



Reasons for Decision
and
Report of
Environmental Assessment
EA0506-007

Paramount Resources Ltd.
Significant Discovery Licence 8,
2D Geophysical Program (SDL8)

November 14, 2006

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PART 1

Review Board Decision

When making its determination for this Environmental Assessment, the Mackenzie Valley Environmental Impact Review Board (Review Board) considered all the information on the Public Record. Having considered the evidence, the Review Board made its decision in accordance with section 128 of the *Mackenzie Valley Resource Management Act*.

It is the Review Board's opinion that without additional mitigation, the proposed development would likely have a significant adverse impact on the environment. The Review Board has developed two measures to prevent a significant adverse impact.

The Review Board concludes, that with the implementation of the measures in this Report of Environmental Assessment, and the commitments made by Paramount Resources Ltd., the proposed development will not likely have a significant environmental impact on the environment or be cause for significant public concern.

Gabrielle Mackenzie-Scott

November 14, 2006

Gabrielle Mackenzie-Scott

DATE

Chair of the Mackenzie Valley
Environmental Impact Review Board

PART 2

Report of Environmental Assessment

Summary

This is the Mackenzie Valley Environmental Impact Review Board's (Review Board) Report of Environmental Assessment for the Paramount Resources Ltd (Paramount) Significant Discovery Licence #8 (SDL8), 2D Geophysical Program. The Review Board has determined that, as long as Paramount Resources Ltd.'s commitments and the additional mitigation described in this report are implemented, the proposed SDL8 geophysical program is not likely to have a significant adverse impact on the environmental or be cause of public concern.

The SDL8 area is located in the extreme southern part of the Northwest Territories on the NWT/Alberta border, situated between Highway 3 and the Cameron Hills escarpment. The purpose of the program is to identify potential hydrocarbon reserves. The project may or may not lead to future seismic exploration, drilling or tie-in plans. Paramount proposes to conduct geophysical exploration along approximately 45 kilometres of access cutlines. Paramount has requested that the cutlines be six (6) metres in width to permit either dynamite- or vibroseis-based seismic data acquisition. Paramount has stated that it will use techniques that will reduce the impacts of its geophysical program.

In November 2005, Indian and Northern Affairs Canada referred the SDL8 program on behalf of the Ka'a'Gee Tu First Nation. The Ka'a'Gee Tu First Nation was of the opinion that the proposed project could have an adverse impact on the environment of its traditional territory. As part of the environmental assessment process, the Review Board held a Community Issue Scoping Hearing, issued a Terms of Reference, held two rounds of Information Requests and permitted parties to submit technical reports. The Review Board has made the following conclusions for the eight valued components that has considered:

Boreal Caribou: The Review Board finds that the proposed SDL8 program is likely to cause significant adverse impacts to boreal caribou. In addition to commitments made by Paramount, the Review Board has developed two measures to mitigate this impact.

Other Wildlife: Based on Paramount's commitments, the Review Board finds that the proposed SDL8 program is not likely to result in a significant adverse impact to other wildlife, such as furbearing mammals and moose. The Review Board's measures related to protecting boreal caribou will also serve to reduce any impacts to such wildlife.

Vegetation: Based on Paramount's commitments, the Review Board finds that the proposed SDL8 program is not likely to result in a significant adverse impact to vegetation due to the introduction of foreign, invasive species or through the alteration of the area's vegetation communities.

Water Resources: Based on Paramount's commitments, the Review Board finds that the proposed SDL8 program is not likely to result in a significant adverse impact to water

resources in the project area. The imposition of standard conditions by the Mackenzie Valley Land and Water Board, as well as the inspection system operated by Indian and Northern Affairs Canada will serve to protect water resources.

Forest Resources: Based on Paramount's commitments, the Review Board finds that the proposed SDL8 program is not likely to result in a significant adverse impact on the sustainability of forest resources. The Review Board's measures related to protecting boreal caribou will also serve to reduce any impacts to forest resources.

Socio-economic environment: The Review Board finds that the proposed SDL8 program is not likely to result in a significant adverse impact on the socio-economic well-being of residents of the Mackenzie Valley.

Harvesting: The Review Board finds that the proposed SDL8 program is not likely to result in a significant adverse impact to harvesting activities. The Review Board's measures related to protecting boreal caribou will also serve to reduce any impacts to harvesting.

Heritage Resources: Based on Paramount's commitments, the Review Board finds that the proposed SDL8 program is not likely to significantly impact heritage resources.

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List of Abbreviations

DFO	Department of Fisheries and Oceans
EC	Environment Canada
INAC	Indian and Northern Affairs Canada
FPRMB	Fort Providence Resource Management Board
GNWT	Government of the Northwest Territories
KFN	Katlodeeche First Nation
KTFN	Ka’a’Gee Tu First Nation
MVEIRB	Mackenzie Valley Environmental Impact Review Board
MVLWB	Mackenzie Valley Land and Water Board
MVRMA	<i>Mackenzie Valley Resource Management Act</i>
NTMN	Northwest Territory Métis Nation
SARA	<i>Species at Risk Act</i>

1 Introduction

This is the Mackenzie Valley Environmental Impact Review Board's (MVEIRB or Review Board) *Report of Environmental Assessment* for Paramount Resources Ltd's (Paramount or Developer) proposed Significant Discovery Licence 8 (SDL8), 2D Geophysical Program in the southern Northwest Territories. The proposed development was referred to Environmental Assessment by Indian and Northern Affairs Canada (INAC) pursuant to s. 126(2a) of the *Mackenzie Valley Resource Management Act* (MVRMA).

The purpose of this report is to satisfy the reporting requirements of MVRMA s. 128(2) and 128(4) and to convey the Review Board's decision on whether the proposed development is likely to cause significant adverse impacts on the environment, or be a cause of significant public concern.

Section 2 of the report provides a description of the physical, biological and socio-economic setting of the proposed development. The scope of the development, as well as amendments made to the scope in the course of the environmental assessment (EA), are also described in this section.

Section 3 provides an overview of the environmental assessment process, including how the scope of assessment was determined, as well as a chronological description of the assessment process and its major milestones.

Section 4 summarizes the evidence that was considered and found to be relevant by the Review Board. Section 4 also presents the Review Board's findings of impact significance related to the valued components that were considered.

Section 5 provides a summary of the Review Board's conclusions, measures and suggestions.

Section 6 provides a listing of all public record documents as well as any other references cited in this document.¹

¹ References to the Public Record in this report are indicated by numbers inside bracketed parenthesis [##]; the numbers refer to public registry items as listed in section 6.1.

2 Setting and Project Background

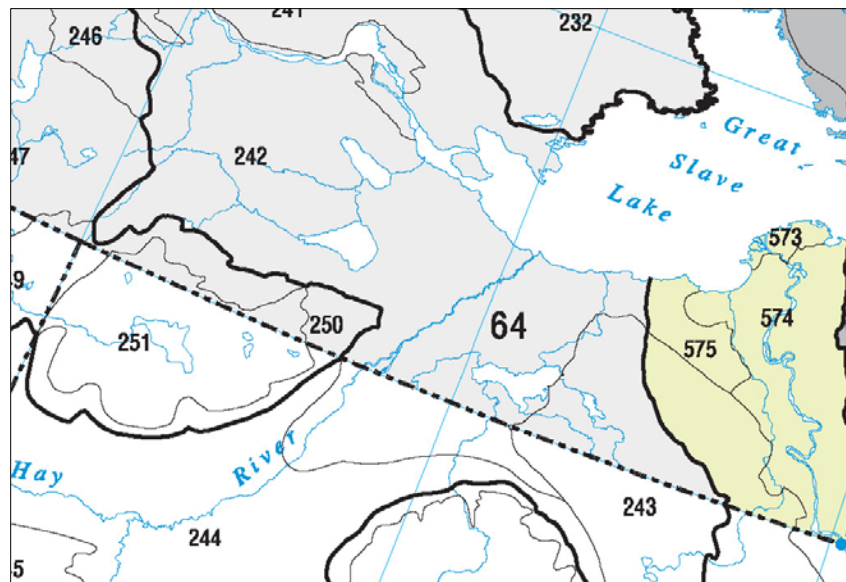
2.1 Environment Description

The proposed SDL8 development area is located in the south-central Northwest Territories within the Hay River watershed. The SDL8 area is part of the Hay River Lowlands ecoregion of the Taiga Plains ecozone (Figure 1). The region is classified as having a sub-humid mid-boreal ecoclimate with a mean summer temperature of 13°C to 14°C and a mean winter temperature of -18°C to -20°C. The mean annual precipitation ranges between 350 mm to 500 mm. Sporadic discontinuous permafrost is present in the region, but it is generally confined to organic deposits [12].

The topography in the proposed development area ranges from hilly in the northwest, to subdued in the central and eastern regions. An escarpment flanks part of the western edge and descends about 100m over a distance of less than one kilometre [12]. Soil in the area varies according to topography with well drained soils being present in the more steeply sloping western portions while the level and gently sloping areas in the east are dominated by imperfectly drained soils, with shallow organic soils present [12]. The escarpment on the western edge is composed mostly of aspen and mixed aspen/white spruce. Topography and drainage has a significant influence on vegetation types. Black Spruce or mixed black spruce vegetation types cover the majority of the SDL8 area. In better drained areas, relatively large tracks of aspen and mixed aspen/white spruce stands may be present.

The proposed SDL8 area is host to a number of different wildlife species including moose, boreal caribou, black bear, wolf, beaver, red fox, marten and snowshoe lynx. Most of the bird species common to the area are migratory, although there are some overwintering species. Common bird species include the gray jay, northern shrike, sharp tailed grouse, common raven and common redpoll [12]. There may be some sport fish species present in the proposed development area, however the area has limited pool habitat and water depth [12].

Figure 1 Map of Ecodistrict and Ecoregions
(from *Agricultural and Agri-food Canada*)



