

MACKENZIE VALLEY ENVIRONMENTAL IMPACT REVIEW BOARD

DECISION,

REASONS FOR DECISION

and

REPORT OF ENVIRONMENTAL ASSESSMENT

of the

EXPLOR DATA Ltd.

Land Use Permit N1998B0861 Amendment

Seismic Program,

Nahanni Butte, NT

October 12, 2000

Prepared by:

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EXECUTIVE SUMMARY

The Mackenzie Valley Environmental Impact Review Board (Review Board) has completed its environmental assessment (EA) of the *EXPLOR DATA Ltd. Land Use Permit N1998B0861 Amendment Seismic, Program, Nahanni Butte, NT* development proposal, according to the requirements of Part 5 of the *Mackenzie Valley Resource Management Act (MVRMA)*.

The development proposal is an amendment to an approved seismic program. The original SWM-5 seismic line was 31 KM in length, while the new line would be 35 KM in length with a revised orientation that would tie in two previously drilled, plugged and abandoned well locations, the Mesa Nahanni Butte L-20 (completed in 1973) and the Pan American Mattson Creek No.1 E-13 (completed in 1961).

The amended development proposes:

- a 1.5 metre wide by 35 kilometre long cut line, located at (UTM - NAD 27 coordinates) SE 480392.0, 6758000.3 NW 447440.2, 6770915.9 (approximate NTS NW lat 61'04", long 123'54"; SE lat 60'57", long 123'22");
- drilling source shot holes with a heli-portable drill and charging each hole with 20 to 25 kg of dynamite;
- shooting and recording seismic;
- seismic line clean-up; and
- logistical support activities.

The Review Board considered all information provided by the developer, expert advisors, regulatory authorities and the public in conducting this EA.

The Review Board, in considering all of the evidence before it, has reached the following decision concerning the EA of the *EXPLOR DATA Ltd. Land Use Permit N1998B0861 Amendment Seismic, Program, Nahanni Butte, NT*,

With the implementation by the developer of:

- (1) all mitigation measures proposed by the developer;***
- (2) using the Navpak technique for establishing the seismic line, as committed to by the developer during this EA;***
- (3) all terms and conditions, and similar requirements of regulatory licences, permits and other authorizations that may be issued with respect to this development; and,***
- (4) all mitigation measures outlined in DFO's letter of advice dated May 1, 2000 and issued for approval of the original development,***

the Review Board has determined, in accordance with p128(1)(a) of the MVRMA, that the development is not likely in its opinion to have any significant adverse impact on the environment or to be a cause of significant public concern, and that an environmental impact review of the proposal need not be conducted.

Public Concern over the NNPR

During this EA the Review Board received submissions advocating a decision that ensured the protection of the South Nahanni River watershed and urging that the Review Board prohibit or prevent any activities that could affect the water resources or ecological integrity of the NNPR and several other areas being considered for possible expansion of the park reserve. These submissions came from First Nations, Parks Canada, some interest groups and the public.

The Review Board was also referred to processes, such as the Deh Cho Process and draft Interim Measures Agreement between the Deh Cho First Nations and the government of Canada, which when signed may lead to an increased level of protection for these lands in the vicinity of NNPR.

The Review Board is not of the view that the development proposed by Explor-Data is of a magnitude sufficient to raise concerns about the ecological integrity of this region. The Review Board is also not in a position, based on the evidence before it, to recommend any kind of regional development moratorium.

The Review Board recognizes the validity of the concerns raised by the First Nations of the region, Parks Canada, some interest groups, and the public. However, the Review Board also recognizes that there are Land Claim negotiation processes being undertaken which will address many of these specific concerns, as well as the broader regional context. The Review Board urges government and First Nations to seek an early resolution to these concerns.

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1.0 FOREWORD

The Mackenzie Valley Environmental Impact Review Board (Review Board) completed an environmental assessment (EA) of the *EXPLOR DATA Ltd. Land Use Permit N1998B0861 Amendment, seismic program, Nahanni Butte, NT* development proposal, according to the requirements of *Part 5* of the *Mackenzie Valley Resource Management Act* (MVRMA). These reasons for decision were prepared by the Review Board and present the Report of EA required by ss.128(2) of the MVRMA, the Review Board's decision required by ss.128(1), and written reasons required by s.121.

2.0 INTRODUCTION

Explor Data Ltd., on July 13, 2000, submitted a proposal to the Mackenzie Valley Land and Water Board (MVLWB) to amend its Land Use Permit, originally issued by the Department of Indian Affairs and Northern Development (DI AND) under Land Use Permit N1998B0861, to change the orientation and length of its SWM-5 seismic line. The original line was 31 KM in length, while the new line would be 35 KM in length with a revised orientation that would tie in two previously drilled, plugged and abandoned well locations, the Mesa Nahanni Butte L-20 (completed in 1973) and the Pan American Mattson Creek No.1 E-13 (completed in 1961). The seismic line would be located west of the community Nahanni Butte.

2.1 Referral following Preliminary Screening

On August 18, 2000 the MVLWB referred the development proposal to the Review Board, in accordance with ss.125(1) of the *Mackenzie Valley Resource Management Act* (MVRMA), citing the following reasons for the referral¹,

At the South Mackenzie Panel of the Mackenzie Valley Land and Water Board Meeting on August 11, 2000 the decision was made to refer this amendment to the Mackenzie Valley Environmental Impact Review Board for Environmental Assessment. The reasons for this decision were as follows:

In their review of the application for an amendment Parks and Heritage Canada indicated that they were opposed to the application because of the following reasons:

- 1. The increased access to the area resulting in "...increased hunting pressure by non-aboriginal hunters..." resulting in negative impacts on traditional subsistence harvest;*
- 2. The Deh Cho First Nations and the Naha Dehe First Nation of Nahanni Butte passed resolutions that the entire South Nahanni River watershed should be*

¹ 2000, MVLWB. Preliminary Screening Report - EXPLOR DATA Ltd. Land Use Permit N1998B0861 Amendment Seismic Program, Nahanni Butte, NT, and Reasons for Referral. August 18, 2000.

set aside as a National park and that no incremental developments occur within the boundaries that would affect the ecological integrity of a potentially larger protected area;

3. *There is potential for future cumulative effects on the water resources of the South Nahanni River Basin from the amended seismic line.*

The concern for future cumulative effects in the area near the present park reserve and in an area of possible expansion of the park reserve, resulting in the Board passing a motion to refer this application for an amendment to the Mackenzie Valley Environmental Impact Review Board for an Environmental Assessment.

The Review Board is required by s.126 of the MVRMA to conduct an environmental assessment (EA) of the development proposal.

3.0 FRAMEWORK FOR THE ENVIRONMENTAL ASSESSMENT

The Review Board was established as the main instrument for the EA and environmental impact review of developments in the Mackenzie Valley when the MVRMA was proclaimed into law on December 22, 1998. This section outlines the MVRMA framework within which this EA was conducted.

3.1 Legal Context

The Review Board conducted the EA in the context of the MVRMA, in particular Part 5, and considered all of the evidence before it to reach the appropriate EA decision from those outlined in ss.128(1) of the MVRMA. The appropriate sections of the MVRMA that the Review Board considers in conducting the EA are found in Appendix 1.

3.2 Determination of Scope of the Development

The Review Board is required to determine the scope of a development which is referred for EA, according to ss.117(1) of the MVRMA. Scope of the development is about defining what makes up the development. That is, what parts of the overall development will be included for consideration in the EA. Determining the scope of the development includes identifying the principal development and any accessory developments and activities.

The Review Board considered the question of scope during the development of Terms of Reference for the EA report. The following scope of the development was included in the final Terms of Reference² issued by the Review Board:

² 2000, MVEIRB. *Environmental Assessment Terms of Reference for the EXPLOR DATA Ltd. Land Use Permit N1998B0861 Amendment Seismic Program, Nahanni Butte, NT.* September 14, 2000.

3.2.1 Principal Development

The development proposes:

- a 1.5 metre wide by 35 kilometre long cut line, located at (UTM - NAD 27 coordinates) SE 480392.0, 6758000.3 NW 447440.2, 6770915.9 (approximate NTS NW lat 61'04", long 123'54"; SE lat 60'57", long 123'22");
- drilling source shot holes with a heli-portable drill and charging each hole with 20 to 25 kg of dynamite;
- shooting and recording seismic;
- seismic line clean-up; and
- logistical support activities.

