



Mackenzie Valley
Environmental Impact
Review Board

Terms of Reference
and
Work Plan
for the
Environmental Assessment
of
Paramount Resources Ltd.'s
Significant Discovery Licence 8, 2D Geophysical
Program (SDL8)

April 6th, 2006

Mackenzie Valley Environmental Impact Review Board

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Glossary of Acronyms

DAR – Developer’s Assessment Report

EA – Environmental Assessment

GNWT – Government of Northwest Territories

INAC – Indian and Northern Affairs Canada

IR – Information Request

LUP – Land Use Permit

MVLWB – Mackenzie Valley Land and Water Board

MVRMA – *Mackenzie Valley Resource Management Act*

MVEIRB or “Review Board” – Mackenzie Valley Environmental Impact Review Board

Paramount or the “Developer” – Paramount Resources Ltd.

SDL – Significant Discovery Licence

TK – Traditional Knowledge

ToR – Terms of Reference and Work Plan

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Introduction

This document outlines the process and the information required for the environmental assessment of a proposed 2-D seismic exploration program (SDL8 program or the “Development”) in the South Slave region of the Northwest Territories by Paramount Resources Ltd.

1 Referral to Environmental Assessment

On November 23, 2005, Indian and Northern Affairs Canada referred a proposed geophysical oil and gas exploration program for Paramount Resources Ltd.’s Significant Discovery Licence 8 to environmental assessment, pursuant to Section 125 of the *Mackenzie Valley Resource Management Act*. The proposed development is located between the Cameron Hills and Highway 1, just north of the NWT/Alberta border. INAC referred the development on behalf of the Ka’a’Gee Tu First Nation. The Ka’a’Gee Tu First Nation is of the opinion that the proposed project could have an adverse impact on the environment of its traditional territory.

This Environmental Assessment (EA) is subject to Part 5 of the MVRMA, as well as the MVEIRB’s Environmental Impact Assessment Guidelines and the MVEIRB’s Rules of Procedure. These documents can be accessed at [www http://www.mveirb.nt.ca/reference_lib/guidelines.php](http://www.mveirb.nt.ca/reference_lib/guidelines.php).

The definitions of MVRMA section 111 apply in this document and throughout the EA. Terms not defined in the MVRMA are used in their general sense and do not imply specific activities or standards that may be associated with the term in other jurisdictions.

2 Scope of Development

The Review Board determines the Scope of Development to be as described in Paramount’s application for a land use permit to the Mackenzie Valley Land and Water Board of September 2, 2005 (MV2005B0021). The application can be accessed and downloaded from the MVLWB web site at:

<http://www.mvlwb.com/pdf/2005Land/MV2005B0021/MV2005B0021-LtrforReview-Paramount-2DSeismic-CameronHills-Sep05.pdf>

3 Scope of Assessment

The Scope of Assessment is the determination of which issues and items will be examined in the EA, as described in the ToR. The Review Board, in attempting to establish the Scope of Assessment, reviewed Paramount’s Land Use Permit Application to the MVLWB, as well as the comments submitted by government agencies and aboriginal groups regarding the application. The Review Board also gave consideration to the public record of the environmental assessment of Paramount’s Cameron Hills Extension Project (EA03-005).

To better understand the issues of concern and the information requirements of the parties who intend to participate in the EA, as well as to identify issues of public concern, the Review Board held a community issue scoping hearing in Hay River on February 28, 2006. A summary report of the community hearing is available on the MVEIRB's web site at:

http://www.mveirb.nt.ca/upload/project_document/1144266693_EA0506-007%20Issue%20Scoping%20Community%20Hearing%20Summary.pdf

Results from the community hearing, comments submitted from parties and the Review Board's own analysis are reflected in the items requested in Section 4 of this document.

Geographic Scope

The Review Board is aware that:

- Similar developments have taken place in close proximity within and outside the Mackenzie Valley;
- Woodland caribou ranges cross the NWT/Alberta border; and
- Traditional harvesting in the project area may not be limited to residents of the Mackenzie Valley.