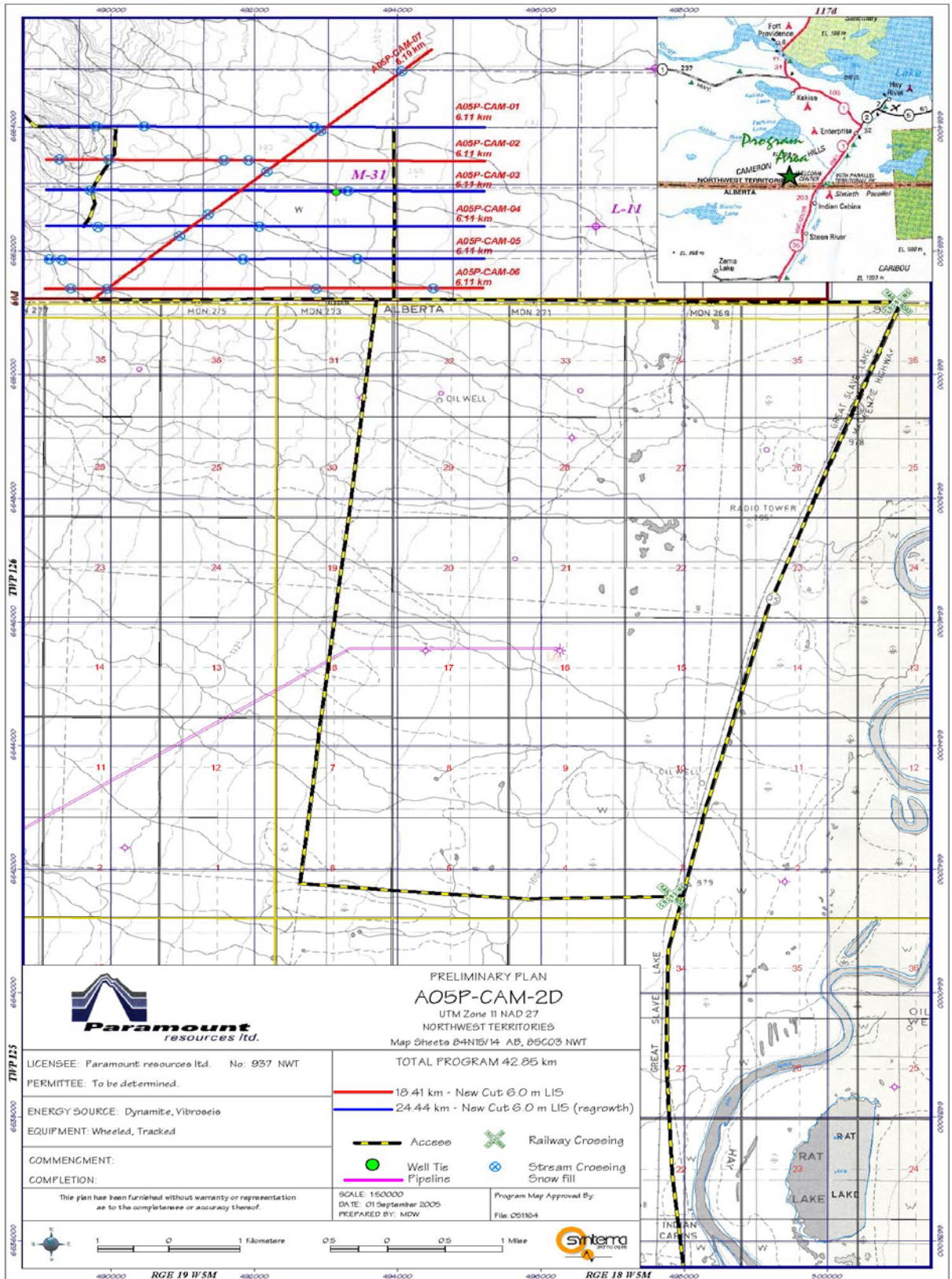


Figure 2 Development Area Overview (from Paramount’s Land Use Permit Application)

2.2 Development History in the SDL8 area

The proposed development area has been the site of oil and gas exploration activities since the late 1960s. In 1967, geophysical exploration, including the cutting of conventional seismic access lines, was undertaken. Paramount became active in the SDL8 area in 1979; the year it began its operations in the Northwest Territories. Utilizing seismic data from the 1960's exploration program, in addition to its own geological interpretation, Paramount drilled and spudded the M-31 well on March 9, 1979. The work on the well was completed the following year. Paramount was granted a Significant Discovery Licence for the area on February 15, 1987 [73].

In addition to Paramount's oil and gas development interests, the SDL8 area is also subject to a sustainable forestry management plan. The area falls within the Cameron Hills Timber Supply Area of the D/7sb Forest Management Unit [62, 66]. There is one forest harvester actively operating in the D/7sb area. Several NWT Aboriginal communities have indicated use of the SDL8 area for both traditional and contemporary cultural and harvesting activities [57, 69, 70].

To the west and northwest of the SDL8 area, Paramount has been engaged in oil and gas exploration in the Cameron Hills plateau for many years. An increase in exploratory drilling occurred during the late 1980s and early 1990s. There has also been a spike in drilling activities in the last three years. Paramount has been commercially producing oil and gas in this area since March, 2002; the product of which is transported by pipeline to a processing plant near Bistcho Lake, Alberta (Indian and Northern Affairs Canada, 2005).

The area east of the SDL8 area contains some of the Northwest Territories most important transportation routes. This includes Highway #1, which was constructed in 1948, as well as the Great Slave Railway, built in 1964. The area south of the SDL8 area, in Alberta, has seen significant oil and gas developments, including geophysical exploration in addition to well and pipeline construction (Paramount Resources Ltd, 2003)

2.3 Proposed Development

Development Description Sources

The Review Board based its environmental assessment on the description of the proposed development from the following sources:

- The *Land Use Permit Application* dated September 2, 2005, and submitted to the Mackenzie Valley Land and Water Board [12];
- Correspondence produced by Paramount during the preliminary screening review of Land Use Permit MV2005B0021 [13]
- Presentation slides submitted by Paramount at the Hay River Issue Scoping Community Hearing on February 28, 2006 [37];
- The Issues Scoping Community Hearing summary produced by the Review Board in April, 2006 [47];

- The *Developer's Assessment Report*, dated May, 2006 [59];
- The *Addendum to Developer Assessment Report*, dated June 15, 2006 [67]
- Paramount's Round 2 Information Request (IR) Responses, dated August 24, 2006 [88]
- Commitments made by Paramount during the environmental assessment, which are listed below in the section titled, *Amended Scope of Development*.

Scope of Development

The developer proposes to explore the SDL8 area to delineate potential oil and/or natural gas reserves. The project is related to past 2D seismic programs, as well as the existing M-31 well. The project may or may not lead to future seismic exploration, drilling or tie-in plans. The Review Board determined the Scope of Development to be that as described in Paramount's application for a land use permit to the Mackenzie Valley Land and Water Board (MVLWB) of September 2, 2005 (MV2005B0021) [12]. The Scope of Development includes:

- Clearing of approximately 45 kilometres of six (6) metre wide access cutlines by bulldozer in both undisturbed and previously disturbed forested areas;
- Placing debris into windrows with breaks of approximately 10 metres every 400 metres
- Slashing debris into 2-metre lengths or less
- The use of avoidance cutting techniques to reduce impacts on timber resources
- The use of meandering cutting techniques to reduce the line of sight for wildlife management purposes
- Surveying of cutlines using theodolite and rod
- Drilling of holes and handling of dynamite in the event that dynamite is used
- Generation of seismic source energy by either dynamite or vibroseis methods, including possible hole drilling and handling of explosives (in dynamite case)
- Recording of seismic data with use of a recording truck and geophone array
- Crossing of frozen creeks by way of clean snow fill or timber bridges, and removal of crossings after the completion of the SDL8 program
- Accessing the SDL8 area from Indian Cabins, Alberta by way of Highway 35 and through various oil field roads and existing seismic trails
- Transportation to, and within the SDL8 area, including use of heavy equipment, vibrators, 4x4 trucks, tracked units, quads and snowmobiles
- Transportation of fuel and re-fueling of vehicles at the work site
- Re-seeding of vegetation where required

For details on the original development scope, please refer to Paramount's *Land Use Permit Application* [12].

Amended Scope of Development

Regardless of any statements made in the *Land Use Permit Application*, the Review Board has determined pursuant to subsection 117(1) of the MVRMA that the following actions and commitments by the Developer should be included as amendments to the Scope of Development.

During the course of the environmental assessment the developer committed to:

- A final inspection at the end of the program for restoration and reclamation purposes [37]
- The participation of an aboriginal person as a monitor during cutline clearing activities [59]
- Minimize impacts on wildlife by avoiding migrating times, nesting and mating seasons, forbidding harassment, hunting and trapping [59]
- Install erosion bars and reseed in potentially erosion-prone areas [59]
- Hand cut the steepest slope portions of the cutlines to width of 1.75 metres in order to place geophones and the receiver tailspread [59]
- Minimize the project's duration to a maximum of 40 days [59]
- Request an updated list of available and qualified services from communities and then provide the list and contact information for bidding purposes [59]
- Use a National Energy Board and Government of the Northwest Territories approved seed mixture for reseedling [59]

3 Environmental Assessment Process

3.1 Environmental Assessment Scope

Process Undertaken to Determine the Scope of Assessment

To establish the Scope of Assessment, the Review Board reviewed Paramount's *Land Use Permit Application* to the MVLWB [12]. The Review Board also considered comments submitted during the preliminary screening of Paramount's application [13, 14]. In determining the scope of the assessment, the Review Board was aware that there have been similar types of linear development which have taken place in close proximity to the SDL8 area. For that reason the Review Board gave consideration to the public record of the environmental assessment of Paramount's Cameron Hills Extension Project (EA03-005).

Scope of Assessment Definition

The Review Board defined the scope of Environmental Assessment EA0506-007 as those activities specifically occurring on the SDL8 area, or activities that were directly linked to the program, such as mobilization of resources and gaining access to the project site. However, this limitation was applied to the assessment of direct impacts from the proposed development only, not to the assessment of potential cumulative impacts in the larger area. For assessing impacts on the socio-economic environment, such as harvesting, the geographical scope of this assessment considered those NWT communities who claim to have traditionally used the SDL8 area.

The temporal boundaries for this EA were established to consider potential future impacts, rather than just those potential impacts expected to occur during the operation phase of the SDL8 program. Therefore the temporal scope was determined to include all phases of the SDL8, from mobilization to post-operation, until such time that no potential significant adverse impacts attributable to the Development are predicted to occur.

Using Traditional Knowledge

The Review Board recognizes the important role that aboriginal cultures, values and knowledge play in its decision-making. In accordance with the requirements of Section 115.1 of the *MVRMA*, the Review Board considered any traditional knowledge that was made available to it during the EA.

The Review Board, through its Terms of Reference, requested Paramount to provide traditional knowledge evidence that it had regarding the SDL8 area. This included any information from the harvesters who work the land in and around the SDL8 area, as well as any pertinent information contained in Paramount's 2001 *Report on Traditional Knowledge Studies for the Cameron Hills, NWT*. The Review Board acknowledges that the findings and methodology of the 2001 report are not universally endorsed by all participating aboriginal parties [94] and as a result, the Review Board exercised caution in its weighing of information contained in the report.

A number of factors influenced the Review Board's requirements for traditional knowledge. The Review Board understood that the SDL8 program is a relatively small

scale development. Further, the SDL8 area is claimed as traditional territory by a number of aboriginal communities, and as such, each community could be expected to have their own knowledge of the area. Given these circumstances, the Review Board felt it more appropriate to directly request information from the aboriginal parties regarding their respective knowledge and use of the SDL8 area through the IR process [51]. KFN, KTFN and FPRMB responded to the Review Board's requests for information [57, 69, 70] while the NTMN did not provide a response. The responses received provided little information that the Review Board could use in determining the significance of potential impacts to the environment. Therefore, it was necessary for the Review Board to rely on other sources of information made available to it.

Despite requests from some aboriginal parties, the Review Board did not find it necessary to require Paramount to undertake an unspecified number of traditional knowledge studies for a project of the scale and nature of the SDL8 project. It is the opinion of the Review Board that aboriginal parties should have provided traditional knowledge evidence if they were truly concerned with this potential development. If aboriginal parties allege that there will be environmental impacts on the basis of traditional knowledge which only they possess, then there is an onus on the parties to provide such information to the Review Board. In the absence of traditional knowledge evidence, the Review Board must make a decision on the basis of the record before it. Despite ample opportunity to provide traditional knowledge to the Review Board during the EA, community input in this regard was disappointingly sparse.

Interested Parties are referred to the environmental assessments of mineral exploration projects in the Drybones Bay area as cases where aboriginal parties voluntarily brought forward traditional knowledge evidence that was considered by the Review Board, and which had a substantial effect on the Review Board's determination of significance.

3.2 Chronological Review of the SDL8 Process

This Environmental Assessment was conducted in accordance with the MVEIRB's *Environmental Impact Assessment Guidelines* and its *Rules of Procedure*. The following section describes the EA process that was taken. A milestone summary (Table 1) is also provided here.