3.2.2 Accessory Developments and Activities

The accessory developments and activities associated with the development proposal include:

Seismic Line Cutting

- Hand-clearing and selectively cutting a 1.5 metre wide, new cut line;
- Bucking wood debris to 2.5 metre lengths and made to lie flat; and
- Removing any leaners encountered along the line.

Drilling

- New heli-portable drill source points will require 4m x 4m pads every 100m along the line, heli-pads require 20 metre diameter areas located up to every 2 kilometres (natural clearings will be used wherever possible for source points and heli-pads);
- Transportation of shot hole drilling rig, equipment, supplies and personnel by helicopter to and within the program area; and
- Each source shot hole will be loaded with 20 to 25 kg of dynamite, and back filled with drill cuttings, a plastic hole plug driven to 1 metre depth, and top filled with drill cuttings; any remaining drill cuttings will be spread evenly around the area.

Shooting and Recording

- Use of dynamite in drilled and plugged holes to create the seismic energy source; and
- Set-up and use of geophones for the acquisition of seismic data.

Clean-up

- Clean-up of pinflags, debris, refuse and brush disposal to be done concurrently with the recording operation;
- All cap wire will be pulled up, or cut flush with the ground and pushed down hole; and
- Disturbed areas will be re-seeded with approved native seed mixture, and planting of shrubs may be undertaken to stabilize a disturbed area.

Logistical Support

- Use of an existing camp based out of Fort Liard;
- Use of an existing staging area off the Liard Highway near the SWM-5 line location;
- Helicopter flight lines are along the cut line corridor; and
- Temporary storage of fuels and lubricants needed to undertake the program.

The description of the development adopted by the Review Board was compiled with the assistance of, and with information provided by the developer.

3.3 Scope of Assessment

Applications for this seismic program were made to DI AND for a Land Use Permit and to the National Energy Board (NEB) for *NEB Act* and *Canadian Oil and Gas Operations Act (COGOA)* permits and licences. A preliminary screening was completed by the NEB on May 3, 2000³ for three seismic lines, including the SWM-5. The MVLWB⁴ also completed a preliminary screening of the Land Use Permit amendment to reorient the SWM-5 seismic line.

These two preliminary screening reports were reviewed by the Review Board upon referral of the development proposal for EA. These reports, the reasons for referral, and other documents provided as evidence, were considered by the Review Board while developing the EA Terms of Reference. After considering this evidence, and providing an opportunity for public comment on the draft Terms of Reference, the Review Board decided on the scope of assessment for this EA. Appendix 2 summarizes the Review Board's determination of the scope of assessment.

³ 2000, NEB. *Explor Data - Mount Coty/Sawmill Mountain 3-Line 2D Summer 2000 Geophysical Program*. Completed Preliminary Screening, May 3, 2000.

⁴ 2000, MVLWB. *Preliminary Screening Report Land Use Permit Amendment N1998B0861*. Completed Preliminary Screening, August 17, 2000.

3.4 Development Location

The proposed development is situated south and west of the community of Nahanni Butte, and several kilometres south of the south-eastern boundary of Nahanni National Park Reserve. The proposed seismic line would be located on the west side of the Liard River (at approximately lat. 60'57", long. 123'22") and run in a north-westerly direction, ending near Jackfish Gap in the Liard Range (at approximately lat. 61'04", long. 123'54"). The south-east half of the line would run through mixed coniferous and deciduous forest, shrub land and bog of the Liard River low lands. The north-western half of the line would run through alpine tundra type vegetation of the Liard Range. Approximately three quarters of the line would be located in the South Nahanni River watershed.

3.5 Participants in the EA Process

The Review Board relied on the submissions of expert advisors, RA's, the developer, First Nations, communities, interested parties and the public who participated in the EA process. All information received was placed on the public registry and was carefully considered by the Review Board prior to making its EA decision.

4.0 METHODOLOGY

Part 5 of the MVRMA describes the environmental impact assessment process in the Mackenzie Valley, which consists of preliminary screening, environmental assessment, and environmental impact review. This section describes each milestone of the process followed by the Review Board in completing the EA for this development.

4.1 Work Plan

The Work Plan⁵ provided a framework for the Review Board to conduct the EA while meeting the requirements of Part 5 of the MVRMA. The Work Plan provided the developer and others an indication of the milestones to be achieved, and established appropriate time frames for their completion.

⁵ 2000, MVEIRB. *Work Plan for the Environmental Assessment of the EXPLOR DATA Ltd. Land Use Permit N1998B0861 Amendment Seismic Program, Nahanni Butte, NT.* August 31, 2000

4.2 Terms of Reference

The Terms of Reference⁶ were finalized by the Review Board and provided to the developer, and others as appropriate, to ensure that the Review Board, expert advisors, RA's, the NEB, First Nations, interested parties and the public would receive the information they needed from the developer to understand the environmental consequences and the benefits of the proposed development. The Terms of Reference were developed from the development description provided by the developer and other relevant information. The Terms of Reference included a determination of the scope of the development, and the scope of the assessment. They also provided general guidance on the preparation of the developers EA Report.

4.3 Technical Analysis

The Review Board received copies of previous preliminary screenings related to this development, prepared by the NEB and the MVLWB. On the basis of this evidence, the Review Board determined the scope of assessment for the EA. The EA process was structured to focus on gathering outstanding information, through the information request process, that would enable the Review Board to reach a decision. As a result, a *Conformity Analysis* step and a detailed *Technical Analysis* step were not necessary for the completion of the EA, because of the narrow scope of the assessment.

4.4 Information Requests

Information Requests (IRs) are specific requests made by the Review Board to the developer, expert advisors, RAs, or DRA when additional information is needed to assist the Review Board in completing a step in the EA process. Generally, information requests are made during the technical analysis stage, where more detailed or precise information may be required about the development or a specific component of the development, about certain government policies or expertise, or even about baseline information that may be required to complete the analysis.

The Review Board made seven (7) information requests to government at the same time that the EA Terms of Reference were sent to the developer. One IR was also forwarded to the DRA. Copies of all information requests made during this process, and the responses, were placed on the Public Record.

⁶ 2000, MVEIRB. *Environmental Assessment Terms of Reference for the EXPLOR DATA Ltd. Land Use Permit N1998B0861 Amendment Seismic Program, Nahanni Butte, NT.* September 14, 2000.

4.5 Public Record

The Public Record is the "complete" record of information that the Review Board received and considered in reaching an EA decision. The Public Record for this EA was opened on August 17, 2000 and closed on October 9, 2000. Please refer to Appendix 3 for a complete listing of Public Record entries.

4.6 Review Board Decision

This Review Board document presents the *Report of EA* required by ss.128(2) of the MVRMA, the Review Board's *decision* required by ss.128(1), and *reasons for decision* required by s.121.

5.0 PUBLIC INVOLVEMENT

In order to effectively meet its legal obligations, the Review Board implemented a process open to the public in the conduct of its EA. Receipt of the EA referral from the MVLWB was placed in the public registry, notice of the EA was advertised in regional and Territorial newspapers, and notifications were issued on a regular basis to inform the public about the EA process, the status of the EA, how to provide input to the process, and where to contact the Review Board.

The Review Board staff met with Chief and Council of the Naha Dehe First Nation, Nahanni Butte on September 25, 2000 to discuss the development and any concerns they had. Written submissions were received over the course of the EA from government, First Nations, interested parties, and the public. These submissions were placed on the Public Record and copied to the developer.

When necessary, Review Board staff assisted the developer, and any other party, by providing direction and clarification on the EA process. Disputes or questions of substance were directed to the Review Board for a ruling. All correspondence, reports and other material documenting these actions were placed on the Public Record.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The Review Board has completed an analyses of the evidence on the Public Record and provides its conclusions and recommendations on the substantive issues that were identified in the reasons for referral and the scope of assessment for the EA below.

The following table is a summary of the issues of referral from the MVLWB⁷ and the related components identified in the scope of assessment that were considered in the EA.