Consequently, the geographical scope of this environmental assessment is set to include areas within or outside the Mackenzie Valley that:

- Are frequented by caribou that may be affected by the proposed development, and
- Include those communities that have traditionally harvested wildlife in the SDL8 area.

Pursuant to Section 140(1) the Review Board has notified the relevant authority in Alberta.

Temporal Scope

Temporal boundaries for this EA must be set according to potential future effects, rather than just for the duration of the SDL8 program. For example, the proposed line cutting activities may affect wildlife behaviour in the SDL8 for a long time after the seismic program is completed. Therefore the temporal scope is determined to include all phases of the SDL8, from mobilization to post-operation, until such time that no significant adverse impacts attributable to the Development are predicted to occur.

The scope of this EA will also include an examination of the cumulative impacts of past, present and reasonably foreseeable future developments. Such cumulative impacts will be assessed at a geographic and temporal scale appropriate to the particular environmental component under consideration.

4 Terms of Reference

4.1 Specific Items

A Use of Traditional Knowledge in the SDL8 Program

Preamble: *The Review Board attempts to ensure that aboriginal cultures, values and knowledge play an appropriate role in its determinations. The Review Board is committed to consider any traditional knowledge brought forward in its proceedings.*

- 1) Please describe the steps taken by the Developer to work with traditional knowledge holders to incorporate traditional knowledge into the proposed SDL8 program;
- 2) Please describe how traditional knowledge and traditional knowledge holders have influenced the Developer's project design, impact assessment, and mitigation measures; and
- 3) Please provide the Review Board with any plans for future cooperation between the Developer and traditional knowledge holders in order to further incorporate, where applicable, traditional knowledge. For example, this may include consideration of monitoring programs and mitigation efforts.
- 4) Please provide a summary of any traditional knowledge (or local knowledge) that is available to Paramount concerning the specific SDL8 area. This should include, but not necessarily be limited to:
 - a. Knowledge collected from the trappers who use the SDL8;
 - b. Information from Paramount's 2001 Traditional Knowledge Study; and
 - c. Any other TK sources available to Paramount that may be applicable (i.e. harvesters from northern Alberta).

B Description of the Existing Environment

Preamble: *While Paramount's LUP application to the MVLWB provides some biophysical description of the SDL8 area, the Review Board requires further information to help it in its determinations.*

- 1) Please provide the Review Board with a description of the surficial geology in the area, which should include, but not necessarily be limited to:
 - a. A discussion regarding the characteristics of glacial gravel deposits in the SDL8 area, including their size, depth from surface, composition and extent;
 - b. Maps which depict the surficial geology of the SDL8 area; and
 - c. Any other information regarding surficial geology characteristics in the SDL8 area which may have a potential influence on seismic exploration.

C Public Consultation

Preamble: *The purpose of public consultation is to provide those who might be potentially affected by the proposed development with the opportunity to participate in the EA. Consultation with any community, aboriginal group or other organization with interests related to areas that might be affected by the development should be considered in this section.*

- 1) Please provide an account, in the form of a consultation log, of the activities that Paramount has undertaken to inform the public and solicit opinion regarding the SDL8 program. The consultation log, in addition to identifying consultation dates, should give consideration to individuals and organizations consulted with, as well as discussion topics, a summary of views, and outcomes.

D Seismic Exploration Practices and Alternatives

Preamble: *The Review Board requires that Paramount further justify its intended approach to acquiring seismic data in the SDL8 area. Alternative approaches to conducting the seismic program should be considered in the DAR. The Review Board has listed a number of alternatives to carrying out the seismic program that should be considered in detail:*