Preliminary Screening

On September 2, 2005, Paramount Resources Ltd. applied to the MVLWB for a new land use permit to conduct a 2-D seismic program on the area covered by Significant Discovery Licence 8 [12]. On September 16, 2005, the MVLWB distributed Paramount's application (MV2005B0021) for review to a wide range of aboriginal, community and government organizations. A number of organizations submitted comments to the MVLWB [13, 14]. A draft Land Use Permit was prepared by MVLWB staff [86]. The SDL8 application was presented to the MVLWB on Oct 19, 2005 [102].

Environmental Assessment Referral

During the comment period, a letter, dated September 22, 2005, from KTFN was sent to Indian and Northern Affairs Canada's (INAC) [4]. KTFN's letter stated that the SDL8 program could have an adverse impact to the environment, and therefore it was requested

that INAC refer the project to environmental assessment as per Article 12 of the *Settlement Agreement* between the Dehcho First Nations and the Government of Canada.

On November 23, 2005, INAC sent a letter to the Mackenzie Valley Environmental Impact Review Board to notify the Review Board that pursuant to Section 126 2(a) of the MVRMA it had referred Land Use Permit MV2005B0021 to environmental assessment [3]. A notice of referral was sent to Paramount on November 24th, 2005 [1] and a general notification was issued on November 25th, 2005, which was followed by an advertisement in the News North [15].

On December 19, 2005, the Review Board invited interested participants to identify themselves as Parties to EA0506-07 [9]. At the same time, a preliminary Work Plan for the EA was issued by the Review Board. The Work Plan included provisions to hold a community hearing for the purposes of scoping issues for the SDL8 EA [9].

First Request for Ruling

On December 21, 2005, the Review Board received a Request for Ruling from KTFN's legal counsel [16]. The request was for the Review Board to immediately suspend the EA for the SDL8 program until such time that the legal proceeding concerning the activities of Paramount in the Cameron Hills area were addressed. On December 23, 2006, the Review Board notified the SDL8 EA distribution list about KTFN's Request for Ruling and asked for comments on the request [11]. The Review Board issued a ruling on January 23, 2006 stating that the EA would proceed [23]. The Review Board's Reasons for Decision were issued subsequently on January 27, 2006 [24].

Issue Scoping/Community Hearing

A pre-hearing conference was held in Yellowknife on February 13th, 2006, with some parties participating by teleconference. On February 28th, 2006, an Issues Scoping Community Hearing was held in Hay River. Paramount gave a presentation on its proposed SDL8 program [37]. Participants from aboriginal organizations, government and the general public were in attendance and spoke to the Review Board about what the EA should focus on, as well as their general concerns. A summary of the proceedings was produced from notes and audio recordings [47].

Developers Assessment Report/ Information Requests

Based upon concerns cited during the community hearing, the Review Board revised its Work Plan and issued a Terms of Reference on April 6th, 2006 to guide Paramount's production of a DAR [52]. At the same time, the Review Board issued Information Requests to government and aboriginal parties, as well as the National Energy Board [51]. The DAR [59], as well as the majority of IR responses, were submitted to the Review Board on the deadline of May 12th, 2006 [56, 57, 58, 60, 61, 62]. On May 29th, 2006, the Review Board issued a letter indicating that Paramount's DAR was not in conformity with the Terms of Reference [64]. At the same time a letter was sent to KTFN, KFN and NTMN regarding the status of their delayed IR responses [63]. Paramount submitted an addendum to its DAR on June 15th, 2006 [67, 68]. IR responses from KTFN and KFN were also submitted shortly thereafter [69, 70]. On June 26th, 2006, the Review Board issued a notification that Paramount's DAR was now in conformity with the Terms of Reference [71].

Second Request for Ruling

On June 26th, 2006, the Review Board issued a notification to the EA distribution list that stated that it believed there was sufficient evidence available on the public record to permit it to commence with impact significance determination and that a second round of Information Request was not to occur [71]. A date for the submission of final comments was set for July 7th, 2006.

On June 28th, 2006, KTFN forwarded a Request for Ruling to the Review Board which requested the two following things [78]:

- 1) To proceed with a 2nd round of Information Requests as was originally scheduled in the Work Plan; and
- 2) To allocate sufficient time upon the conclusion of the IR process to allow the Ka'a'Gee Tu to effectively prepare a technical report for submission to the MVEIRB.

The Review Board permitted parties to comment by July 10th, 2006, on the KTFN Request for Ruling [78]. KFN and INAC responded in favour of KTFN's request [76, 77]. The Review Board decided in its July 19th, 2006, meeting to grant both of KTFN's requests and the Work Plan was revised accordingly [80].

Second Round of Information Requests

The Review Board permitted Parties to the EA to submit Information Requests by July 28th, 2006 [83]. KTFN was the only party to submit IRs [82]. KTFN requested the issuance of 28 IRs that were directed to Paramount, INAC, the GWNT and the NEB. After considering those requests, the Review Board decided to issue 16, of which four were modified [84] and set August 24th, 2006, as the deadline for response [83]. The majority of responses to the IRs were received by the deadline [88, 89, 90, 91], one IR response (IR27), which contained INAC inspection reports was not received until September 6th, 2006. [92].

Submission of Final Comments (Technical Reports)

Following a request by KTFN, the Review Board revised its submission deadline for Technical Reports to September 21st, 2006, for Parties submissions, and September 26th, 2006, for the response from Paramount [87]. The Review Board received Technical Report submissions from KTFN, GNWT, EC and Paramount [94, 96, 97, 101].

Third Request for Ruling

On September 25th, 2006 the Review Board received a Request for Ruling from Paramount which requested the Review Board to decide on the two following items [99]:

- 1) [That] Draft documents not be considered by the MVEIRB in their deliberation; and
- 2) The project area contemplated in this environmental assessment is exempt from the Deh Cho Land Use Plan – draft or otherwise.

The Review Board gave an opportunity for comments to be submitted on the Request for Ruling [100]. Submissions were received from the Dehcho Land Use Planning

Committee, KTFN, INAC and GNWT [103, 104, 105, 106]. The Review Board issued its Reason for Decision on October 17, 2006 [108]. It denied Paramount's request indicating that the Review Board would consider draft documents in the environmental assessment. The Review Board also indicated that it did not have the authority to rule whether or not the project area of the proposed development is exempt from the Deh Cho Land Use Plan – draft or otherwise.

Table 1 Environmental Assessment Milestones

Referral to Environmental Assessment	23 Nov '05
EA Notification	24 Nov '04
Request for Party Identification	19 Dec '05
Work Plan issued	19 Dec '05
KTFN Request for Ruling	21 Dec '05
Pre-Hearing Conference	13 Feb '06
Community Issue Scoping Hearing in Hay River	28 Feb '06
Terms of Reference issued	06 Apr '06
Information Requests issued	06 Apr '06
National Energy Board Responses to IR submitted	10 May '06
DAR submitted	12 May '06
INAC and FPRMB Responses to IR submitted	12 May '06
GNWT Responses to IR submitted	13 May '06
EC Response to IR submitted	17 May '06
DAR Conformity Statement issued	29 May '06
DAR addendum submitted	15 June '06
KTFN Response to IR submitted	16 June '06
KFN Response to IR submitted	20 June '06
Final DAR Conformity Statement issued	26 June '06
KTFN Request for Ruling submitted	28 June '06
KFN and INAC submission on Request for Ruling	10 June '06
Review Board ruling on KTFN request	19 June '06
Deadline for Parties to submit IRs	28 June '06
Issuance of Information Request by Review Board	8 Aug '06
Deadlines for Parties to respond to IRs	24 Aug '06
Deadline for submission of technical reports	21 Sept '06
Paramount Request for Ruling	25 Sept '06

Deadline for Technical Reports (final comments) from Paramount	26 Sept '06
Closing of public record	17 Oct '06
Issuance of Report of Environmental Assessment	14 Nov '06

3.3 Environmental Assessment Participants

The Terms of Reference for this Environmental Assessment outlined the following roles and responsibilities of the various participants:

Developer

The Developer was responsible for producing the information necessary for the Review Board and other Parties to evaluate the potential impacts that the SDL8 program might have on the environment. Paramount's *Land Use Permit Application*, the two iterations of the *Developer's Assessment Report*, Paramount's IR responses and its Technical Report were the principal sources of information that were relied upon from the Developer. Paramount also participated in, and made presentations during the Community Issue Scoping Hearing in Hay River. The Developer was given opportunity to present additional information at any time until the closure of the public record.

Other Parties

Three government agencies, five aboriginal organizations and the National Energy Board were Parties to this assessment. Most of the Parties participated in the Community Issue Scoping Hearing in Hay River or responded to the IRs that were issued to them. All Parties provided the Review Board with information relevant to the EA. Table 3 provides a brief overview of the participation of the Parties during the EA.

Table 2 – Role of Parties

Party	Community Hearing	IR responses	Technical Reports
Paramount Resources Ltd. (developer)	✓	✓	✓
Ka'a'Gee Tu First Nation	✓	✓	✓
Katlodeechee First Nation	✓	✓	
Northwest Territory Métis Nation	✓		
Deh Gah Got'ie Dene Council	✓	✓	
Fort Providence Métis Council	✓	✓	

Environment Canada	✓	✓	✓
Government of the Northwest Territories (GNWT)	✓	✓	✓
Indian and Northern Affairs Canada	✓	✓	
National Energy Board		✓	

✓ = actively participated in this step of the environmental assessment

3.4 Valued Components

After examining the public record, the Review Board identified the following valued components that may be affected by the proposed SDL8 development and which are considered in this Report of Environmental Assessment:

- Boreal Caribou
- Other Wildlife
- Vegetation
- Water Quality
- Forestry resources
- Socio-economic environment
- Harvesting
- Heritage Resources

3.5 Cumulative Effects

Section 117 2(a) of the MVRMA requires that the Review Board consider, “*the impacts of the development on the environment, including...any cumulative impact that is likely to result from the development in combination with other developments*”. Incremental development in and adjacent to the SDL8 area is a source of concern to the Review Board. Transportation, timber harvesting, as well as oil and gas exploration and development are industrial activities that the Review Board recognizes could cumulatively impact the land and its ability to provide quality habitat for wildlife and traditional harvesting activities. During its deliberations, the Review Board was aware that the proposed SDL8 program would not occur in isolation, but instead within the context of an increasingly industrialized and fragmented landscape. The measures that the Review Board has developed for the SDL8 program are intended to mitigate the additional pressures that the proposed development would have on the increasingly impacted Cameron Hills region.

4 Analysis

Section 4.1 provides a summary of the evidence and the Review Board's findings on the main issues concerning the identified valued components. Sections 4.2 and 4.3 describe the Review Board's approach to other issues that were brought forward during the EA, specifically that of community engagement and Access and Benefit Agreements.

When selecting the Valued Components for this environmental assessment, the Review Board, in addition to applying its own knowledge and values, gave consideration to the concerns expressed during the Community Issue Scoping Hearing, as well as evidence from the public record.

The Review Board examined the public record for evidence of possible significant adverse impacts on the environment from the proposed development. Key documents from the Public Record included the Developer's Assessment Report, IR responses and technical reports. IR responses from Parties with technical expertise, such as the GNWT and INAC, assisted the Review Board to better understand how the SDL8 might adversely impact certain Valued Components. Submissions from the Developer and the NEB provided information on the various means of conducting seismic programs, as well as the technical challenges associated with each type of method. The KTFN's technical report provided the Review Board with a critical analysis of the proposed SLD8 program and how it may impact the environment, as well as how it should be conducted if it were to go forward.