ISSUE NUMBER	DESCRIPTION	ADDRESSED IN SUBSECTION
<i>Referral Issues</i>		
1	Increased access to area using seismic line	6.1
2	Increased hunting pressure by non-aboriginal hunters	6.2
3	Negative impacts on traditional subsistence harvesting from increased access and increased hunting	6.3
4	Deh Cho First Nations and Naha Dehe First Nation resolutions to protect entire South Nahanni River watershed as a National Park	6.4
5	No incremental developments in the area that would affect ecological integrity of potentially a larger protected area	6.5
6	Future cumulative effects on water resources of the South Nahanni River basin from amended seismic program	6.6
<i>Scope of Assessment Issues</i>		
Cumulative effects on water of South Nahanni River watershed		6.6
Increased hunting effort - effects on species		6.2, 6.5
Effects on species at risk and relationship to ecological integrity of the South Nahanni River watershed and the Nahanni National Park Reserve		6.1, 6.5
Cumulative effects on water resources and resulting ecological integrity of the South Nahanni River watershed and the Nahanni National Park Reserve		6.6
Increased hunting effort in the area generally		6.1, 6.2
Increased hunting effort effects on wildlife harvesting generally		6.5
Increased hunting effort effects on traditional subsistence harvesting		6.2, 6.3

6.1 Access

Concern - Increased access to the area along the seismic line and into the wilderness buffer that surrounds Nahanni National Park Reserve (NNPR) boundary, using all terrain and over snow vehicles. The seismic line would reach within five (5) kilometres of the NNPR boundary.

⁷ 2000 MVLWB. EA referral, preliminary screening report, and reasons for referral. Ken Weagle, MVLWB, Public Register item #2, August 18, 2000.

Evidence - The developer originally proposed using "low impact seismic" survey techniques for the placement of the seismic line⁸. Clearing a maximum 1.5 metre width seismic line corridor of brush, branches and enough trees (large trees would likely be left standing) to allow line-of-sight direction finding for placement of seismic drill holes. Every 100 metres along the length of the seismic line, a 4m x 4m space would be cleared of bush and trees to allow a heliportable drill to be lowered for drilling a charge hole. For the 35 kilometre line, approximately 350 drill locations would be cleared. According to NEB safety requirements, a helicopter landing site (approximately 20 metres in diameter) is required every one (1) to two (2) kilometres. Wherever possible, natural clearings for the helicopter sites would be used. The developer has indicated that 1.5 metre seismic lines would not be suitable for transportation corridors due to the number of trees left standing along these lines, the rate of re-growth in this area, and the linear nature of a seismic line means vertical terrain would be impassable to over-land vehicles⁹.

The developer later offered to use an even less intrusive seismic line survey technique called the Navpak technique¹⁰. This technique uses a portable inertial navigation system which takes a path of least resistance through bush for accurate placement of the 4m x 4m drill locations every 100 metres along the seismic line. Clearing requirements along the seismic line between the drill points would be limbing and brushing - essentially to allow the survey crew to walk through the bush between the drill points, and to allow for laying out of the seismic receivers. No motorized machines would be able to navigate this type of seismic line.

Response from RWED to an IR requesting information on hunting pressure, species at risk, and ecological integrity, included some conclusions and a recommendation on access¹¹:

Given that the proposed seismic operation is heliportable and the line will be 1.5 metres wide, we do not feel that this cut line will increase access. We do not have any concerns pertaining to the ecological status or integrity of wildlife in the area.

In order to ensure that there is no river access to the cut line, the Board may want to require the proponent to begin its seismic operation approximately .5 kilometres from the Liard River.

⁸ **2000 Explor Data.** *Project Description* - a written description of how heliportable seismic operations are carried out. Item #21 on Public Record. August 29, 2000.

⁹ **Philip Gregory, Explor Data Ltd.**, personal communication.

¹⁰ **2000 Explor Data.** *Follow-up to Conference Call Regarding SWM-5.* Philip Gregory, Explor Data Ltd., Public Record item #52, September 13, 2000.

¹¹ **2000 RWED.** *Response to Information Request on hunting effort.* Kathryn Emmett, RWED, Public Register item #64, September 25, 2000.

The developer is provided copies of all the evidence respecting this EA, and is encouraged to provide any additional information they feel would be helpful. The developer did respond to the GNWT river bank seismic line set-back recommendation¹²:

As per the comments from GNWT regarding set back distances from rivers edge, we think that 30 m would be adequate. It is agreed that the line will not increase access, and the hunting effort in the area is low. Also, harvesting takes place primarily along the river. As we have on many occasions, these lines are often extended in subsequent years. If this lines is extended east, we have the Liard river to deal with. The river is approximately 1.5 km wide in this area and already results in a significant loss of data along our line. Gaps develop in the processed data that make it difficult to interpret from one side of the river to the other. Imposing 500 m on either side of the river would almost double the gap to 2.5 km. This would make it impossible to correlate under the river.

As for where the Nahanni Butte is concerned, I think that 30 m set back would be sufficient. We will only be walking and pulling cable through the tributaries. I also believe set back distances for charges would be 100 m.

Conclusion - The Review Board considered the commitment by the developer to use the Navpak technique for establishing the seismic line, and has concluded, based on this commitment and the evidence provided, that no significant impacts to the environment would occur. The possibility of increased access to the area along the seismic line established using the Navpak technique is unlikely. The Review Board considers that the 30 metre set back from all water courses or water bodies, as required in regulatory terms and conditions and by the letter of advice issued by DFO, is sufficient to mitigate for possible access to the seismic line, particularly where the Navpak technique for establishing the seismic line is used.

6.2 Hunting Pressure

Concern - The increased, or ease, of access caused by creating the seismic cut-line would result in increased hunting pressure on wildlife species, such as moose, with home ranges that overlap the NNPR boundary.

Evidence -

Response from Parks to an IR requesting details, with supporting evidence and rational, over concern with an increase in non-aboriginal hunting¹³:

¹² **2000 Explor Data.** Response to GNWT IR response. Philip Gregory, Explor Data Ltd., Public Record item #73, October 2, 2000.

¹³ **2000, NNPR.** Response to Information Request on Ecological Integrity. Chuck Blyth, NNPR, Public Register item #72, September 29, 2000.

The network of seismic lines, roads, and other types of access associated with resource extraction activities serve to increase ease of access for many other activities, including sport hunting. As an example, the old winter road from Liard River to Grainger Pass is commonly used as an all-terrain vehicle access to big-game hunting areas by non-local NWT residents and an increasing number of non-resident hunters, according to local residents. The same may be true for the Liard River valley between Fort Liard and Nahanni Butte, where hydrocarbon exploration has been much more extensive.

Since the knowledge of the level of harvest on many big-game species in the area is limited, Parks Canada supports using the precautionary principle (i.e. err on the side of caution) when information is lacking. Ease of access has a direct relationship with amount of harvest. The cumulative effect of access and habitat alterations on wildlife populations along the Liard River valley is poorly known.

With regards to the application in question, use of the Navpak system, and brushing only a walking trail as opposed to an open cut line as described by the proponent, does alleviate most of the concerns regarding access and increased harvest put forward by Nahanni National Park Reserve. However, there is still potential impact of these types of projects which needs to be considered.

Recent research in northern Alberta has shown that woodland caribou are affected by such exploration projects. In one study, GPS collared caribou avoided habitat near roads, seismic lines and well sites¹⁴. Although they did sometimes occur near such features, there was statistically significant avoidance of these areas, and the avoidance occurred at all seasons of the year, and even included old and unused lines.

Response from RWED to an I R requesting information on the current level of hunting effort around NNPR¹⁵:

Although we are not able to quantify the level of wildlife harvesting in the area of the proposed seismic operation, we believe that the level of aboriginal and non-aboriginal hunting effort is low. Harvesting of moose takes place primarily along the Liard River and other areas where access is readily available. There are no species at risk in the proposed development area. Dall's sheep habitat in this area of the Liard Range is generally of poor quality.

The evidence provided in **6.1 Access** (above) suggests that very limited access to a portion of the seismic line would be gained by using low impact (1.5 metre maximum width) seismic

¹⁴ **Dyer, S.J. 1999.** Movement and distribution of woodland caribou (*Rangifer tarandus caribou*) in response to industrial development in northeastern Alberta. M.Sc. Thesis. University of Alberta. Edmonton, AB

¹⁵ **2000, RWED.** Response to Information Request on hunting effort. Kathryn Emmett, RWED, Public Register Item #64, September 25, 2000.

survey techniques, and only walking access would be gained using a Navpak seismic survey technique.

Conclusion - The Review Board recognizes the effects that seismic operations have had, and could potentially have, in the Mackenzie Valley, particularly where "cats" are used to clear cut seismic lines. The original proposal described a low impact 1.5 metre seismic program, while during the EA, the developer committed to an even less intrusive Navpak seismic survey technique.

