols for shutdown should any fish be observed to be harmed. WesternGeco maintains that the 2002 Acoustic, Fish Behavioural and Wildlife Monitoring Test Program was sufficient to show that, with this proposed mitigation, the Project will have no significant residual effects.

Shutting down in areas identified by DFO as sensitive would seriously compromise the seismic data set. WesternGeco's objectives are to survey a continuous 2-D seismic line connecting the basins of the Delta, Norman Wells area and the Liard. Geology changes dramatically around tributaries and to understand what is happening we have to image these areas.

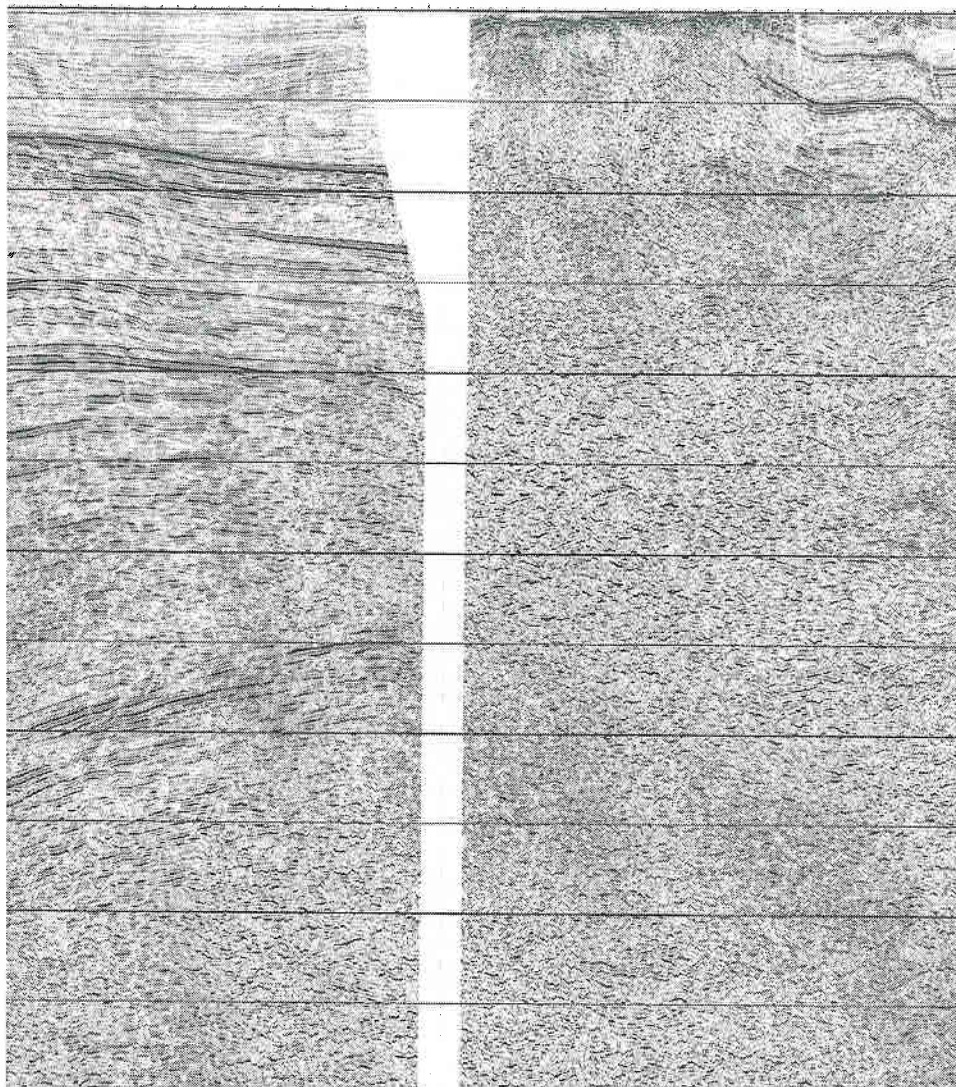


Fig 1. Data set two sides of a shutdown zone from 2002 Test Program

Figure 1 is a picture of a seismic record from an area on the Mackenzie River surveyed during the 2002 Test Program. The area in the middle of the data set where there is no data was not surveyed at DFO's request, as pre-cautionary mitigation during the 2002 Test Program and prior to obtaining the 2002 test results. WesternGeco believes that the results from the 2002 Test Program indicate that this mitigation is no longer valid. Furthermore, without imagining these areas we cannot see how, why or where the Geology changes. Gaps in the data such as the example given in Figure 1, makes the data set incomplete and less attractive to anyone wanting to understand the geology in the region. We estimate that an incomplete data set would devalue the Mackenzie Valley data by more

than \$3.5 Million Canadian Dollars. More importantly the missing data would never be recovered, and we would therefore never fully understand the Geology of the Mackenzie Valley.