A substantial amount of information has been published in recent years concerning how seismic programs may affect the ecology of Canada's boreal forest. The Review Board sought out a number of reference materials which provided additional information on linear development, seismic practices and boreal caribou [85]. These references were consulted in areas where the Review Board deemed it necessary to have more information and they assisted in the overall analysis that the Review Board conducted.

4.1 Valued Components

4.1.1 Boreal Caribou

The potential impacts of the SDL8 program on boreal caribou is the principal issue that the Review Board has identified in the course of this environmental assessment. Boreal caribou are currently listed as Threatened (Schedule 1) under the *Species at Risk Act* and expertise and responsibility for boreal caribou lies within the jurisdiction of the Government of the Northwest Territories [61]. Concern over the potential impacts to boreal caribou has been a reoccurring theme of environmental assessments conducted for developments in the Cameron Hills region.

Evidence Summary

Boreal caribou frequent the proposed SDL8 development area and were observed during Paramount's July 2005 field studies of the project area [12]. The GNWT, as well as aboriginal parties, confirm the presence of boreal caribou in the area [57, 62, 69, 70]. The GNWT suggested that the SDL8 area may be important to boreal caribou as it is part

of a thin area of lowland vegetation that may be a corridor for north and south movement within the region [62]. The FPRMB and the KTFN indicated in their IR responses to the Review Board that the SDL8 area is part of a larger habitat area that supports caribou populations who migrate into their respective hunting areas [57, 69].

The GNWT identified that the SDL8 program will specifically impact boreal caribou in two principal ways: through direct disturbance associated with people and equipment on the land during seismic operations and through indirect disturbance associated with the creation of six (6) metre wide cutlines [62]. Direct sensory disturbance may negatively affect health of caribou and make them more susceptible to predation or disease. The GNWT noted that since direct sensory impacts cannot be mitigated, activity during and shortly after the calving period should be avoided [62].

Scientific evidence confirms the observation that linear developments, such as seismic cutlines, have a negative impact on boreal caribou. Research in Alberta suggests that indirect impacts of linear developments, such as cutlines, reduce the effectiveness of adjacent habitat, facilitate predation by wolves and humans and may act as a partial barrier to caribou movement (BCC, 2005). The GNWT stated that even in areas of low linear development density, caribou use of areas adjacent to cutlines and other linear features is less than would be expected [97]. The GNWT noted in its information response [62] that linear developments may, among other things:

- 1) Increase the abundance of predators due to increased numbers of alternate prey species, such as moose and deer, who feed on successional vegetation
- 2) Fragment habitat and encourage concentration of caribou in areas of remaining effective habitat where they may be subject to greater rates of predation
- 3) Facilitate the travel and hunting efficiency of wolves
- 4) Provide access for legal and illegal harvesting

The GNWT suggested the following possible measures as mitigation against the indirect impacts to caribou:

- 1) Use of existing lines; which would not increase the amount of successional vegetation or further encourage predator access, loss of forage or habitat fragmentation
- 2) Use of low or minimal impact techniques for line clearing; which would serve to reduce hunter access, successional vegetation and loss of forage
- 3) Line blocking; which would reduce the ability of wolves to use the cutlines as travel corridors

Cutline widths

It has been suggested that adverse effects of seismic lines are directly related to width and line-of-sight (Salmo Consulting, 2004). Line widths have been identified as a major issue in many of the jurisdictions where seismic programs occur in boreal caribou habitat. The question of what cutline width will limit impacts to boreal caribou has been considered in several oil and gas producing jurisdictions. The Deh Cho Cumulative Effects Study states that “Meandering low impact seismic lines less than three (3) metres

in width are assumed to create low cumulative effects risk for caribou” (Salmo Consulting, 2004). British Columbia’s interim Oil and Gas Industry Guidelines for Boreal Ranges in Northeastern British Columbia (Oil and Gas Commission, 2004b) states that best practices for seismic exploration are cutlines less than 2.5 metres.

In British Columbia’s Muskwa-Kechika Management area, the Oil and Gas Commission’s guidelines stipulate that cleared lines will be no more than two (2) metres in width (Oil and Gas Commission, 2004a). The Boreal Caribou Committee’s Strategic Plan and Industrial Guidelines for Boreal Caribou Ranges in Northern Alberta suggest that in ranges where caribou populations may be compromised by incremental linear development, three (3) metre (or less) low impact seismic are required [62]. Those guidelines however allow for 5.5 metre wide lines for vibroseis operations if it can be shown that normal drilling cannot take place due to ground conditions, and that caribou will not be impacted.

Paramount has requested six (6) metre wide cutlines as this will allow flexibility in the type of method that could be utilized to conduct the program, either by dynamite or vibroseis. Six metre lines would also allow for possibility of operating during a year of extreme snowfall [59]. Paramount stated that substantial surficial deposits of glacial till [47, 59] may lay under the surface of the SDL8, however due to a lack of information, Paramount was unable to report upon the extent of those deposits. Such deposits may negatively affect the quality of seismic records [56, 59]. Vibroseis, as noted by Paramount and the NEB, is in certain cases the preferred method of conducting seismic programs in areas where surficial sediment deposits are located [56, 59]. Paramount has indicated that lower impact techniques could be employed and stated that if a dynamite program was conducted, it would be possible to reduce the line width to three (3) m by clearing the lines with mulchers and utilizing small drills [59], however mini-vibrators, capable of operating on three (3) metre wide mulched lines would not be useful in the case of the SDL8, as the oil and gas objectives are too deep [59]. Paramount stated that heli-portable seismic is inappropriate for the SDL8 program due to seasonal constraints, safety issues related to hand-cutting and helicopter transportation [59], as well as what it views as a potentially greater disturbance to wildlife than ground operations [67].

In its technical report, the KTFN requested that the SDL8 program be exclusively confined to a hand-cut, winter heli-portable project with a maximum line width of 1.5 m [94]. The KTFN argued that the dominant factor in determining the extent of impacts is line widths and habitat fragmentation [94]. The KTFN disagreed with Paramount’s interpretation of the potential impacts to wildlife, as provided in IR 18, where disturbance associated with heli-portable seismic is ranked higher than other seismic techniques [88]. The KTFN believes that wide line clearing would have a potentially longer lasting effect on the landscape [94].

The GNWT stated that it does not view a six (6) metre line width as sufficiently narrow to minimize adverse effects to wildlife [97]. It suggested that using low impact techniques and adopting a line width of 1.5 m will lessen impacts to wildlife. It also agreed with the KTFN position that the long-term impact of clearing 5-6 metre wide cutlines would be greater than those conducted under a short-term heli-portable seismic program. The GNWT stated that a heli-portable seismic program is possible for the SDL8 as helicopters could be based close to the site, at Indian Cabins or at the Cameron

Hills Camp. The GNWT requested that a detailed mitigation and monitoring strategy be developed by Paramount in conjunction with its South Slave Regional Biologists to meet SARA obligations [97].

Line Blocking

Alberta's Boreal Caribou Committee has suggested that reducing the accessibility of linear features, such as seismic lines may enhance affected caribou habitat and reduce predator-induced mortality (BCC, 2005). The Committee has noted that access by predator and alternate prey species is not impeded in areas of restored vegetation if game trails become established (BCC, 2005). The Boreal Caribou Committee's, draft Caribou Range Restoration Project: Guidelines for Planning and Implementation, suggests that line blocking techniques such as placing fallen trees or fences across cutlines may limit access along linear features (BCC, 2005).

The KTFN also requested that some form of access control, such as snow piles, windrows, gates or ditches be incorporated into the project design [94].

Review Board Conclusion

It is the Review Board's conclusion that Paramount's proposed SDL8 seismic program is likely to have a significant impact on boreal caribou within, and adjacent to, the SDL8 area. The Review Board has concluded that as Paramount's program is proposed to occur in the winter period prior to the sensitive calving period, short term, direct impacts to boreal caribou during field operations are not a significant concern. It is the indirect impacts of the program, those associated with long-term alteration of the landscape, which is the greater concern for the Review Board.

The SDL8 area is adjacent to Paramount's ongoing developments in the main Cameron Hills area. The SDL8 area, being situated on the Alberta-NWT border, is in a region where extensive oil and gas exploration and development have occurred. The Review Board is of the opinion that the linkages between the decline of boreal caribou herds and industrial development are well documented and credible [62]. This is particularly true of Alberta, where most boreal caribou herds are in a state of decline [62]. The Review Board finds that boreal caribou are experiencing pressure from a variety of impacts that are cumulatively affecting the quality of the habitat and their ability to thrive. In reference to the SDL8 area footprint, the GNWT noted that, "*Development in the project area has exceeded the threshold developed at a Cumulative Effects Workshop in Whitehorse, Yukon that is thought to lead to a decline in caribou populations*" [62]. The Review Board concludes that if linear development is to occur, it must proceed in a cautious manner that is protective to boreal caribou.

The Review Board finds Paramount's proposal to establish six (6) metre cutlines as insufficient to protect boreal caribou. Such cutlines would unacceptably fragment and degrade boreal caribou habitat; likely leading to increased predation and causing boreal caribou to avoid the area. The Review Board instead recommends that the cutlines for the SDL8 program to be no wider than 2.5 meters. The Review Board does not prescribe any particular technology for use by Paramount, but assumes that this width restriction will necessitate the use of mulchers, hand-cut lines, or heli-portable seismic. The

Review Board notes that in recent years there have been significant advances made in the development of low-impact seismic methods, such as enviro-drills and mulchers (Pembina, 2004; CAPP, 2004). In fact, seismic programs using such technologies are fast becoming recognized as the industry standard (CAPP, 2003).

The Review Board finds that line blocking is an important consideration that must be incorporated into the SDL8 program to ensure that the cutlines which Paramount creates do not facilitate the mobility of predators and alternate prey in the forest, or permit increased access by hunters. Although recommended by the GNWT as a possible mitigation measure [62], the GNWT has not suggested any technique for line blocking. The Review Board finds that even narrow low-impact seismic lines have the potential to become game or hunting trails unless they are managed correctly. The Review Board recommends that Paramount establish a system of line blocking that will protect boreal caribou in the SDL8 area. The Review Board further suggests that the protocol for line blocking be developed in consultation with the INAC Land Use Permit Inspector and Wildlife staff of the Department of Environment Natural Resources (GNWT).

Measure (1): To prevent a likely significant adverse impact to boreal caribou, cutlines for the SDL8 program shall be meandering with a maximum width of 2.5 metres.

Measure (2): To prevent a likely significant adverse impact to boreal caribou, Paramount shall implement cutline blocking techniques at the closure of the SDL8 seismic program in consultation with INAC and the Department of Environment and Natural Resources (GNWT).

Suggestion (1): The Review Board suggests that the GNWT, in coordination with the Deh Cho Boreal Caribou Working Group², develop a detailed mitigation and monitoring strategy for the SDL8 development area to meet SARA obligations.

Suggestion (2): Wherever possible, lines-of-sites for all cutlines should be less than 100 metres.