The Review Board notes the admission by Parks Canada that the use of the Navpak technique alleviates most of its concerns regarding access and increased harvest. The Review Board concludes, based on the evidence provided, that no significant adverse impacts to the environment would result, and the use of the Navpak seismic technique would have no impact on increased access or hunting pressure.

6.3 Traditional Subsistence Harvesting

Concern - Increased access to the area, and increased hunting pressure by non-aboriginal residents, may negatively impact upon the traditional subsistence harvest activities of residents of Nahanni Butte.

Evidence -

Response from RWED to an IR requesting information on the current level of hunting effort around NNPR¹⁶:

Although we are not able to quantify the level of wildlife harvesting in the area of the proposed seismic operation, we believe that the level of aboriginal and non-aboriginal hunting effort is low. Harvesting of moose takes place primarily along the Liard River and other areas where access is readily available. There are no species at risk in the proposed development area. Dall's sheep habitat in this area of the Liard Range is generally of poor quality.

Discussions with the Chief and Council of Nahanni Butte¹⁷ indicated that the proposed seismic line would cross traditional use and trapping areas, and important wildlife use and harvest areas. These areas were identified and marked on a topographic map of the area. The Chief and Council also provided a copy of a map showing traditional ecological knowledge, which was

¹⁶ 2000, RWED. Response to Information Request on hunting effort. Kathryn Emmett, RWED, Public Register item #64, September 25, 2000.

¹⁷ 2000, MVEIRB. Notes of meeting with Nahanni Butte Chief and Council. MVEIRB, Public Register item #65, September 27, 2000.

mapped as part of the Ranger/Chevron gas pipeline development in the Fort Liard area. This map shows traditional use areas and other important traditional ecological knowledge in the area of this proposed development¹⁸.

Conclusion - The Review Board concludes, based on the evidence provided, that increased access and increased hunting pressure by non-aboriginal residents would not result from this development proceeding, and therefore would not result in significant adverse impacts to the traditional subsistence harvest activities of the residents of Nahanni Butte.

Recommendation - the Review Board does recognize the potential for the seismic line to interfere with existing trap lines in the area. The Review Board suggests that the developer should hire a trap line monitor from Nahanni Butte to accompany the seismic crew to ensure no trap lines are affected.

6.4 Proposals for Expansion of Nahanni National Park Reserve

Concern - The Deh Cho First Nations and the Naha Dehe First Nation of Nahanni Butte passed resolutions that the entire South Nahanni River watershed should be set aside as a National Park.

Evidence - The 1987 NNPR Management Plan identified three areas of possible future expansion to the existing NNPR¹⁹. The Tlogotsho Plateau, identified as area 2 for possible expansion of the NNPR, is the closest area to the proposed development, located approximately 5 kilometres west of the northwest end of the proposed seismic line. With the start of land claim negotiations in the Deh Cho Region, the Nahanni Butte First Nation and the Deh Cho First Nations have identified the South Nahanni River watershed as the preferred area of future NNPR expansion^{20 21}. The western 30 kilometres (approximately) of the proposed development would be located within the watershed, and would cross several tributaries of the South Nahanni River.

Response from Parks to an IR requesting information on Parks position on the possible

¹⁸ **1998, Ranger Oil.** *Traditional Ecological Knowledge Study map for Nahanni Butte.* Prepared by Golder Associates for Ranger Oil, August 7, 1998. Public Register item #66, September 27, 2000.

¹⁹ **2000, NNPR.** *Map of proposed expansion areas for NNPR.* Item #9 on Public Record. August 22, 2000.

²⁰ **2000, Nahanni Butte First Nation.** *Band Council Resolution.* Item #24 on Public Record. August 31, 2000.

²¹ **2000, Deh Cho First Nations.** *Deh Cho First Nations Interim Measures Agreement, August 3, 2000 Draft.* Item #19 on Public Record. August 28, 2000. Item #62 on Public Record, IMA September 13, 2000 Draft. September 21, 2000.

expansion of NNPR, and the likelihood of any expansion proposal becoming a reality²²:

Background -

Nahanni National Park Reserve was created through an Order in Council to set land aside as a national park reserve in 1972. In 1976, Nahanni National Park Reserve was formally entered into the Canada Gazette as a national park reserve. As is the case in other park reserves, full National Park status is pending the settlement of regional aboriginal land claims.

The primary impetus for creation of a national park on the South Nahanni River was the potential threat of hydro-electric development on the river corridor. The boundaries were established in haste to provide interim protection, with intent to expand the protected area in future.

Expansion of Nahanni National Park Reserve -

With respect to expansion of Nahanni National Park Reserve, Parks Canada must consider several relevant policy documents. These include the Park Management Plan¹ (1987), Management Plan Amendments² (1994), National Parks System Plan³ (1997), and the Ecological Integrity Statement for Nahanni National Park Reserve⁴ (2000).

Expansion of Nahanni National Park Reserve to incorporate the aforementioned three areas of interest, or any other lands, has not yet occurred primarily because land claim negotiations in the region have not been settled. Out of respect for the ongoing land claims process, Parks Canada temporarily postponed negotiating transfer of any of this land, pending the outcome of the Deh Cho Process.

Recent events have indicated that the expansion of Nahanni National Park Reserve is very likely to occur in the foreseeable future. Through the Deh Cho Process, the Deh Cho First Nations (DCFN) have expressed a desire to protect the entire South Nahanni watershed, in both public interviews and at the negotiations table, and have proposed that the South Nahanni watershed be part of an interim land withdrawal. The Naha Dehe First Nation (Nahanni Butte) has passed a Band Council Resolution⁹ calling for protection of the South Nahanni watershed.

Parks Canada is interested in exploring options to create a national park that will meet Canada's and DCFN's goals of ecological integrity, conservation, representation and co-operation. To this end, Parks Canada would view favourably an interim withdrawal of the South Nahanni River watershed if proposed by DCFN as a result of the interim measures agreement now under consideration.

Considering that the DCFN are proponents of expansion of the park to encompass

²² 2000, NNPR. Response to Information Request on NNPR expansion. Chuck Blyth, NNPR, Public Register Item #72, September 29, 2000.

much, if not all of the South Nahanni watershed, and that the DCFN are now partners in park management, this expansion is a very real possibility in the near future.

Response from DI AND to an IR requesting information on the Deh Cho land claim process and implications to developments in the area²³:

An indication of the status of the Deh Cho First Nations Interim Measures Agreement, the Deh Cho First Nations Framework Agreement and any other agreements, and how these agreements affect, or may affect this development

The parties have a tentative agreement on a framework agreement.

The parties have substantial agreement on an interim measures agreement (IMA). The IMA includes the following subjects : land use planning; surface\sub-surface and sub-surface only land withdrawals; DCFN participation in the MVLWB and the EIRB; consultation measures; Commissioner's lands; mineral development; oil and gas activity; Forest management; Nahanni National Park reserve; Great Slave Lake Fishery; and funding arrangements.

The project is not affected by these negotiations directly, as there are no agreements flowing from the negotiations. However, both the Deh Cho First Nations and Parks Canada have identified interest in withdrawing lands in the South Nahanni River watershed in order to make informed decisions in future negotiations (ie., future ownership of the area, potential protected areas, including expansion of the existing park).

One of the two outstanding items in the interim measures agreement is the restriction of land use permits on withdrawn lands. At this point Canada has not agreed to this request from DCFN. The specific land use activity the DCFN wants restricted on withdrawn lands is seismic on spec. for oil and gas exploration. Again, Canada has not agreed to this condition.

An indication that if expansion of NNPR is going to occur, one way or the other, what the implications to this development proposal are:

DI AND is aware that Parks Canada is interested in expanding NNPR. However, it is understood by the federal government, as a whole, that any park expansion would be concluded under the Deh Cho process.

Conclusion - The Review Board recognizes this development proposal as a one-time-only development that proposes to establish, drill, shoot, record and clean up one seismic line to gather geophysical information as part of a regional program. This particular regional seismic program would be completed with the shooting of this seismic line. The Review Board

²³ 2000 DI AND. Response to Information Request on Deh Cho Land Claim process. Marie Adams, DI AND, Public Register item #69, September 29, 2000.

recognizes that this development proposal, if completed, in no way guarantees that it will lead to future exploration activities in the area. The Review Board also recognizes that any future oil and gas exploration activities in the area would be subject to the MVRMA process, and would be dealt with on a case-by-case basis.