- 1) Please discuss the methods of seismic exploration that Paramount has recently carried out in other parts of the Northwest Territories, Alberta or British Columbia, and compare and contrast these with best environmental practices in the industry. If the techniques differ from those proposed for the SDL8 area, please account for the differences.
- 2) Please discuss the availability of methods to reduce the width of seismic cutline for either dynamite- or vibroseis-based seismic exploration in the SDL8 area. If in Paramount's opinion, there is no opportunity to reduce cutline widths, please provide detailed justification for this.
- 3) Please justify the proposed windrow break frequencies suggested for the SDL8 program (400m). How does the proposed windrow break frequency compare to the best industry practices occurring in other parts of the Northwest Territories, Alberta or British Columbia?
- 4) Please describe what method of seismic exploration Paramount proposes to use in the steeply sloping western portion of the SDL8 area. How will the method mitigate against potential erosion and sedimentation in this area?
- 5) Please discuss the applicability of using helicopter-based seismic exploration to carry out the SDL8 seismic program. This discussion should include:
 - a. Seasonal factors in conducting a heli-seismic operation (i.e summer vs. winter);
 - b. Safety considerations (during all seasons);

- c. Potential effects to wildlife (during all seasons);
- 6) Please discuss the applicability of using low-impact seismic techniques to carry out the SDL8 seismic program. The discussion should include:
 - a. Use of low-impact drills (“enviro-drills”);
 - b. Use of hand cutting or tree mulchers to clear access;
 - c. Safety considerations;
 - d. Potential effects to wildlife;

E Impacts to the Human Environment

Preamble: *Assessment of the human environment (social, economic and cultural) is an important part of any EA in the Mackenzie Valley, in relation to both the identification of potential adverse impacts on the human environment and of public concern.*

- 1) Please provide a listing of all employment requirements for the SDL8 program for both vibroseis- and dynamite-based seismic programs.
- 2) Please discuss Paramount’s strategies, plans or commitments with respect to maximizing the proportion of the SDL8 workforce that are NWT residents, aboriginal persons, and residents of potentially-affected communities;
- 3) Please identify the contractor and subcontractor goods and services required for the SDL8 program with consideration to the opportunities for local businesses to supply the required goods and services for the proposed development. Discuss any plans, commitments or strategies Paramount has for maximizing business opportunities for NWT-based companies.
- 4) Please describe any potential direct and indirect effects that the SDL8 program may have on hunting, fishing, trapping and other activities for persons and organizations from the potentially-affected communities; and
- 5) Identify all measures required, and commitments made, by Paramount to mitigate against adverse effects on both traditional land use and resource harvesting from the land.

F Vegetation

Preamble: *Disturbance to vegetation in the SDL8 area, and its associated effects to wildlife habitat, were noted in the Hay River Community Scoping Hearings. The Review Board requests the following information regarding vegetation.*

- 1) Please discuss the suitability of the seed mixes, which Paramount employs for erosion control in the main Cameron Hills area, for use in the SDL8 area.

- 2) Based on the example of forest re-growth in the cutlines cleared in the 1960's in the SDL8 area, please discuss the following:
 - a. The amount of re-growth that has occurred in the SDL8 area on old cutlines, including a consideration of tree heights reached;
 - b. The amount of time that it will take for vegetation in the proposed cutlines to reach a climax [mature] stage.
 - c. The composition of the plant communities that have re-grown in the area;
 - d. The habitat value of the re-grown vegetation during vegetative succession following the program, and the wildlife species that prefer it, as compared to the habitat value of climax [mature] vegetation and the wildlife species that prefer it.
 - e. The quality of the future re-grown vegetation as it pertains to economic use;
 - f. The potential impacts to the forest health that re-clearing of the re-grown seismic lines may have, and the potential for this to lead to degradation of the area.

G Cumulative Effects

Preamble: Pursuant to Section 117(2)(a) of the MVRMA, the Review Board considers cumulative effects in its determination. The following items are required for consideration of cumulative effects:

- 1) Please identify which Valued Components of the environment may, in the opinion of Paramount, be affected by multiple human activities or developments.
- 2) Please identify past, present and reasonably foreseeable human activities (including but not limited to the activities of Paramount) that may affect the Valued Components identified above. In addition to describing these activities, include the following:
 - a. A discussion of human activities considered, but not included and the rationale for that decision; and
 - b. The rationale for activities you have included.
- 3) Please predict the combined effects of the developments identified in (2) on the Valued Components identified in (1). Your prediction should include but not be limited to the following:
 - a. Potential effects to the Valued Components of the environment likely to result from the proposed development in combination with past, present or reasonably foreseeable developments; and
 - b. The contribution of the SDL8 development to these larger cumulative effects.