4.1.2 Other Wildlife

Evidence Summary

Field studies conducted by Paramount in the summer of 2005 noted the presence of wood frogs, white-tailed deer, moose and beaver in the SDL8 area [12]. In its Land Use Permit application Paramount acknowledged that while the Mackenzie Valley forms a very important migratory route for waterfowl, the SDL8 area is not in a Key Migratory Bird Terrestrial Habitat Site; the closest one being located at Beaver Lake, 40 km from the project area [12]. From its initial scouting of the area, Paramount believes there is a low chance of encountering raptor nests. Paramount expects that the SDL8 program's winter

² As described in the recommendation submitted to the Minister of DIAND by the Review Board in its Report of Environmental Assessment and reasons for decision on the Paramount Resources Ltd. Cameron Hills Expansion Project, June 1, 2004, and subsequently modified on March 15, 2005.

scheduling and short duration will minimize impacts on wildlife [12]. Paramount has also committed to have an aboriginal monitor on site during cutline clearing activities [59].

Concerns about the potential impacts to wildlife and wildlife habitat were raised during the course of the environmental assessment [45, 47]. At the Community Issue Scoping Hearing, the Review Board was told by representatives of the KFN that the base of the Cameron Hills is a breeding ground for moose and a place where they migrate from [47]. The Review Board also heard that the base of Cameron Hills has many large trees and small lakes that provide habitat for fur-bearing animals [47]. KFN representatives expressed concerns about the impacts that a six (6) metre wide cutline would have on the forest and its wildlife inhabitants [47]. Information later submitted to the Review Board by aboriginal parties confirmed that moose, waterfowl and fur-bearing animals are known to inhabit the SDL8 area [57, 70, 94].

The KTFN stated that Paramount has not provided an assessment of the potential impacts of this project on moose. The KTFN recommends that a detailed impact detection, mitigation and monitoring strategy be developed for caribou, moose, wolves and wolverines in consultation with, and approved by, the GNWT and KTFN [94].

In comparison to information on boreal caribou, the Public Record provided little information regarding the relationship between linear developments and moose and fur-bearing species. Cutline clearing may potentially enhance moose habitat through the encouragement of early successional vegetation promoted by forest disturbance [62].

Review Board Conclusion

The Review Board concludes the proposed development is not likely to result in a significant impact to wildlife other than boreal caribou. Given the scale and nature of this development, the Review Board does not find that an impact detection, mitigation and monitoring strategy for moose, wolves and wolverines is required for this project. The Review Board concludes that Paramount's commitments, in addition to the Review Board's measures related to boreal caribou, will serve to protect other species that may be potentially adversely affected by the SDL8 program.

4.1.3 Vegetation

Evidence Summary

Paramount has proposed to use reclamation seed mixtures to prevent erosion in cases where the mineral soil has become exposed as a result of its seismic exploration activities. The proposed mixture has been approved by the MVLWB, NEB, and GNWT for use in the Cameron Hills area [13, 47, 59]. Concerns have been expressed about the use of reclamation seed mixes that may contain invasive species [47]. Information Requests were issued to INAC, whose inspectors have the authority to require reseeded for seismic programs, to secure a better understanding of the potential risks associated with reseeded. INAC provided the following evidence [58, 90]:

1. The proposed reclamation seed mixture poses no danger of out-competing local species because the species are not expected to persist or spread.

2. Seeding will be limited to areas where the mineral soil has been exposed and where “roll back” of duff and woody debris is not likely.
3. The seed mixes are comprised of agronomic species, which have been chosen for their germination success and productivity. These species are expected to diminish over time and to allow for natural recovery by local, native vegetation.
4. Indigenous plants can be too slow at establishing to provide erosion control.

KTFN acknowledged the usefulness of using fast-growing seed mixtures to deal with short-term erosion problems, but was concerned about the introduction of non-native, invasive species [94]. KTFN suggested that Paramount obtain the GNWT’s approval for any proposed seed mix prior to its use. KTFN further suggested that Paramount, in consultation with, and approval of the GNWT and KTFN, implement a replanting program for all disturbed areas using native tree species seedlings [94].

The GNWT suggested that there may be some latitude in developing mixes for site-specific conditions in the SDL8 area [97]. The GNWT suggested that such site-specific mixes be approved by the Forest Management Division and the Wildlife Division prior to use. They suggest that the best means of ensuring that invasive and weed species are not introduced is through a seed batch analysis that should be provided to the Land Use Permit Inspector prior to use [97].

Condition #50 of the MVLWB’s draft Land Use Permit for the SLD8 program is concerned with the use of an appropriate of seed mix [86]:

50. *Where seeding is done, the Permittee will use certified Canada #1 seed and the appropriate seed certificates will be made available to the Inspector.*

Review Board Conclusion

The Review Board concludes the proposed development is not likely to result in a significant impact to vegetation. The Review Board concludes that Paramount’s commitments, in addition to its own measures related to boreal caribou will serve to protect against impacts to vegetation. The restrictions that have been imposed on Paramount’s seismic program will require Paramount to use low-impact equipment, such as mulchers, which are expected to reduce the likelihood of mineral soil being exposed during the program. As such, the Review Board finds that the requirement to use reclamation seed mixes would also be reduced as a result.

The Public Record does not contain any mention of Paramount proposing the use “site-specific” mixes for the SDL8 program. Paramount has in the DAR, only provided the composition of one type of seed mix that it intends to use.

The Review Board suggests that condition #50 from the draft Land Use Permit be included in the final Land Use Permit to give assurance to the inspector regarding the quality of the seed mixture. The Review Board finds that the inclusion of this condition is sufficient for a program of this size and nature and that a batch seed analysis is not required.

Suggestion (3): The Review Board suggests that condition #50 of the draft Land Use Permit MV2005B002 be included in the final permit; or that conditions resulting in similar actions be included in the final permit.

4.1.4 Water Resources

Evidence Summary

Concerns relating to potential impacts to water resources were raised during the Community Issue Scoping Hearing, as well as in written submissions to the Review Board [45, 47]. Such concerns included the possible effects of stream crossings, the occurrence of spills related to Paramount's main Cameron Hills developments and the potential impacts of the SDL8 program on the Hay River basin.

During the Land Use Permit application and review period, Paramount committed to a number of activities that may reduce the potential impacts to water resources, including:

1. The SDL8 program will be conducted during frozen ground conditions [12]
2. Low-pressure wheeled vehicles, tracked units, quads and snowmobiles will be utilized [12]
3. Snow cover will be left on the organic mat to protect the permafrost [12]
4. Vibrators will be equipped with drip pans to avoid hydraulic leakage [12]
5. Setbacks for explosives will be 45m back from any watercourse [13]
6. No cutting of vegetation at watercourse crossings will occur; the equipment will be instead walked over the riparian vegetation [13]
7. Watercourse crossings will be constructed of clean snow fill or timber [13]
8. Watercourse crossings will be removed prior to spring break-up [13]
9. The surface duff or moss layer will not be balded off [12]
10. Vehicles are to be equipped with Emergency Spill Kits [13]

Additionally, as part of its application to the MVLWB for the SDL8 program, Paramount submitted a Fuel and Oil Spill Contingency Plan [12].

Paramount has stated that the watercourses that will be crossed in the SDL8 area are narrow and temporary, with most having poor channel definition and no fisheries potential [12]. Some confusion exists regarding the method by which Paramount intends to construct its creek-crossings; in Paramount's application to the MVLWB, there is ambiguity as to whether ice bridges would be constructed [12]. Paramount's presentation given at the Community Issues Scoping Hearing stated that stream crossings could include ice bridges that would adhere to MVLWB and DFO regulation [37, 47]. However, Paramount's correspondence to the Department of Fisheries and Oceans during the preliminary screening of the Land Use Permit application clearly indicated that snow fill crossings are to be used, and in the absence of sufficient snow, timber bridges would be constructed [13]. The Public Record contains limited evidence related to the potential impact of ice bridges on the aquatic environment.

A number of Information Requests were directed to INAC, which has responsibility for the protection of water resources, including inspection and enforcement responsibilities. INAC provided the following information [58]:

- A description of the standard suite of INAC recommendations to the MVLWB as it pertains to protecting water resources in seismic exploration programs
- A description of how the recommended terms and conditions are implemented in the field by inspectors
- A description of the authority the inspectors have to address impacts to water caused by a development, and
- A copy of the NWT Compliance and Enforcement Policy

INAC stated that if Paramount follows the MVLWB's standard Land Use Permit conditions there will be no significant impact [58]. The draft Land Use Permit for MV2005B0021 contains the conditions that were identified by INAC for the protection of water resources [86]. A number of other conditions that would serve to protect water and aquatic habitat are also listed in the draft Land Use Permit [86].

In a later IR response, INAC provided inspection reports regarding Paramount's past seismic exploration operations in the NWT. The reports indicate that the programs were conducted in a satisfactory matter with no major concerns related to water quality (i.e. erosion) [92].

KTFN cited a number of issues related to inspection practices, as well as its concerns about the lack of consultation and involvement of the KTFN in areas of inspection and addressing environmental problems such as spills [94]. KTFN suggested that:

1. Paramount directly inform and consult with the KTFN on environmental problems in a similar timeframe to the regulators
2. KTFN representatives be invited to participate in INAC and NEB inspections
3. KTFN be provided with inspection reports, orders or instructions within one week of their completion, and that
4. INAC and the MVLWB prepare a protocol explaining how they will coordinate activities and responsibilities to ensure a swift coordinated response to environmental problems.

KTFN also stated its concern regarding the designation of the spring break-up date as April 1st. It requested that the designated date for spring break-up be set to March 15th in recognition that climate change is leading to warmer winters. The KTFN also noted that the Land Use Permit inspector would have the authority to extend operations past the designated breakup date. The KTFN suggested that the Land Use Permit inspector should have the authority to shorten the project timeline prior to the designated spring break-up date in response to weather conditions, regardless if rutting is, or is not occurring [94].

The KTFN also notes that Paramount has not submitted any documentation related to the storage and removal of sewage. KTFN requested that Paramount provide the MVLWB

with a procedure for the storage, removal and disposal of sewage generated by the project [94].

Review Board Conclusion

The Review Board concludes the proposed development is not likely to result in a significant impact to water resources. Paramount has committed to a number of activities that should ensure that water is not adversely impacted by the SDL8 program. Moreover, the Review Board finds that there are ample tools in place within the regulatory and inspection system to ensure that the SDL8 program will not significantly harm water. The inspection reports provided to the Review Board on Paramount's past seismic exploration programs in the NWT do not suggest that Paramount or its contractors have a history of harming water resources for those types of developments.

The weight of available evidence appears to indicate that Paramount will not be seeking to construct ice bridges for its operations. Condition 10, of draft Land Use Permit MV2005B0021 states that "*The Permittee shall remove all ice bridges prior to spring break-up or completion of the land use operation*" and Condition 19 states "*The Permittee shall not use any material other than water in the construction of ice bridges*". While the Review Board does not find the matter of ice bridges to be significant; in light of inconsistencies noted in the Public Record, the Review Board suggests that conditions related to the construction of ice bridges be removed from the final Land Use Permit for the SDL8 program.

The Review Board does not find the KTFN's requests to change the practice of notification and regulatory coordination for environmental problems, inspection reports and inspector's orders necessary in the case of the SDL8 program. There is no evidence on the Public Record to suggest that Paramount or its contractors have violated the conditions of Land Use Permits for its previous seismic exploration programs. Nor is there any evidence on the Public Record that indicates that the current regulatory and inspection system has failed to protect the environment from significant adverse impacts in the case of Paramount's previous seismic exploration programs.

The Review Board notes that KTFN would like the opportunity to participate in field inspections conducted by the NEB and INAC. However, it was not made evident to the Review Board how such participation would serve to reduce potential adverse impacts to the environment.