Considering the evidence presented and given the commitment by the developer to use the Navpak seismic technique, the Review Board concludes this development would have no impact on any potential future expansion of the NNPR.

6.5 Ecological Integrity

Concern - Incremental developments, such as the seismic line, would affect the ecological integrity of a potentially larger protected area.

Evidence -

Response from Parks to an IR requesting information on maintaining the ecological integrity within the NNPR²⁴ (note: references included by Parks in this evidence have been removed; however, the complete Parks response is on the Public Record):

Northern parks have not yet experienced the scale of development seen in southern Canada, but some effects are already being noticed. In Nahanni National Park Reserve, 26 exotic species have been identified. With increasing interests in developing the north, ecological integrity on a landscape scale must be addressed.

...seven categories of stresses most significantly affecting National Parks, including habitat loss, habitat fragmentation, losses of large carnivores, air pollution, pesticides, alien species, and over-use. Buffer zones, which allow a lower level intensity type of activities, can help to alleviate potential impacts of many of these stresses. Maintaining integrity of habitats and wildlife movement corridors are among the major functions of buffer zones. For a river oriented park such as Nahanni National Park Reserve, a buffer zone to alleviate potential impacts of upstream developments on water quality is also critical.

In northern ecosystems, where species such as grizzly bears and woodland caribou need large home ranges, these functions are particularly important. Dr. Stephen Herrero, a grizzly bear biologist at University of Calgary, wrote the following comment regarding ecological integrity of Nahanni National Park Reserve: "The shape of the park, long and narrow, is very challenging for the park to be able to maintain large, mobile species such as grizzly bears, caribou, wolves, etc. No doubt such species move extensively in and out of the park. In order to meet park ecological

²⁴ 2000, NNPR. Response to Information Request on ecological integrity within NNPR. Chuck Blyth, NNPR, Public Register item #72, September 29, 2000.

integrity objectives planning must identify movement zones and key areas and their use outside the park."

The integration of parks and protected areas into broader landscape level land management is the driving force behind the Yellowstone to Yukon Conservation Initiative (Y2Y). The Y2Y is a binational (Canada & USA) network of conservation organizations and individuals striving to conserve "the beauty, the health and the natural diversity" of the western cordillera of North America. Buffer zones and corridors between protected areas are promoted as essential management tools to work towards this goal. Nahanni National Park Reserve is considered one of the major 'core' protected areas in the northern region of this initiative.

Size and Extent of Buffer Zone -

As a major step towards ecosystem based management, the Nahanni National Park Reserve Management Plan Amendments (1994) put forth the concept of the Greater Nahanni Ecosystem (defined therein as the South Nahanni River watershed). The concept recognized the need to integrate park planning with land use planning in the broader regional area, and addressed the potential for ecological impacts on the park from activities occurring outside.

3.1 GREATER NAHANNI ECOSYSTEM

Nahanni National Park occupies one-seventh of the South Nahanni watershed (Fig. 2). This watershed drains an area of 35,000 square kilometres, which then enters the Mackenzie River drainage basin via the Liard River. To date, the relative isolation and wilderness of the watershed has served to protect the park. However, existing and possible future adjacent land uses such as mining, big game hunting, tourism development and uncontrolled access have the potential to affect the park's ecological and wilderness integrity. Within the context of an ecosystem-based approach to management, the South Nahanni River watershed is the extent of the park's immediate concern.

This position has been endorsed through public consultation and approval of the Management Plan Amendments in parliament.

To develop an ecological vision for Nahanni National Park Reserve, and to set priorities and goals for the protection of ecological integrity, Parks Canada held a public workshop in Fort Simpson in January, 2000. First Nations leaders and elders, government biologists, research scientists, regional land managers and other interested stakeholders participated in the workshop. An over-riding theme came out of the process, indicating that protection of the entire South Nahanni watershed met most tests of ecological integrity. This is reflected in the draft Ecological Integrity Statement.

Among the most obvious examples of the importance of watershed protection to the ecological integrity of Nahanni National Park Reserve are water quality and woodland caribou. As the park covers only one-seventh of the South Nahanni watershed, the majority of the waters flowing through the park originate outside its borders, and any upstream activities do have the potential to impact water quality in the park.

In 1995, with the cooperation of Liidlii Kue First Nation and the Yukon Territorial Government, Parks Canada began a large scale research project on woodland caribou, a species listed as vulnerable by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). This project has found that Nahanni National Park Reserve does not provide adequate protection for the South Nahanni Woodland Caribou Herd. Although the park does protect significant wintering areas, most of the calving, summering and rutting grounds are outside the park. However, the seasonal movements of caribou do roughly correspond with the South Nahanni watershed, and watershed protection likely would adequately protect the habitat of this caribou herd.

As stated in the above quote from the management Plan Amendments, "the South Nahanni River watershed is the extent of the park's immediate concern", and the watershed would be considered an adequate buffer zone to protect ecological integrity of the park. In the event that Nahanni National Park Reserve was expanded to include the entire watershed, it is our position that the park would then be of adequate size and configuration that designation of a buffer zone would not be required. Regardless of size, Parks Canada would still be interested in cooperating with adjacent land management agencies to promote sustainable economic opportunities throughout the region.

Response from DOE to an IR requesting information on the ecological integrity of the area²⁵:

An indication of the existing ecological integrity of the area.

The area of proposed activity in the vicinity of Nahanni National Park continues as a naturally functioning ecosystem representative of the Taiga Cordillera and Taiga Plains Ecozone. The overall biodiversity of the area remains intact with little or no change since the arrival of the first Europeans. However, there have been localized changes that can be attributed to human activity such as forestry, limited mineral exploration and probably some limited effects from hunting and trapping.

An explanation of how incremental developments such as this seismic development and increased hunting in the area may affect ecological integrity.

The proposed seismic program with its 35 km of hand-cut 1.5 m wide lines presents little opportunity for improved access. Firstly the lines 'begin and end essentially nowhere' and secondly, motorized travel would not be possible on such lines. Given

²⁵ 2000, DOE. Response to Information Request on ecological integrity. Paula Pacholek, DOE, Public Register item #68, September 29, 2000.

that this area could potentially be considered for expansion of the Park, there is the possibility of visual impacts due to the proposed cutting. However, at 1.5 m this would be negligible particularly considering how quickly the shrub layer rebounds after such disturbance. The disturbance associated with the helipads and storage areas would be negligible as well, as the vegetation will regenerate.

Response from RWED to an IR requesting information on hunting pressure, species at risk, and ecological integrity²⁶:

Given that the proposed seismic operation is heliportable and the line will be 1.5 metres wide, we do not feel that this cut line will increase access. We do not have any concerns pertaining to the ecological status or integrity of wildlife in the area.

Conclusion - Based on the evidence provided, the Review Board concludes that this seismic proposal alone would not significantly affect the ecological integrity of a potentially larger protected area.

6.6 Cumulative Effects on Water Resources of the South Nahanni River Watershed

Concern - There is potential for future cumulative effects on the water resources of the South Nahanni River Basin from the amended seismic line.

Evidence -

Response of the developer in EA Report²⁷:

The program we have proposed is part of a regional seismic grid we are establishing in the area. The structures we are imaging have already been established but our seismic helps tie them to the regional perspective. The area is already known to be favorable even without the seismic. This has been established through geological mapping of the area and information obtained by the wells in the area. Additional seismic could be shot in the future to fill in some of the gaps, but further development would require the issuance of subsurface rights.

SWM-5 is one more piece of the seismic puzzle in understanding how the geology relates to the regional perspective. We have been establishing a regional grid in the area for the last six years, acquiring new regional lines and extending others. These lines are positioned to tie as many wells and known structures as possible.

²⁶ 2000 RWED. Response to Information Request on hunting effort. Kathryn Emmett, RWED, Public Register item #64, September 25, 2000.

²⁷ 2000 Explor Data. EA Report. Developed in response to EA Terms of Reference. Philip Gregory, Explor Data, Public Register item #56, September 18, 2000.

Response from DOE to an IR requesting information on cumulative effects and the state of the water resources of the South Nahanni River watershed²⁸:

An indication of the existing state of the environment and integrity of water resources of the South Nahanni River watershed

The area was found to have natural elevations of copper, zinc and cadmium in stream water, suspended sediment, and fish livers and gills (other studies reveal elevations of these metals in caribou). Nahanni NPR water quality exhibits tremendous spatial and temporal (seasonal, long-term) natural variability (geobiochemical cycling). The NRCan Canadian Earthquake Database homepage documents how tectonically active the area is. Flat River near the Mouth has a statistically-large, 25-year water quality record that documents increased exceedances of CCME Canadian Water Quality Guidelines for several physical and trace metal water quality variables following 12 seismic events (Richter Scale = 5-6, epicentre = Ram Plateau locations, foci depths = 10 km. approx.) in the area between October 1985 and March 1986.