- 4) Describe how Paramount plans to manage its activities to minimize or avoid contributing to these cumulative effects.

5 Assessment Process

Section Three of the MVEIRB Environmental Impact Assessment Guidelines describes the Environmental Assessment process in detail. This section will describe roles, milestones, deliverables and timing for this assessment.

5.1 Responsibilities

Review Board

The Review Board is required to undertake the following in relation to this EA:

- Conduct the EA in accordance with ss.126(1) of the MVRMA;
- Determine the scope of the development, in accordance with ss.117 (1) of the MVRMA;
- Consider environmental assessment factors in accordance with ss.117 (2) of the MVRMA;
- Make a determination regarding the environmental impacts or public concern about the development, in accordance with ss.128 (1) of the MVRMA;
- Report to the Federal Minister in accordance with ss.128 (2) of the MVRMA; and,
- Identify areas and extent of effects, within or outside the Mackenzie Valley in which the development is likely to have a significant adverse impact or be a cause of significant public concern, in accordance with ss.128 (4) of the MVRMA.

All submissions received from all sources will be considered during the Review Board's decision-making. Usually such submissions will be public documents and will be posted on the Public Registry. However, the Review Board may accept documents on a confidential basis if required. Submissions should be in a format that is easily available to all stakeholders and should follow any templates provided by the Review Board.

Review Board Staff

The Review Board's Executive Director and staff are the primary contacts for the Developer, government bodies (federal, territorial and municipal), non-government organizations (NGOs), aboriginal groups, expert advisors, the public and other interested parties. This does not limit or preclude the Developer from contacting other parties during the EA process. The Review Board may choose to hire expert advisors to provide technical expertise on specific aspects of the EA.

All related correspondence should be directed to the Environmental Assessment Officer for the EA:

Patrick Duxbury
Tel: (867) 766-7062; Fax: (867) 766-7074; e-mail: pduxbury@mveirb.nt.ca
P.O. Box 938 (5102 50th Ave)
Yellowknife, NT
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Developer

The Developer is expected to respond in a suitable and timely manner to directions and requests issued by the Review Board. Such requests may include presence and participation in a hearing and technical sessions, responding to information requests and the production of public information material (e.g. a presentation). The developer may present additional information at any time to the Review Board beyond what was requested during the EA process.

The Review Board encourages the developer to continue consulting all potentially affected communities and organizations during the environmental assessment process.

Parties

Organizations and individuals who want to play an active role in this assessment should fill out the party identification form. Party standing may be requested and granted at any time during the proceeding. However, the Review Board will not extend timelines to accommodate late joining parties. Party standing does not confer any legal status beyond the Review Board's proceeding. Parties may present information at any time during the environmental assessment and may be given an opportunity to submit information requests for Board approval. Parties may also be asked to provide the Board with technical analysis reports.

5.2 Deliverables

The following section lists and explains the various deliverables to be produced during the EA process. They are listed in the order they will be produced.

Public Registry, public notification, government notification, developer notification, expert advisor identification, identification of EA roles

The Review Board has initiated the notification measures required by the MVRMA. The Review Board has opened a Public Registry on the EA which is updated regularly. The Review Board will identify expert advisors if and as required. Please refer to Section 3.7 of the *Environmental Impact Assessment Guidelines* for further detail.

Developer's Assessment Report

Paramount will be responsible for submitting to the Review Board a DAR that will provide the information listed in Section 4 of these Terms of Reference. Paramount should use diagrams, charts and maps for clarifying information presented in the text where appropriate and should consider the use of a glossary for technical or uncommon terms.