The available evidence provided on the Public Record does not convince the Review Board that April 1st is an unsuitable designated spring break-up date. The Review Board concludes that the April 1st date should stand subject to the Inspector's authority to make a determination in the field.

The Review Board recognizes that sewage handling practices appear to be missing from Paramount's Land Use Permit application. The Review Board does not view this as a significant issue.

Suggestion (4): The MVLWB should remove references to the construction of ice bridges in its final Land Use Permit for the SDL8 program.

4.1.5 Forest Resources

Evidence Summary

Concerns about the impact the SDL8 program could have on forest resources were noted at the Community Issues Scoping Hearing, as well as in submissions received by the Review Board [45, 47]. The GNWT identified that the proposed program would occur within the D/7sb forest management unit and would result in the removal approximately 1900 m³ of harvestable timber [62, 66]. The GNWT noted that the SDL8 disturbance is within the sustainable yield of the forest for a one-time occurrence [62]. The GNWT suggested that reduction of line width would be the simplest means of reducing impacts to this resource.

The management of windrows is related to potential impacts to forest resources due to the fire risks that windrows can pose. Paramount's Land Use Permit application to the MVLWB requested that windrows be established at lengths of 400 metres with ten (10) metre breaks to minimize any potential forest fire wicking effects, as well as to promote wildlife movement [12]. The GNWT recommended that a windrow length of 60 metres with break intervals of ten (10) meters be required as a preventative measure against forest fires, as well as for the minimization of impacts to wildlife [97]. The GNWT stated that this suggested condition is identical to that required in Paramount's Land Use Permit for the main Cameron Hills oil and gas developments. The KTFN also requested that Paramount have windrow breaks of ten (10) metres not less than every 60 metres [94]. Condition #44 of the MVLWB's draft Land Use Permit for MV2005B0021 states the following [86]:

The Permittee shall dispose of all debris and brush by:

- (a) windrowing the debris and brush to the side of the line;*
- (b) making breaks in the windrow of at least ten (10) metres wide at intervals of not more than sixty (60) metres; and*
- (c) or in a manner authorized in writing by the Inspector.*

KTFN requested that Paramount remove all harvested merchantable timber and deliver it for use in the communities [94].

In its Technical Report, KTFN spoke to statements made by the GNWT in IR-30, where the GNWT admitted that it does not have regulatory authority over timber harvesting or tree replanting for the SDL8 program [89]. KTFN identified this issue as a regulatory gap that should provide impetus for the Review Board to address the matter in its recommendations. [94].

Review Board Conclusion

The Review Board concludes the proposed development is not likely to result in a significant impact to forest resources. The Review Board is of the opinion that Paramount's commitment to avoidance cutting, in addition to its own measures related to reducing the cutline width to 2.5 metres or less will mitigate any significant impact. The

Review Board finds that its restriction on line width will likely necessitate the use of mulchers, which will eliminate the need to windrow material. However, in the event that windrows are required, the Review Board endorses the GNWT and KTFN's recommendation, as is present in the draft Land Use Permit.

The Review Board does not find the delivery of merchantable timber to communities to be feasible because it concludes that large quantities of timber will not be harvested as a result of the SDL8 program. For the same reason the Review Board does not find the development of a replanting program as necessary. The absence of a likely significant impact on forest resources convinces the Review Board that it is not necessary to impose measures addressing the issue of the GNWT's regulatory authority for this particular development.

Suggestion (5): The Review Board suggests that condition #44 of the draft Land Use Permit MV2005B002 be included in the final permit; or that conditions resulting in similar actions be included in the final permit.

4.1.6 Socio-economic environment

Evidence Summary

Concerns related to economic opportunities, such as employment and business contracts, were raised by various parties, particularly during the Community Issues Scoping Hearing [47]. Certain parties expressed a desire for collective benefit from the project, while others thought that an Access and Benefits agreement should be required [47].

Paramount has indicated that the amount of employment offered would vary between 350 person-days for a dynamite-based program while a vibroseis-based program could result in 400 person-days [12]. The program is short-term, proposed to occur over one winter from early January to the spring break-up (April 1st) [12]. Paramount has committed to request an updated list of available and qualified services from communities and to provide the lists and contact information to the primary seismic contractor [59]. Paramount has also committed to adhere to INAC's Benefits Statement of Principles in regards to providing opportunities to northerners [12].

INAC provided information regarding the requirement of oil and gas explorers to establish Benefits Plans [58]. Benefit Plans are required for projects that are regulated under the *Canadian Oil and Gas Operation Act* ("COGOA"). Benefit Plans are developed for the employment of Canadians and for providing fair opportunities for Canadian companies to provide goods and services [58]. INAC stated that as a general rule, a Benefits Plan approved by the Minister of INAC must be in place before the NEB can authorize any work or activity related to the SDL8 program. Such a plan is designed to ensure that disadvantaged groups have access to training, employment and goods and service provisions [58].

The *Deh Cho First Nations Interim Measures Agreement* requires benefit plans for projects authorized under COGOA in the Deh Cho territory. However, the agreement states that for "minor, short duration geological and geophysical activities", a

commitment to the Benefits Statement of Principles is sufficient [58]. The SDL8 program is an activity that is likely categorized as short duration.

The Benefits Statement of Principles sets out objectives related to Industrial Benefits, Employment and Training, Consultation, as well as requirements for the submission of an annual report [58]. INAC stated that Paramount is expected to adhere to the reporting requirements of the Benefits Statement of Principles, which will be reviewed by INAC following the completion of the work [58]. The reporting requirements include information such as the total program costs, wages earned by northern residents and numbers of northern residents employed. INAC noted that companies, including Paramount, usually deliver on their reporting requirements, and that those companies who do not do so may experience difficulties in seeking approval for Benefits Plans for future exploration programs [58].

The KTFN criticized the Benefits Plans and cited an absence of community involvement in the preparation, approval and monitoring of the plans. KTFN stated that the Benefits Plans are not enforceable and amount to a “shell of an agreement” [94]. The KTFN argued in favour of Access and Benefits Agreements in lieu of the Benefits Plans.

Review Board Conclusion

The Review Board concludes the proposed development is not likely to result in a significant impact to the socio-economic well-being of residents of the Mackenzie Valley. The short duration and size of the program and the limited manpower and contract opportunities it will offer convinces the Review Board that the program is going to have a negligible effect on the economy of the NWT. The Review Board finds that the current regulatory requirement for Benefits Plans under COGOA, as well as the requirements of the *Deh Cho First Nations Interim Measures* will encourage the Developer to conduct its business in way so that northern residents will accrue benefits.

In the absence of evidence regarding a significant adverse impact to the socio-economic well-being of Mackenzie Valley residents, the Review Board is not convinced that an Access and Benefit Agreement is required for a project of the nature and scale of the SDL8 Program. Section 4.2.2 of this report describes in further detail the Review Board’s analysis regarding Access and Benefits Agreements for this development.

4.1.7 Harvesting

Evidence Summary

Paramount stated it is not aware of traditional land use or resource harvesting occurring in the SDL8 area that would require specific mitigative measures [59]. Paramount noted that mitigative measures applied to other projects in the region were incorporated for the SDL8 program [59]. Paramount also committed to employ an aboriginal person with traditional knowledge of the area as a monitor during cutline clearing activities [59].

The Review Board issued Information Requests to the parties to determine how persons from the communities use and have used the SDL8 area. Included was a request to identify what species were currently and historically harvested in the area, the times of the harvesting and the volume of the harvest [51]. In its response, the KFN noted that

historically the SDL8 area was used for harvesting of moose, caribou, geese, ducks and furbearing animals and that the area is currently used for the harvesting of woodland caribou and furbearing animals [70]. The Deh Gah Got'ie Dene Band and Fort Providence Metis (Local #57) indicated that furbearing animals and caribou have been historically harvested in the area and continue to be harvested [57]. The KTFN did not provide specific responses to the Review Board's questions but noted that the SDL8 Area is used by the KTFN for hunting, gathering and fishing and that the SDL8 area supports animals which are harvested elsewhere by KTFN members [69]. The KTFN further noted that impacts in the area would be felt through reduced animal numbers elsewhere [69]. The Northwest Territory Metis Nation did not provide the Review Board with an IR response. The responses from the aboriginal parties did not provide the Review Board with any figures relating to harvesting levels in the SDL8 area.

In its Technical Report, the KTFN requested Paramount to implement a wildlife and resource harvesting compensation plan with the KTFN. Such a plan would ensure compensation for harvesting losses caused by the development, as agreed to by Paramount and the community. The KTFN suggested that the plan be completed as part of the Access and Benefits Agreement and that the SDL8 program not proceed until the compensation plan is in place [94].

Related to harvesting activities, the MVLWB's draft Land Use Permit for MV2005B0021 contains two conditions related to harvesting activities [86]:

- *(#53) The Permittee shall, while preparing the access road, make every effort to avoid covering or destroying traps or snares that may be found along these routes.*
- *(#54) The Permittee shall restore any trails used by trappers or hunters along access routes by slashing any and all trees that may fall across these paths or trails and by removing any other obstructions such as snow piles or debris that may be pushed across the trails.*

Review Board Conclusion

The Review Board concludes the proposed development is not likely to result in a significant impact to harvesting. The Review Board, in Section 4.1.1, established measures that are intended to protect boreal caribou from likely significant adverse impact. Those measures are intended to protect the landscape from fragmentation so that communities can be assured of being able to harvest the area over the long term. The Review Board finds that measures established to protect the most sensitive species, boreal caribou, will also provide benefits to other harvested species that may be more resilient, such as moose and fur-bearing animals.

The Review Board finds that since the proposed development is a relatively small scale seismic program, direct impacts to harvesting are not significant. However, given concerns expressed by communities, the Review Board suggests that Paramount should notify the communities prior to the commencement of the SDL8 program to alert harvesters who may have traps or equipment in the project area that could be affected. The Review Board also suggests that conditions #53 and #54 from the draft Land Use

Permit be included in the final Land Use Permit as added protection against any potential impacts to harvesting.

Given the scale and nature of the project, as well as the lack of evidence about harvesting activities in the area, the Review Board concludes that a Wildlife and Harvester Compensation Plan is not necessary. The Review Board has not been provided with sufficient evidence to convince it that a significant adverse impact to harvesting is likely to occur that would require such mitigation.

Suggestion (6): The Review Board suggests that conditions #53 and #54 of the draft Land Use Permit MV2005B002 be included in the final permit; or that conditions resulting in similar actions be included in the final permit.

Suggestion (7): The Review Board suggests that Paramount notify, through appropriate media, communities within the vicinity of the SDL8 area 15 days in advance of the commencement of the SDL8 seismic program.

4.1.8 Heritage Resources

Evidence Summary

Concerns related to impacts on heritage resources, such as grave sites and cultural artifacts, were voiced at the Issues Scoping Hearing as well as elsewhere in the public record.

Paramount stated that it had not identified any heritage resources and no further archaeological work is planned for the area [12]. Paramount committed to operate with consistency to the *Heritage Acts* of Alberta and the NWT and it stated in its Land Use Permit application to the MVLWB that “*If unexpected heritage resources are encountered during the project, all work in the immediate area will cease until an archaeologist is able to examine the find and develop an appropriate site management plan*”[12].

The FPRMB expressed concerns about heritage resources stating, “*...that artifacts and the cultural history of the area would be interfered with without a thorough archeological assessment of the area*” [57].