WesternGeco believe that DFO have not supplied sufficient reasoning in identifying sensitive areas in their technical reports dated 9th June 2003, or 13th June 2003. For example, during the April 2003 EIRB Technical Workshop in Inuvik, DFO requested we shutdown 1 kilometer either side of Pete's Creek. There is a large Island between the path of the survey and Pete's Creek and the 2002 Test Program has shown that very little sound attenuates up tributaries. The area was later removed from the list of sensitive areas.

In the DFO Technical Report to the Review Board dated June 9th, 2003 the DFO further states, " Based on the fact that sound of greater than 160dB (levels that cause changes in fish behaviour according to existing literature) is traveling much further in the water then originally anticipated by WesternGeco prior to the test program, DFO believes a precautionary approach should be taken.

The DFO makes no further reference to existing literature, they do not explain why they feel this literature is relevant, nor do they correctly reference this material. We do not know how the 160 dB sound level the DFO refers to was generated, the frequency content of the sound, or indeed if the paper is at all relevant to this project.

WesternGeco believes that the DFO have not shown any scientific reasoning for shutdown or any rationale for the one-kilometer shutdown distance. WesternGeco believes there is no scientific basis for the rationale that 160 dB generated by an airgun array of the type and design used by WesternGeco will physically damage fish, and WesternGeco has proven this in the 2002 Test Program.

2. ***The Review Board recommends that WesternGeco proceed with the development with the addition of a program for monitoring, evaluation and management, in order to prevent significant adverse environmental impact on fish. The Review Board makes this recommendation notwithstanding the inconclusive nature of the recent study, because the evidence on the record suggests that a single pass will result in brief and intermittent exposure to airgun noise, resulting in a risk that is acceptable if well managed. This monitoring program should allow for adaptive management, and be designed cooperatively between the developer and DFO. If this monitoring identifies acute adverse impact on fish, the seismic program is to immediately shutdown until DFO has approved its re-starting. The program must include monitoring and related research to develop an understanding of the acute and long-term effect of the development on fish, and should be conducted in conjunction with the development. DFO should provide quality assurance and***

control, as well as supervise the implementation of the program. DFO and WesternGeco must ensure that the study considers comments raised in this environmental assessment regarding research design and methodology.

Response.

As noted above, WesternGeco will implement a monitoring program during the survey acquisition stage. This program will include all components of the monitoring system used during the 2002 Test Program. The Vessel based Monitors will be employed and trained by an independent Environmental Consulting Company, and chosen from all aboriginal communities passed by the Project, through advice from aboriginal environmental organizations such as Renewable Resource Councils. Community Based Monitors will also be employed.

The seismic program will be shut down if monitoring identifies acute adverse impact on fish (stunned, injured or killed), until DFO has approved it's re-starting.

WesternGeco would be willing to assist the DFO in any additional test programs they may wish to perform. Some initial discussions have taken place along these lines, whereby our Project may be used by researchers to further understand any aspects of potential fish – seismic interactions. WesternGeco believe that funding for additional research should be sort by DFO through normal channels, and any request for further funding from WesternGeco would be considered economically unreasonable, given the large expenditures already made. WesternGeco would assist logistically in any way it could, ie through communicating expected times to pass a location, or having a DFO researcher on board, as long as the routine operation of the seismic Project was not disrupted.

Results of any additional research would be for general future use, as WesternGeco can not see how additional 2004 research could affect this Project or how the additional research could alter the review boards opinion that “ a single pass will result in brief and intermittent exposure to airgun noise, resulting in a risk that is acceptable if well managed”.

3. ***The Review Board recommends that in order to prevent significant adverse impacts on the Deh Cho Dene and Metis harvest the NEB include provision in its authorizations that provide protection measures similar to those outlined in Section 17 of the Gwich'in Comprehensive Land Claim Agreement, and Section 18 of the Sahtu Dene and Metis Comprehensive Land Agreement, to be applied to the Deh Cho portion of the development.***

Response.

WesternGeco agrees to protective measures similar to those out-lined in the Gwich'in and Sahtu Comprehensive Land Claim Agreements. WesternGeco does

however request, that the DCFN Staff along with the Gwich'in and Sahtu Renewable Resource Boards staff, supply WesternGeco with an estimated replacement cost linked to a potential worst case scenario, along similar lines as those supplied by the Inuvialuit EIRB.