Conformity Check, Review Board Deficiency Statement and Developer's Response

The Review Board will review the DAR to ensure that Paramount has provided the information required. If needed, the Review Board will issue a deficiency statement identifying those areas in which Paramount has not provided sufficient information to address an item listed in the Terms of Reference. Paramount will be asked to submit information to the Review Board to fill the information gaps identified by the deficiency statement. If the Review Board is not satisfied with the information received, it will halt the EA until it has received an adequate response. Please refer to Section 3.12 of the *Environmental Impact Assessment Guidelines* for details.

Information Requests and Responses to Information Requests

Information Requests (IRs) are specific and focused requests for clarification or additional information. They may be required for the Review Board to complete its analysis and reach a conclusion about the information provided by Paramount. The first round of IRs issued will be developed by the Review Board. The second round will be open to all EA participants.

IRs can be issued by any party in the EA and can be directed to any other party. However, all IRs must be submitted to the Review Board for approval and they must also be submitted in the form required by the Review Board. If approved, the Review Board will then issue the IR under its authority to the intended IR recipient. The IRs and the responses will be included in the Public Registry and be used as evidence for the consideration of the Review Board. See Section 3.14 of the *Environmental Impact Assessment Guidelines* for details.

Roundtable Technical Meeting(s) Report

The Review Board may choose to hold a roundtable technical meeting to permit a face-to-face question and answer sessions between Paramount, parties and Review Board staff. In advance of a roundtable technical meeting, parties will submit their questions/comments to Paramount, or to other parties, by way of the Review Board, to allow Paramount or parties sufficient time to develop a response. To ensure a fair process, the Review Board exercises discretionary control over what issues may be brought forward in the meeting. Review Board staff will ensure that a record of the meeting is made. Following the meeting, the Review Board will issue a report that details the nature of the proceedings and any technical issues that were identified, discussed, resolved or left outstanding.

Technical Reports from EA parties

The Review Board and its staff will undertake the analysis of the EA with the assistance of federal and territorial governments, aboriginal groups, the public, and other interested parties. As part of this analysis, the Review Board may opt to request technical reports from EA parties. The purpose of such technical reports is to offer parties an opportunity to clearly state their conclusions, recommendations and supporting rationales. See Section 3.13 of the *Environmental Impact Assessment Guidelines* for details.

Public Hearing

If it believes that it will help in its determinations, the Review Board may choose to hold a public hearing to address outstanding issues that have been raised as part of the EA. The public hearing will offer an opportunity for the Developer, aboriginal groups, the public and government parties to directly address the Review Board with evidence regarding the potential impacts of the proposed project. Following the hearing, the public record for the environmental assessment may be closed and the Review Board will begin its final deliberations, culminating in a Report of Environmental Assessment.

Review Board's Report of Environmental Assessment (EA Decision)

The Review Board will provide the Minister of Indian and Northern Affairs Canada (INAC) with its Report of Environmental Assessment as per Section 128(2) of the MVRMA. The Minister of INAC will distribute the report to every responsible minister as per Section 128(2)(a) of the MVRMA. The developer and the other EA parties will also receive copies of the Review Board's Report of EA. See Section 3.16 of the *Environmental Impact Assessment Guidelines* for details.

5.3 Work Plan Schedule

Table 2 provides **estimated** time lines for the completion of each milestone in the EA. The Review Board may amend the schedule at its discretion.

Table 2 – Work Plan	
Timeframe	Activity/Milestone
December 2005	Work Plan issued
Late February 2006	Community Hearing
April 2006	Issuance of ToR and Work Plan
April 2006	Issuance of round I Information Requests
May 2006	Expected submission of DAR and conformity check
May 2006	Round I Information Requests responses

May 2006	Issuance of round 2 Information Requests
June 2006	Round 2 Information Requests responses
June/July 2006	Technical Reports or Technical Sessions (if required)
July/August	Public Hearing (if required)
Late August 2006	Board Deliberation and Decision

The work plan and schedule are subject to change and will be adjusted by the Review Board depending on information needs identified throughout the proceedings.