The KTFN notes that Paramount has not completed any heritage resource assessment for this project, which is something that KTFN considers a standard procedure [94]. The KTFN states that it wishes Paramount to fund a Heritage Resource Impact Assessment (HRIA) as part of an Access and Benefits Agreement. According to the KTFN, the HRIA must be completed prior to authorization and the project should incorporate mitigation measures as identified by the HRIA [94]. KTFN requests that Paramount ensure that a KTFN member be hired as an environmental monitor who will have responsibility for identifying heritage resources during the project and that Paramount inform KTFN when a potential heritage resource is discovered.

The MVLWB’s draft Land Use Permit for MV2005B0021 contained the following conditions related to protection of heritage resource [86]:

- *(#34) The Permittee shall not operate any vehicle within thirty (30) metres of a known or suspected archaeological site.*

- (#35) *The Permittee shall not knowingly remove, disturb, or displace any archaeological specimen or site.*
- (#36) *The Permittee shall immediately suspend operations and notify the Ka'a'Gee Tu First Nations, the Mackenzie Valley Land and Water Board at (867) 669-0506 and the Inspector at (867) 874-6995 should an archaeological site or specimen be encountered or disturbed by any land use activity.*
- (#37) *The Permittee shall ensure that all persons working under authority of the permit are aware of these conditions concerning archaeological land use activity.*

Review Board Conclusion

The Review Board concludes that, provided Paramount upholds its commitments, the development is not likely to cause significant adverse impacts on heritage resources. The Public Record does not contain sufficient evidence to convince the Review Board that heritage resources are threatened by the proposed SDL8 program. The Review Board however suggests that conditions 34-37 of draft Land Use Permit for MV2005B0021 be included in the final permit.

Suggestion (8): The Review Board suggests that conditions #34 - #37 of draft Land Use Permit MV2005B002 be included in the final permit; or that conditions resulting in similar actions be included in the final permit.

4.2 Other Concerns

4.2.1 Community Engagement

Concerns about consultation between the Developer, the Crown and aboriginal communities were raised in several instances during the environmental assessment.

The evidence available to the Review Board indicates that the extent of community consultation by the Developer during the planning of the SDL8 program consisted of the distribution of an information package [47, 59, 94]. Criticism of Paramount's community engagement strategy was voiced by participants at the Community Issues Scoping Hearing in Hay River [47], as well as by the KTFN in its technical report [94].

The KTFN discussed a number of items related to the issue of community engagement and consultation in its Technical Report submission. KTFN stated that, prior to taking actions that may infringe aboriginal title and rights, it was the duty of the Crown to consult with KTFN to seek a workable accommodation of treaty and aboriginal title and rights, including cultural interests and economic interests [94]. KTFN affirmed that the Crown had not met or consulted with the KTFN regarding the SLD8 program, and as such the Crown had not met its legal obligations to consult with and accommodate the KTFN. KTFN, in reference to past EAs, stated that no meaningful consultation had occurred between it and INAC following the issuance of Reports of Environment Assessment [94].

The KTFN requested that the Review Board, when considering whether the duty of consultation has been met, that the Dehcho Consultation Principles be considered [94].

Given its concerns about consultation, KTFN suggested the SDL8 program not proceed “*on the basis that there will be significant public concern if this project is advanced any further with no meaningful consultation taken place*”[94].

Review Board Conclusion

The Review Board concludes that Paramount’s community engagement efforts regarding the SDL8 program have been minimal. The Review Board finds that this limited approach to consultation with potentially-impacted communities is not conducive to building strong relationships between Paramount and the people who have traditionally occupied and continue to occupy the lands which will be affected by project activities. As a means to address issues and concerns prior to entering the regulatory process, Paramount is encouraged to more fully engage with communities early on.

Much of the KTFN’s discussion regarding consultation is concerned with the issue of Crown consultation duties. The Review Board understands that such consultation duties are linked to the Crown’s responsibility to ensure that Section 35 of the Canadian Constitution is upheld. The Review Board concludes that it does not have the mandate, authority or expertise to determine if the Crown’s constitutional consultation duties have been acceptably carried out or not. For its own part the Review Board concludes that it has fulfilled its own legislated consultation responsibilities as required under Section 3 of the MVRMA which states:

(3.). Wherever in this Act reference is made, in relation to any matter, to a power or duty to consult, that power or duty shall be exercised

(a) by providing, to the party to be consulted,

(i) notice of the matter in sufficient form and detail to allow the party to prepare its views on the matter,

(ii) a reasonable period for the party to prepare those views, and

(iii) an opportunity to present those views to the party having the power or duty to consult; and

(b) by considering, fully and impartially, any views so presented.

The Review Board has managed an open and impartial process that has allowed aboriginal parties ample opportunity to meaningfully participate. The Review Board modified its EA process in accordance with the wishes of aboriginal parties, as has been documented in Section 3.2 of this report. Given this demonstrated flexibility, the Review Board is not convinced that the SDL8 should not proceed due to concerns related to “meaningful consultation” under the MVRMA. If Crown consultation matters remain to be addressed, it is the Review Board’s view that this is a matter for consideration by the federal Minister during his review of the results of this Environmental Assessment.

4.2.2 Access and Benefit Agreements

The KTFN recommended that the Review Board require an Access and Benefit Agreement (ABA) between Paramount and the KTFN prior to the issuance of

authorizations for the SDL8 program [94]. The Review Board understands that ABAs are normally required under land claims agreements on settlement lands. An ABA is a contractual agreement between a company and affected Aboriginal organizations who are landowners and who control access to settlement lands. The proposed SDL8 program, occurring in the Dehcho region, is not in a settled land claims area, and as such, ABAs are not a legal requirement for access to this seismic area. Moreover, there has not been sufficient evidence brought forth in the proceedings of this environmental assessment to convince the Review Board that an Access and Benefit Agreement would mitigate any likely significant adverse impact. In the absence of such an impact, the Review Board cannot require such a measure. As indicated earlier in section 4.1.6, Paramount must adhere to INAC's Benefits Statement of Principles, which includes an obligation to provide an annual report on its activities. The Review Board finds that the current regulatory requirement for Benefits Plans under COGOA, as well as the requirements of the *Deh Cho First Nations Interim Measures* will encourage the Developer to conduct its business in way so that northern residents will accrue benefits.

5 Environmental Assessment Summary

The Board has concluded, pursuant to section 128(b)(ii) of the MVRMA that with the implementation of the measures in this Report of Environmental Assessment and the commitments made by Paramount Resources Ltd. the proposed development is not likely to have a significant adverse impact on the environment, or be cause for significant public concern.

The remainder of this section summarizes the Review Board's main findings and lists the measures it deems necessary to prevent the proposed development from being a likely cause of significant adverse impacts on the environment. Also listed are the Review Board's suggestions to further reduce possible impacts on the environment.

5.1 Significant Adverse Impacts on the Environment

In the Review Board's opinion the proposed development is likely to cause significant adverse impacts on the environment, without additional mitigation, through clearing of six (6) metre wide cutlines and the increased access that such cutlines would permit. For all the other issues that it examined, the Review Board concludes that significant adverse impacts on the environment from the proposed development by itself can be prevented as long as the developer's commitments are implemented and maintained over the duration of the development and the conditions appearing in the draft Land Use Permit are brought forward into the final Permit.

The Review Board recommends approval of the proposed development subject to mitigation measures (1) to (2), listed below. The Review Board further recommends that suggestions (1) to (8), listed below, be implemented.

5.2 Cumulative Impacts

Cumulative impacts refer to impacts that result from the proposed development in combination with all other past, present or reasonably foreseeable future developments. A number of industrial developments have occurred in and around the SDL8 area, and development is continuing to occur in the region. As stated in Section 4.1.1, the Review Board has concluded that boreal caribou, in particular, are adversely impacted by the continued industrialization of the landscape occurring in and around the Cameron Hills region. Given that Paramount is a major operator in areas adjacent to the proposed SDL8 development, Paramount must recognize that its activities may have contributed to cumulative impacts on boreal caribou population in the region.

The Review Board finds that significant adverse cumulative impacts on the environment can be prevented by implementing more sustainable, low-impact seismic exploration techniques. Implementing such techniques will ensure that the landscape where seismic exploration occurs avoids unacceptable degradation.

5.3 Public Concern

The Review Board finds that the proposed development is not likely to be cause for significant public concern as long as all of the Developer's commitments and all of the Review Board's measures are implemented.

5.4 Other Considerations

Species at Risk

Section 79 of the SARA requires any person conducting an environmental assessment to notify the competent Ministers in writing if the proposed development is likely to affect a listed species or its critical habitat. (Canada, 2004) Environment Canada and the GNWT are responsible for SARA in the NWT. Both Ministers were parties to this assessment. The Review Board followed their advice in determining whether an adverse impact on a listed species is likely. The Review Board found that the proposed development itself is likely to have significant effects on a species protected under SARA unless mitigation measures are undertaken. The Review Board is of the view that this report meets its responsibilities under SARA.

5.5 Measures and Suggestions

The measures listed below are the actions necessary to prevent or mitigate significant adverse environmental impacts the Review Board identifies in this Report of Environmental Assessment. These measures will reduce the likelihood of significant adverse impacts on the environment so that the proposed development may proceed. Without the implementation of these measures, the Review Board's conclusion about the significance of the impacts and the acceptability of Paramount's SDL8 development would be invalid.

Measure (1): To prevent a significant adverse impact to boreal caribou, cutlines for the SDL8 program shall be meandering with a maximum width of 2.5 metres.

Measure (2): To prevent a likely significant adverse impact to boreal caribou, Paramount shall implement cutline blocking techniques at the closure of the SDL8 seismic program in consultation with INAC and the Department of Environment and Natural Resources (GNWT).

The Review Board has issued eight (8) suggestions related to the SDL8 program. The suggestions are non-binding propositions that have been made in the interest of good environmental management.

Suggestion (1): The Review Board suggests that the GNWT, in coordination with the Deh Cho Boreal Caribou Working Group³, develop a detailed mitigation and monitoring strategy for the SDL8 development area to meet SARA obligations.

Suggestion (2): Wherever possible, lines-of-sites for all cutlines should be less than 100 metres.

³ As described in the recommendation submitted to the Minister of DIAND by the Review Board in its Report of Environmental Assessment and reasons for decision on the Paramount Resources Ltd. Cameron Hills Expansion Project, June 1, 2004, and subsequently modified on March 15, 2005.

Suggestion (3): The Review Board suggests that condition #50 of the draft Land Use Permit MV2005B002 be included in the final permit; or that conditions resulting in similar actions be included in the final permit.

Suggestion (4): The MVLWB should remove references to the construction of ice bridges in its final Land Use Permit for the SDL8 program.

Suggestion (5): The Review Board suggests that condition #44 of the draft Land Use Permit MV2005B002 be included in the final permit; or that conditions resulting in similar actions be included in the final permit.

Suggestion (6): The Review Board suggests that conditions #53 and #54 of the draft Land Use Permit MV2005B002 be included in the final permit; or that conditions resulting in similar actions be included in the final permit.

Suggestion (7): The Review Board suggests that Paramount notify, through appropriate media, communities within the vicinity of the SDL8 area 15 days in advance of the commencement of the SDL8 seismic program.

Suggestion (8): The Review Board suggests that conditions #34 - #37 of draft Land Use Permit MV2005B002 be included in the final permit; or that conditions resulting in similar actions be included in the final permit.