Analysis and conclusions, with supporting rationale, of the potential for cumulative effects on water resources to occur from this proposed development

This amendment to the seismic line should not increase the already elevated levels of copper, zinc, cadmium, iron and aluminum.

Response from DFO to an IR requesting information on cumulative effects and the state of the water resources of the South Nahanni River watershed²⁹:

Please provide analysis and conclusions, with supporting rationale, of the potential for cumulative effects on water resources to occur from this proposed development.

There is a potential for cumulative effects on the watershed as a result of the extension of the seismic line, and the impacts would be compounded further with improved access. Impacts would likely include soil compaction, which would prevent the re-growth of vegetation critical to the stability of shorelines and stream banks. Impacts to the watershed should be minimized through lack of mechanized access and through the use of mitigative measures outlined in both the project proposal and the letter of advice from DFO dated May 1, 2000.

Please provide a detailed explanation of how the letter of advice provided to the developer by DFO could mitigate for direct, indirect and cumulative effects on

²⁸ 2000, DOE. Response to Information Request on cumulative effects and water resources. Paula Pacholek, DOE, Public Register item #68, September 29, 2000.

²⁹ 2000, DFO. Response to Information Request on cumulative effects and water. Kelly Withers, DFO, Public Register item #59, September 20, 2000.

water resources.

The mitigation measures outlined in the letter of advice, dated May 1, 2000, are intended to prevent the harmful alteration, disruption or destruction of fish habitat and to protect fish. The possible impacts on fish and/or fish habitat in the project proposal could be a result of clearing vegetation, depositing substances or debris, or using explosives near the watercourses. DFO recommends a setback distance of 30 m for mechanized clearing to prevent soil compaction, erosion and sedimentation. A setback distance consistent with the Guidelines for the Use of Explosives In or Near Water (DFO, 1998) to prevent harm to fish. DFO also recommends that there be no in-stream construction or the deposition of any material or substances into any watercourses.

Conclusion - Based on the evidence provided it does not appear that carrying out this development will cause any impacts on water crossings. Assuming the implementation of the mitigation measures proposed by the developer and mitigation measures stipulated in regulatory authorizations required for this development to proceed, including those outlined in DFO's Letter of Advice, the Review Board concludes that this seismic proposal alone would not significantly affect the water resources of the South Nahanni River watershed, and it would not be a cause of potential future cumulative effects on these water resources.

7.0 REVIEW BOARD DECISION AND REASONS FOR DECISION

This document reports on the EA of the *EXPLOR DATA Ltd. Land Use Permit N1998B0861 Amendment Seismic, Program, Nahanni Butte, NT* and fulfills the requirements of ss.128(2) of the MVRMA for a report of EA; it represents the written reasons of the Review Board, required by s.121 of the MVRMA; and, it contains the EA decision of the Review Board, required by ss.128(1).

7.1 EA Decision

The Review Board, in considering all of the evidence before it, has reached the following decision concerning the EA of the *EXPLOR DATA Ltd. Land Use Permit N1998B0861 Amendment Seismic, Program, Nahanni Butte, NT*,

With the implementation by the developer of:

- (1) all mitigation measures proposed by the developer;***
- (2) using the Navpak technique for establishing the seismic line, as committed to by the developer during this EA;***
- (3) all terms and conditions, and similar requirements of regulatory licences, permits and other authorizations that may be issued with respect to this development;***
and,

(4) all mitigation measures outlined in DFO's letter of advice dated May 1, 2000 and issued for approval of the original development,

the Review Board has determined, in accordance with p128(1)(a) of the MVRMA, that the development is not likely in its opinion to have any significant adverse impact on the environment or to be a cause of significant public concern, and that an environmental impact review of the proposal need not be conducted.

7.2 Public Concern over the NNPR

During this EA the Review Board received submissions advocating a decision that ensured the protection of the South Nahanni River watershed and urging that the Review Board prohibit or prevent any activities that could affect the water resources or ecological integrity of the NNPR and several other areas being considered for possible expansion of the park reserve. These submissions came from First Nations, Parks Canada, some interest groups and the public.

The Review Board was also referred to processes, such as the Deh Cho Process and draft Interim Measures Agreement between the Deh Cho First Nations and the government of Canada, which when signed may lead to an increased level of protection for these lands in the vicinity of NNPR.

The Review Board is not of the view that the development proposed by Explor-Data is of a magnitude sufficient to raise concerns about the ecological integrity of this region. The Review Board is also not in a position, based on the evidence before it to recommend any kind of regional development moratorium.

The Review Board recognizes the validity of the concerns raised by the First Nations of the region, Parks Canada, some interest groups, and the public. However, the Review Board also recognizes that there are Land Claim negotiation processes being undertaken which will address many of these specific concerns, as well as the broader regional context. The Review Board urges government and First Nations to seek an early resolution to these concerns.

APPENDIX 1

Legal Context for EA

The MVRMA includes the following provisions which provide the context for the Review Board's deliberations:

Environment means the components of the Earth and includes
(a) land, water and air, including all layers of the atmosphere;
(b) all organic and inorganic matter and living organisms; and
(c) the interactive natural systems that include components referred to in paragraphs (a) and (b).

Harvesting in relation to wildlife, means hunting, trapping or fishing activities carried on in conformity with a land claim agreement or, in respect of persons and places not subject to a land claim agreement, carried on pursuant to aboriginal or treaty rights.

Heritage Resources means archaeological or historic sites, burial sites, artifacts and other objects of historical, cultural or religious significance, and historical or cultural records.

Impact on the Environment means any effect on land, water, air or any other component of the environment, as well as on wildlife harvesting, and includes any effect on the social and cultural environment on heritage resources.

Mitigative or Remedial Measure means a measure for the control, reduction or elimination of an adverse impact of a development on the environment, including a restorative measure.

ss. 9.1 The purpose of the establishment of boards by this Act is to enable residents of the Mackenzie Valley to participate in the management of its resources for the benefit of the residents and of other Canadians.

s. 114 The purpose of this Part is to establish a process comprising a preliminary screening, an environmental assessment, and an environmental impact review in relation to proposals for developments, and

(b) to ensure that the impact on the environment of proposed developments receives careful consideration before actions are taken in connection with them; and
(c) to ensure that the concerns of aboriginal people and the general public are taken into account in that process.

s. 115 The process established by this Part shall be carried out in a timely and expeditious manner and shall have regard to:

(a) the protection of the environment from the significant adverse impacts of proposed developments; and
(b) the protection of the social, cultural and economic well-being of residents and communities in the Mackenzie Valley.

ss.117(2) Every environmental assessment and environmental impact review of a proposal for a development shall include a consideration of:

(a) the impact of the development on the environment, including the impact of malfunctions or accidents that may occur in connection with the development and any cumulative impact that is likely to result from the development in combination with other developments;

(b) the significance of any such impact;

(c) any comments submitted by members of the public in accordance with the regulations or the rules of practice and procedure of the Review Board;

(d) where the development is likely to have a significant adverse impact on the environment, the imposition of mitigative or remedial measures; and

(e) any other matter, such as the need for the development and any available alternatives to it, that the Review Board or any responsible minister, after consulting the Review Board, determines to be relevant.

APPENDIX 2

Scope of Assessment Determination

The Review Board's Determination of a Narrow Scope of Assessment

The following table identifies the Part 5 context components to be considered in the EIA process. The Review Board determined, after considering the preliminary screenings previously conducted for this development and other documents contained on the Public Register, that certain components identified in the following table had been sufficiently addressed through other mechanisms (e.g., proposed mitigation measures, regulatory requirements) to meet some of the requirements of Part 5 of the MVRMA for the purposes of EA. For those components that the Review Board determined to be not applicable (N/A) with respect to the development, no further analysis was required.