Appendix 2.
List of Suggestions

1. *The Review Board suggests that scout boats look for mammals in the river more than one kilometer before the source vessel, and coordinate with the wildlife monitor on the source vessel for shutdowns as needed.*

Response.

WesternGeco agrees that the scout boats should look for mammals more than one kilometer before the source vessel, between 1 and 2 km ahead of the source boat, and throughout the duration of the airguns operation.

2. *The Review Board suggests that WesternGeco talk to RWED about crossing points for wood bison before the operation, and notifies local RWED personnel when these areas are being approached.*

Response.

WesternGeco agrees with the above suggestion and will implement it during the program.

3. *The Review Board suggests that the scout vessels record all wildlife observations, rather than only recording wildlife observations when airguns are firing. Wildlife observations records should be shared with the Sahtu and Gwich'in Renewable Resources Boards, Deh Cho First Nations and RWED.*

Response.

WesternGeco will endeavor to record wildlife observations at all times. However, this may not be possible at times of poor visibility, when safety could be compromised, or at times during crew changes. All Wildlife observation records will be shared with any interested parties.

4. *The Review Board suggests that WesternGeco and DFO consult the Sahtu and Gwich'in Renewable Resource Boards and consider Traditional Knowledge when designing the fish impact monitoring program.*

Response.

WesternGeco understands the value of TK, and has used this at every stage of the EA. Furthermore, WesternGeco will be employing local community monitors who will be visiting camps during the seismic survey and advise WesternGeco on river activity and comments from river users. In addition, the monitoring program protocol will be discussed with the Renewable Resource Boards, including in the context of TK prior to start-up of the Project. Similar discussions will occur prior to start-up with the vessel-based and shore-based monitors hired.

5. *The Review Board suggests that the research methodology and analysis issues raised by the parties to the EA and Dr. Popper be considered carefully in the design of future research on the effects of airguns on fish.*

Response.

WesternGeco has considered methodology and analysis issues raised by the parties to the EA and Dr. Popper. Many, including Dr. Popper, did not seem to understand that the tests/experiments were designed, as tests/experiments must be, to meet specific objectives. Tests and experiments, therefore, will not provide answers to objectives/questions for which they were not designed. In that vein, both appeared to develop their own (post hoc) objectives for the studies that we designed.

It was suggested by Dr. Popper that "until such studies are performed by an independent group of investigators without a stake in the outcome, the effects of air guns will not be understood."

WesternGeco considers that the reviewers have differing agendas to WesternGeco and did not fully understand or incorrectly understood, analysis of the results from the Acoustic, Fish Behavioural and Wildlife Monitoring Study.

WesternGeco would like to draw attention to Dr. Popper's comments on the study program "An evaluation of the efficacy of the results and their usefulness as a "worst-case scenario" of what could potentially happen were there to be full-scale air gun use. It is my view that the results presented by WesternGeco do not represent a worst-case scenario with regards to the potential effect of air guns on fish in the Mackenzie River. A more adequate analysis of worst-case would have involved far more exposure to sound than would be expected during a seismic survey."

Poppers comments, "It is my view that the results presented by WesternGeco do not represent a worst case scenario with regards to the potential effect of air guns

on fish in the Mackenzie River". It was WesternGeco's intentions during the 2002 Test Program to expose the fish found in the Mackenzie River, in the vicinity of the air gun array, at the time of the survey to a worst case scenario in respects to the performance of the equipment outlined in the EA. This was achieved by WesternGeco. The 2002 Test Program was designed with specific objectives, and WesternGeco can see no value in subjecting fish to unnecessarily high exposure levels.

Furthermore, Poppers comments in the Technical Report," WesternGeco points out in the EA that the highest sound levels produced by the air guns was found at 25 m from the source. However, they had the cages at 2, 85, and 446 m from the source and the signal level at 2 m was somewhat lower than the 25 m level". Popper's review is incorrect in terms of his assumptions regarding acoustic exposure levels. Many of his conclusions are based on the assumption that higher sound levels were present at 25 m than at 2 m range from the airgun array. This is simply not the case, and it is difficult to understand how he came to that opinion. This is important, as Popper's misunderstanding accounts for a large number of his criticisms. The actual exposure location definitely was the worst-case.

6. *The Review Board suggests that Deh Cho First Nations develop a protocol regarding spiritually acceptable activities on the Mackenzie River, to inform land use planners, developers, and environmental impact assessment decision makers in the future.*

Response.

WesternGeco has no response.