6 References

6.1 Public Record

Registry Item No.	Document Name	Date Received	Originator
1	Developer Notification	11/24/2005	MVEIRB
2	MVLWB Notification	11/24/2005	MVEIRB
3	Referral Letter	11/23/2005	Bob Overvold, INAC
4	KTFN referral request letter	11/23/2005	Allan Landry, KTFN
5	General Notification	11/25/2005	Martin Haefele, MVEIRB
6	Boreal Caribou Habitat and Land Use Planning in the Deh Cho Region	11/28/2005	MVEIRB (GNWT)
7	Linear Disturbance in Ecodistricts	11/28/2005	MVEIRB (GNWT)
8	BC Oil and Gas Commission – Cumulative Effects Indicators, Thresholds and Case Studies	11/28/2005	MVEIRB (BC Oil and Gas Commission)
9	Work Plan SDL8 (EA0506-007)	12/19/2005	MVEIRB
10	Mandell Pinder letter re. staying of proceedings	12/16/2005	Mandel Pinder
11	Request for Ruling Notice	12/23/2005	MVEIRB
12	LUP Application – MV2005B0021	12/1/2005	Paramount
13	PS Review Comments – MV2005B0021	12/1/2005	MVLWB
14	Additional PS information – MV2005B0021	12/1/2005	MVLWB
15	EA Notification Ad	1/3/2006	MVEIRB
16	KTFN Request for Ruling (RFR)	12/21/2006	Mandel Pinder (KTFN Counsel)
17	Ft. Providence Metis response to RFR	1/10/2006	Ft. Providence Metis Council
18	Deh Gah Gotie FN response to RFR	1/10/2006	Deh Gah Gotie Dene Council
19	Paramount response to RFR	1/10/2006	Paramount
20	KTFN comment of RFR responses	1/12/2006	KTFN (counsel)
21	INAC response to RFR	1/10/2006	INAC
22	RFR decision notice	1/23/2006	MVEIRB
23	Scoping Hearing notice	1/23/2006	MVEIRB
24	KTFN Request for Ruling Reasons for Decision Paramount SDL8 EA	1/27/2006	MVEIRB
25	Process Update (Feb 3-06)	2/3/2006	MVEIRB
26	Poster for Paramount 2-D EA in Hay River		MVEIRB
27	Agenda for Pre-hearing conference	2/10/2006	MVEIRB
28	Meeting notes for pre-hearing conference	2/13/2006	MVEIRB
29	Letter from Albert Lafferty to MVEIRB	2/15/2006	Ft. Providence Metis Council
30	Letter to Albert Lafferty regarding consultation of NWT Métis	2/16/2006	MVEIRB
31	Notification of Party Status	2/20/2006	MVEIRB
32	List of organizations contacted for Community Hearing in Hay River	2/9/2006	MVEIRB
33	Note to File: Lyle Fabian, KFN	3/1/2006	MVEIRB
34	Presentation on Process for SDL8	2/25/2006	MVEIRB
35	Proposed Agenda for Paramount SDL8 Community Hearing	2/28/2006	MVEIRB
36	Notification of Community Hearing	2/27/2006	MVEIRB

37	Paramount's presentation at the Community Hearing in Hay River	2/28/2006	MVEIRB
38	Distribution List for posters	3/1/2006	MVEIRB
39	Sign-in sheet for community hearing	2/28/2006	MVEIRB
40	News North Article regarding SDL8 hearing	3/6/2006	MVEIRB
41	MVEIRB Chair's closing comments at community hearing	2/28/2006	MVEIRB
42	MVEIRB Chair's opening comments at Community Hearing	2/28/2006	MVEIRB
43	Recording from Community Hearing	2/28/2006	MVEIRB
44	Deh Gah Got'ie Dene Council Party Request Sheet	3/2/2006	Deh Gah Got'ie Dene Council
45	Letter from Ka'a'Gee Tu First Nation on EA process concerns	3/8/2006	KTFN
46	Letter from MVEIRB to Ka'a'Gee Tu First Nation	3/30/2006	MVEIRB
47	Summary of Hay River Issue Scoping Hearing	2/28/2006	MVEIRB
48	Katloodeche First Nation request for Party Standing	4/4/2006	KFN
49	Deh Gah Got'ie First Nation request for Party Standing	3/27/2006	Deh Gah Got'ie Dene Council
50	Letter from MVEIRB regarding ToR and IRs	4/6/2006	MVEIRB
51	SDL8 First Round Information Requests	4/6/2006	MVEIRB
52	SDL8 Terms of Reference and Work Plan	4/6/2006	MVEIRB
53	Letter notifying the Extension of Round 1 IRs	4/26/2006	MVEIRB
54	Letter from GNWT-ENR regarding IR deadline extension	4/26/2006	MVEIRB
55	Notification from MVEIRB regarding IR deadline	5/5/2006	MVEIRB
56	SDL8 IR responses #13 and #14 from the NEB	5/10/2006	NEB
57	Information Request response #4 and #5 from Fort Providence Resource Management Board	5/12/2006	FPRMB
58	Information Request responses #10,11 and 12 from INAC	5/12/2006	INAC
59	Developer's Assessment Report	5/12/2006	Paramount
60	NWT Boreal Caribou Booklet	5/15/2006	GNWT-ENR
61	Information Request response #6 from Environment Canada	5/17/2006	EC
62	Information Request responses #7,8 and 9 from GNWT-ENR	5/15/2006	GNWT-ENR
63	Letter to Aboriginal parties regarding SDL8 IRs	5/28/2006	MVEIRB
64	Letter to Paramount regarding conformity of DAR	5/28/2006	MVEIRB
65	SARA notification regarding SDL8 EA	5/20/2006	MVEIRB
66	Cameron Hill Timber Supply Map	6/13/2006	MVEIRB
67	June 15 Addendum to the DAR	6/15/2006	Paramount
68	Cameron Hills surficial geology map	6/16/2006	Paramount
69	Information Request response #1 from Ka'a'Gee Tu First Nation	6/16/2006	KTFN
70	Information Request response #2 from Katloodeche First Nation	6/20/2006	KFN
71	Letter from MVEIRB regarding DAR conformity and future EA direction	6/26/2006	MVEIRB
72	Email message from Joe Acorn regarding process concerns	6/26/2006	Joe Acorn, KTFN
73	Email message from Shirley Maaskant regarding SDL8 history	6/26/2006	Shirley Masskant, Paramount

74	Letter from MVEIRB regarding extension of final comments deadline	7/4/2006	MVEIRB
75	Email regarding Notification of Request for Ruling	7/4/2006	Joe Acorn, KTFN
76	Letter from KFN to MVEIRB regarding KTFN Request for Ruling process	7/10/2006	KFN
77	Letter from INAC to MVEIRB regarding KTFN's Request for Ruling	7/10/2006	INAC
78	Letter to SDL8 Distribution List regarding KTFN Request for Ruling	7/11/2006	MVEIRB
79	Email message from Joe Acorn to Pat Duxbury regarding Request for Ruling responses	7/14/2006	Joe Acorn, KTFN
80	MVEIRB response to KTFN Request for Ruling	7/20/2006	MVEIRB
81	Round 2 Information Requests	7/28/2006	MVEIRB
82	KTFN's Round 2 Information Requests	7/28/2006	KTFN
83	MVEIRB to Parties on issuance of 2 nd round IRs	8/3/2006	MVEIRB
84	MVEIRB rationale for decision on 2 nd round IRs	8/4/2006	MVEIRB
85	Notification of References	8/8/2006	MVEIRB
86	Draft conditions for SDL8 LUP MV2005B0021	6/26/2006	MVEIRB
87	Request to extend final comments deadline	8/24/2006	Joe Acorn, KTFN
88	Paramount's responses to round 2 Information Requests	8/24/2006	Paramount
89	2nd Round IR responses from GNWT-ENR	8/24/2006	GNWT-ENR
90	2nd Round IR responses from INAC	8/25/2006	INAC
91	2 nd Round IR responses from the NEB	8/25/2006	NEB
92	IR response #27 from INAC	9/11/2006	INAC
93	Notification to SDL8 distribution list	9/11/2006	MVEIRB
94	Technical Report from Ka'a'Gee Tu First Nation	9/21/2006	KTFN
95	Email from Joe Acorn	9/21/2006	KTFN
96	Technical Report from Environment Canada	9/22/2006	EC
97	Technical Report from GNWT-ENR	9/22/2006	GNWT-ENR
98	Notification of Tech Report Submissions	9/22/2006	MVEIRB
99	Paramount Request for Ruling	9/25/2006	Paramount
100	Announcement of Paramount Request for Ruling	9/25/2006	MVEIRB
101	Technical Report by Paramount	9/26/2006	Paramount
102	Email from Adrian Paradis re: draft LUP	7/10/2006	MVLWB
103	Response of Dehcho Land Use Planning Committee to Paramount Request for Ruling	10/3/2006	DCLUPC
104	Response of Ka'a'Gee Tu First Nation to Paramount Request for Ruling	10/3/2006	KTFN
105	Response of INAC to Paramount Request for Ruling	10/3/2006	INAC
106	Response of GNWT-ENR to Paramount Request for Ruling	10/4/2006	GNWT-ENR
107	Letter from Ft. Providence Metis	10/12/2006	Ft. Providence Metis Council
108	Notification re: closing of public record	10/16/2006	MVEIRB

6.2 Other References

The Review Board considered a number of reference materials as part of the public record in this Report of Environmental Assessment. Interested parties were notified of the Review Board's intention to consider these references prior to the closing of the public record and the submission of final comments (85).

Anderson, R.B., Dyer, S.J., Francis, S.R., and Anderson E.M. (2002): Development of a Threshold Approach for Assessing Industrial Impacts on Woodland Caribou in Yukon (draft report). Prepared for Environment Directorate, INAC, Yukon.

Boreal Caribou Committee (BCC) (2005): Caribou Range Restoration Project: Guidelines for Planning and Implementation (draft).

Boreal Caribou Committee (BCC) (2003): Boreal Caribou Research Program 2003 Research Summary. Report prepared by the Boreal Caribou Committee.

Canadian Association of Petroleum Producers (CAPP) (2004) Evolving Approaches to Minimize the Footprint of the Canadian Oil and Natural Gas Industry.

Canadian Association of Petroleum Producers (CAPP) (2003): One Forest. The Canadian Boreal... A Landscape of Change and Renewal.

Deh Cho Land Use Planning Committee (2006): Final Draft Deh Cho Land Use Plan.

Indian and Northern Affairs Canada (2005): Northern Oil and Gas Annual Report 2005. Northern Oil and Gas Branch

Low, C.A., (2002): Conducting Seismic Exploration: Environmental Challenges and Government Requirements. Prepared for Lawson Lundell – Barristers and Solicitors.

Mackenzie Valley Environmental Impact Review Board (2003): Preliminary Screening of Seismic Operations in the Mackenzie Valley (draft).

Mackenzie Valley Land and Water Board (2005): draft conditions for Land Use Permit Number MV2005B0021

Oil and Gas Commission (2004): Geophysical Guidelines for Muskwa-Kechika Management Area.

Oil and Gas Commission (2004): Interim Oil and Gas Industry Guidelines for Boreal Caribou Ranges in Northeastern British Columbia.

Paramount Resources Ltd (2003): Developers Assessment Report for the Paramount Cameron Hills Extension

The Pembina Institute (2004): Seismic Exploration – A Primer.

Salmo Consulting (2004): Deh Cho Cumulative Effects Study – Phase 1: Management Indicators and Thresholds. Prepare for Deh Cho Land Use Planning Committee.