Component	Addressed in	Adopted by Review Board, and therefore not considered in EA
<i>Physical Environment</i>		
effects on land	NEB PS MVLWB PS Development Proposal	Yes; adopted NEB identified mitigation, and analysis and conclusions related to effects on land.
effects on organic matter	NEB PS MVLWB PS Development Proposal	Yes; adopted NEB identified mitigation, and analysis and conclusions related to effects on land, vegetation and other organic matter.
effects on inorganic matter	N/A	Not Applicable
effects on water	NEB PS MVLWB PS Development Proposal	Adopted NEB identified mitigation, and analysis and conclusions related to effects on water. EA to consider cumulative effects on water resources of South Nahanni River in EA.
effects on living organisms	NEB PS MVLWB PS Development Proposal	Adopted NEB identified mitigation, and analysis and conclusions related to effects on living organisms. EA to consider increased hunting effort, species at risk and relationship to ecological integrity in EA.
effects on air	NEB PS MVLWB PS Development Proposal	Yes; adopted NEB identified mitigation, and analysis and conclusions related to effects on air.
effects on natural systems	NEB PS	Adopted NEB identified mitigation, and analysis and conclusions related to effects on natural systems. EA to consider cumulative effects on water resources and ecological integrity in EA.
<i>Social Environment</i>		

Component	Addressed in	Adopted by Review Board, and therefore not considered in EA
effects on society	Benefits Plan	Yes; adopted developers commitments identified in Benefits Plan.
effects on social programs	N/A	Not Applicable
effects on community infrastructure	N/A	Not Applicable
effects on regional infrastructure	N/A	Not Applicable
effects on quality of life	Benefits Plan	Yes; adopted developers commitments identified in Benefits Plan.
<i>Cultural / Heritage Environment</i>		
effects on hunting	NEB PS	Adopted NEB identified mitigation, and analysis and conclusions related to effects on hunting. EA to consider potential for increased hunting effort in EA.
effects on fishing	NEB PS	Yes; adopted NEB identified mitigation, and analysis and conclusions related to effects on fishing.
effects on archaeological sites	NEB PS Standard regulatory authorization terms and conditions	Yes; adopted NEB identified mitigation, and analysis and conclusions related to effects on archaeological sites.
effects on burial sites	NEB PS Standard regulatory authorization terms and conditions	Yes; adopted NEB identified mitigation, and analysis and conclusions related to effects on burial sites.
effects on historical sites	NEB PS Standard regulatory authorization terms and conditions	Yes; adopted NEB identified mitigation, and analysis and conclusions related to effects on historical sites.
effects on historical records	N/A	Not Applicable
effects on wildlife harvesting	NEB PS	EA to consider potential for increased hunting effort in EA.
effects on trapping	Licensing terms and conditions	Yes
effects on objects of cultural significance	Standard regulatory authorization terms and conditions	Yes; adopted NEB identified mitigation, and analysis and conclusions related to effects on objects of cultural significance.

Component	Addressed in	Adopted by Review Board, and therefore not considered in EA
effects on objects of religious significance	Standard regulatory authorization terms and conditions	Yes; adopted NEB identified mitigation, and analysis and conclusions related to effects on objects of religious significance.
effects on objects of historical significance	Standard regulatory authorization terms and conditions	Yes; adopted NEB identified mitigation, and analysis and conclusions related to effects on objects of historical significance.
effects on heritage resources	Standard regulatory authorization terms and conditions	Yes; adopted NEB identified mitigation, and analysis and conclusions related to effects on heritage resources.
effects on artifacts	Standard regulatory authorization terms and conditions	Yes; adopted NEB identified mitigation, and analysis and conclusions related to effects on artifacts.
effects on cultural records	N/A	Not Applicable
<i>Economic Environment</i>		
effects on employment	Benefits Plan	Yes; adopted developers commitments made in Benefits Plan.
effects on quality of life	Benefits Plan	Yes; adopted developers commitments made in Benefits Plan.
effects on secondary industry	N/A	Not Applicable
effects on procurement/contracting agreements	Benefits Plan	Yes; adopted developers commitments made in Benefits Plan.
effects on traditional economy/lifestyle	NEB PS	EA to consider potential for increased hunting effort in EA.

Legend

NEB PS	Preliminary screening completed by NEB on original application, dated May 3, 2000
MVLWB PS	Preliminary screening completed by MVLWB on amendment, dated August 17, 2000
Benefits Plan	Developers Benefits Plan required under COGOA
N/A	Not Applicable and therefore not considered in scope of assessment
Development Proposal	Developers development proposal and mitigation measures identified

APPENDIX 3

Evidence and Authorities Considered by the Review Board

- 1 **August 8, 2000.** *Notice to Review Board members of possible EA referral.* Contains location information on seismic program. **Submitted by:** MVEIRB staff.
- 2 **August 18, 2000.** *EA Referral, Preliminary Screening Report and written reasons, Explor Data Ltd. Seismic program SWM-5 Land Use Permit amendment, Nahanni Butte, NT.* **Submitted by:** MVLWB
- 3 **August 18, 2000.** *Copy of letter of comments from Nahanni National Park Reserve about Explor Data Ltd. Seismic program amendment, SWM-5.* **Submitted by:** Steve Catto, NNPR
- 4 **August 18, 2000.** *Notification of EA referral to developer Explor Data Ltd..* **Submitted by:** G. Stewart, MVEIRB
- 5 **August 21, 2000.** *Fax report of EA notification letter sent out to distribution list.* **Submitted by:** MVEIRB
- 6 **August 21, 2000.** *Copy of EA notification letter sent to Nahanni Butte First Nation.* **Submitted by:** MVEIRB
- 7 **August 21, 2000.** *Fax report of Explor Data EA press release.* **Submitted by:** MVEIRB
- 8 **August 21, 2000.** *Fax report of Explor Data press release distribution.* **Submitted by:** MVEIRB
- 9 **August 22, 2000.** *Approximate coordinates of proposed Nahanni National Park Reserve expansion block near SWM-5 seismic program location.* **Submitted by:** Steve Catto, Nahanni National Park Reserve
- 10 **August 24, 2000.** *End point coordinates of SWM-5 seismic line.* **Submitted by:** Phil Gregory, Explor Data Ltd.
- 11 **August 24, 2000.** *Insertion order and public notice of Explor Data EA.* **Submitted by:** MVEIRB
- 12 **August 25, 2000.** *Fax of MVEIRB EA overview to Phil Gregory, Explor Data Ltd.* **Submitted by:** MVEIRB
- 13 **August 25, 2000.** *MVEIRB EA overview faxed to Greg Yeoman, CPAWS (Note: same attachment as #12).* **Submitted by:** MVEIRB

- 14 **August 27, 2000.** *Fax confirmation of PS information from file P00-050 sent to Steve Catto, Nahanni National Park Reserve. Submitted by:* MVEIRB
- 15 **August 28, 2000.** *Letter to government asking for identification of responsible ministers for EA. Submitted by:* MVEIRB
- 16 **August 28, 2000.** *Topographic information on proposed SWM-5. Submitted by:* Phil Gregory, Explor Data
- 17 **August 28, 2000.** *Coordinates and drilled/abandonment dates of two wells the adjusted SWM-5 line would pick-up. Submitted by:* John Korec, NEB
- 18 **August 28, 2000.** *DRAFT Deh Cho First Nations Framework Agreement for Land Claim negotiations. Submitted by:* Alison de Pelham, Executive Director, Deh Cho First Nations
- 19 **August 28, 2000.** *DRAFT Deh Cho First Nations Interim Measures Agreement. Submitted by:* Alison de Pelham, Executive Director, DCFN
- 20 **August 29, 2000.** *Northern Benefits Plan for Explor Data LUP N1998B0861 original application. Submitted by:* Philip Gregory, Explor Data Ltd.
- 21 **August 29, 2000.** *Generic project description for low impact seismic line cutting, applicable to Explor Data EA. Submitted by:* Philip Gregory, Explor Data Ltd
- 22 **August 29, 2000.** *DFO identifying themselves as "Expert Advisor" and a "responsible minister" with respect to the Explor Data EA. Submitted by:* Kelly Withers, DFO
- 23 **August 29, 2000.** *NEB response indicating NEB to be the Designated Regulatory Agency and a decision maker with respect to the Explor Data EA. Submitted by:* Terry M. Baker, NEB
- 24 **August 31, 2000.** *Nahanni Butte Band Council Resolution about NNPR co-management and park expansion. Submitted by:* Peter Cizek
- 25 **August 31, 2000.** *DFO comments to MVLWB on seismic amendment. Submitted by:* Karen Ditz, DFO
- 26 **August 31, 2000.** *GNWT intention to be Expert Advisor for Explor Data EA; no responsible ministers. Submitted by:* Kathryn Emmett, RWED as coordinator for GNWT departments on EA's

- 27 **August 31, 2000.** *Approved Work Plan for Explor Data EA.* **Submitted by:** MVEI RB
- 28 **September 1, 2000.** *DIAND letter of intent regarding Explor Data EA.* **Submitted by:** Marie Adams, DIAND
- 29 **September 1, 2000.** *DOE letter of intent to be an expert advisor, and responsible minister in Explor Data EA.* **Submitted by:** Paula Pacholek, DOE
- 30 **September 1, 2000.** *EA Update #9.* **Submitted by:** MVEI RB
- 31 **September 1, 2000.** *Nahanni National Park Reserve - Parks Canada intention to participate as an expert advisor in Explor Data EA.* **Submitted by:** Barry Troke, NNPR
- 32 **September 1, 2000.** *MVLWB response to intent with respect to Explor Data EA.* **Submitted by:** Ken Weagle, MVLWB
- 33 **September 1, 2000.** *Notice of meeting on Sept. 7 and distribution of approved EA Work Plan.* **Submitted by:** MVEI RB
- 34 **September 6,, 2000.** *DRAFT EA Terms of Reference.* **Submitted by:** MVEI RB
- 35 **September 6, 2000.** *Two Information Requests to Nahanni National Park Reserve.* **Submitted by:** MVEI RB
- 36 **September 6, 2000.** *Information Request to RWED.* **Submitted by:** MVEI RB
- 37 **September 6, 2000.** *Information Request to DFO.* **Submitted by:** MVEI RB
- 38 **September 6, 2000.** *Two Information Requests to DIAND.* **Submitted by:** MVEI RB
- 39 **September 6, 2000.** *Two Information Requests to DOE.* **Submitted by:** MVEI RB
- 40 **September 6, 2000.** *Cover letters to IR's.* **Submitted by:** MVEI RB
- 41 **September 6, 2000.** *Fax cover and letter to NNPR with attached DRAFT Terms of Reference and IR's.* **Submitted by:** MVEI RB
- 42 **September 6, 2000.** *Fax with letter and DRAFT Terms of Reference and IR's to First Nations, CPAWS, NEB and NRCan.* **Submitted by:** MVEI RB

- 43 **September 6, 2000.** *Fax with letter and copy of DRAFT Terms of Reference and IR's to Explor Data.* **Submitted by:** MVEIRB
- 44 **September 6, 2000.** *NRCAN indication of intent to be expert advisor; not a Responsible Minister in this case.* **Submitted by:** Iannick Lamirande, NRCAN
- 45 **September 7, 2000.** *Clarification from NEB that they are a DRA and decision maker for this EA.* **Submitted by:** John Korec, NEB
- 46 **September 7, 2000.** *List of attendee's at meeting to discuss Explor Data EA.* **Submitted by:** MVEIRB
- 47 **September 8, 2000.** *Revised Draft EA Terms of Reference.* **Submitted by:** MVEIRB
- 48 **September 8, 2000.** *September 8, 2000 Public Registry listing sent to distribution list.* **Submitted by:** MVEIRB
- 49 **September 8, 2000.** *Revised milestones for closure of public registry and EA decision date by Review Board.* **Submitted by:** MVEIRB
- 50 **September 13, 2000.** *Fax record for sending out latest EA Update.* **Submitted by:** MVEIRB
- 51 **September 13, 2000.** *DIAND comments on draft EA Terms of Reference.* **Submitted by:** Marie Adams
- 52 **September 13, 2000.** *Letter of follow-up from Explor Data on teleconference of Sept 7, 2000.* **Submitted by:** Phil Gregory, Explor Data
- 53 **September 14, 2000.** *NEB clarification on spacing of helicopter pads for seismic work.* **Submitted by:** John Korec, NEB
- 54 **September 14, 2000.** *RWED comments on draft Terms of Reference.* **Submitted by:** Kathryn Emmett, RWED
- 55 **September 14, 2000.** *Insertion order and notice of approved ToR and changed milestone dates.* **Submitted by:** MVEIRB
- 56 **September 18, 2000.** *Explor Data response to EA Terms of Reference.* **Submitted**

- by: Philip Gregory, Explor Data
- 57 **September 19, 2000.** *Letter to Deh Cho First Nations offering information from the public registry, and asking if DCFN was planning on making a submission to the Review Board; attached latest listing of public registry. Submitted by:* MVEIRB
- 58 **September 21, 2000.** *Copies of EA Report and IR requests, sent to DCFN. Submitted by:* MVEIRB
- 59 **September 21, 2000.** *IR response from DFO. Submitted by:* Kelly Withers, DFO
- 60 **September 21, 2000.** *Developers EA Report & DFO IR Response faxed to Explor Data distribution list. Submitted by:* MVEIRB
- 61 **September 21, 2000.** *Deh Cho First Nations Framework Agreement, September 6, 2000 version. Submitted by:* DCFN, Ft. Simpson
- 62 **September 21, 2000.** *Deh Cho First Nations Interim Measures Agreement, September 13, 2000 version. Submitted by:* DCFN, Ft. Simpson.
- 63 **September 22, 2000.** *Protecting the Aquatic Quality of the Nahanni National Park Reserve, NWT. Submitted by:* DOE
- 64 **September 27, 2000.** *GNWT IR response, Explor Data EA. Submitted by:* Kathryn Emmett, RWED, coordinator for GNWT
- 65 **September 27, 2000.** *Thank you letter to Nahanni Butte for Review Board staff visit and discussions on Monday, September 25, 2000. Also contained draft meeting notes for Nahanni Butte concurrence, copy of DFO letter of advice for Explor Data, and GNWT IR response. Submitted by:* MVEIRB
- 66 **September 27, 2000.** *Traditional Ecological Knowledge Study mapped results for Nahanni Butte. Prepared by Golder Associates for Ranger Oil Ltd., August 7, 1998. Submitted by:* Nahanni Butte Chief and Council
- 67 **September 27, 2000.** *GNWT IR response faxed to Explor Data EA distribution list. Submitted by:* MVEIRB
- 68 **October 2, 2000.** *DOE IR Responses. Submitted by:* Paula Pacholek, DOE

- 69 **October 2, 2000.** *DIAND IR Responses.* **Submitted by:** Marie Adams, DIAND
- 70 **October 2, 2000.** *Information Request to NEB.* **Submitted by:** MVEIRB
- 71 **October 2, 2000.** *NEB response to IR.* **Submitted by:** T.M. Baker, Chief Conservation Officer, NEB
- 72 **October 2, 2000.** *NNPR IR responses.* **Submitted by:** Chuck Blyth, NNPR
- 73 **October 2, 2000.** *Response from Explor Data to GNWT IR response suggestion for increased seismic line setbacks from river/streams.* **Submitted by:** Philip Gregory, Explor Data
- 74 **October 2, 2000.** *Fax of remaining IR responses to limited distribution list for Explor Data EA.* **Submitted by:** MVEIRB
- 75 **October 3, 2000.** *Fax of DIAND, DOE and NNPR IR responses to limited distribution list for Explor Data EA (rest of distribution list received e-mailed versions).* **Submitted by:** MVEIRB
- 76 **October 3, 2000.** *Protecting the Waters of the Nahanni National Park Reserve, NWT.* **Submitted by:** Paula Pacholek, DOE
- 77 **October 3, 2000.** *An Overview of River Conditions for South Nahanni River Basin, NWT.* **Submitted by:** Paula Pacholek, DOE
- 78 **October 3, 2000.** *CD-ROM Eco Atlas - 705 of Nahanni region - DRAFT.* **Submitted by:** Marie Adams, DIAND
- 79 **October 9, 2000.** *Comments on Explor Data EA.* **Submitted by:** Muriel How, Chelsea, QU
- 80 **October 9, 2000.** *Comments from CPAWS on Explor Data EA.* **Submitted by:** Hugh Benevides, CPAWS, Ottawa
- 81 **October 9, 2000.** *CPAWS comments on Explor Data EA.* **Submitted by:** Greg Yeoman, CPAWS, Yellowknife
- 82 **October 9, 2000.** *Comments on Explor Data EA.* **Submitted by:** Chris Reid, Chief Negotiator, DCFN, Toronto

- 83 **October 9, 2000.** *Deh Cho First Nations comments on Explor Data EA.* **Submitted by:** Alison de Pelham, Deh Cho First Nations, Fort Simpson