



Northwest Territories Resources, Wildlife and Economic Development

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MACKENZIE VALLEY
ENVIRONMENTAL IMPACT
REVIEW BOARD

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Mr. Luciano Azzolini
Environmental Assessment Officer
Mackenzie Valley Environmental Impact Review Board
P.O. Box 938
2ND FLOOR SCOTIA CENTER
YELLOWKNIFE NT X1A 2N7

Dear Mr. Azzolini:

**Government of the Northwest Territories (GNWT) Technical Review of the
Paramount Cameron Hills Drilling Project Environmental Assessment Report**

Please find enclosed the comments submitted by the GNWT for the consideration of the Mackenzie Valley Environmental Impact Review Board with respect to the above environmental assessment.

If you require any further clarification of the information provided, do not hesitate to contact Mr. Brett Hudson, Environmental Assessment Analyst at 920-6392. Thank you for the opportunity to participate in this assessment. We look forward to receiving your recommendations respecting the project in the near future.

Sincerely,

Robert McLeod
Deputy Minister

Enclosure

c: Mr. Brett Hudson
Environmental Assessment Analyst
RWED



**TECHNICAL REVIEW OF THE ENVIRONMENTAL
ASSESSMENT REPORT FOR PARAMOUNT'S CAMERON
HILLS DRILLING PROJECT**

Submission to:

**Mackenzie Valley Environmental Impact Review Board
Yellowknife, NT**

Submitted by:

Government of the Northwest Territories

AUGUST, 2001

Introduction

The Department of Resources, Wildlife and Economic Development (RWED), on behalf of the Government of the Northwest Territories (GNWT), has conducted a technical review of the Environmental Assessment Report submitted by Paramount Resources Ltd. for their Cameron Hills drilling project. The project involves drilling up to 9 new natural gas wells, which would be flow tested along with 6 existing wells. The purpose of the program is to gain further information on the gas reserves in the Cameron Hills area. Associated components of the project include re-establishment of an existing access road from Highway 3, additional winter roads along existing cut lines, borrow pits and sumps, construction of 6 temporary campsites, and water use from lakes and wells.

The proposal was referred to the Mackenzie Valley Environmental Impact Review Board (MVEIRB) for an environmental assessment on November 20, 2000. The GNWT participates in environmental assessments in order to fulfill its mandate to enhance the socio-economic well being of the people of the NWT, and the mandate shared with the federal government for the management and protection of the environment. The Environmental Assessment Report (EAR) has therefore been reviewed where project impacts have the potential to directly impact areas of GNWT responsibility, or where expert advice is available from GNWT staff. Accordingly, the following line items of the final Terms of Reference issued by the MVEIRB on June 15, 2001 have been reviewed by the GNWT.

Environmental Assessment Methodology.
Environmental Considerations in the Development Design.
Accidents and Malfunctions.

Existing Environment

Vegetation and Plant Communities.
Water Quality and Quantity.
Wildlife and Wildlife Habitat.
Culture and Heritage Resources.
Socio-Economics.
Land and Resources Use.
Noise.

Potential Impacts and Residual Impacts After Mitigation

Air Quality and Climate.
Vegetation and Plant Communities.
Water Quality and Quantity.
Wildlife and Wildlife Habitat.
Culture and Heritage Resources.
Socio-Economics.

Land and Resources Use.
Noise.
Cumulative Effects, Natural Environment.
Cumulative Effects Socio-Economic Environment.
Abandonment and Reclamation.
Follow Up Programs.

The following technical report will discuss the adequacy of the proponent's EAR, including their responses to information requests that were submitted on July 27, 2001. Although the GNWT has reviewed all the terms of reference noted above, the technical review discusses only those items where the GNWT wishes to provide comment. Where no comments are provided, the MVEIRB may conclude that the GNWT is satisfied that the information provided by the proponent is sufficient to support their conclusions regarding environmental impacts. As a result of our technical review, the GNWT has concluded that the project is not likely to cause significant adverse socio-economic or environmental impacts with the implementation of the mitigation measures set out by the proponent.

Air Quality and Climate

The GNWT has reviewed Paramount's air quality modeling information in the June 2001 EAR and finds that the proponent has properly modeled air quality impacts. Conservative assumptions were employed, and the GNWT agrees with the proponent that no significant impacts on air quality will result provided that the following conditions are met.

A gas analysis should be conducted to verify the amount of H₂S (hydrogen sulfide) that will be flared. In the Alberta Energy Utilities Board (EUB), Guide 60, it states *"If a recent gas analysis (taken within a 12-month period) for the well is not available, an on-site H₂S analysis (conducted by Tutweiler or gas chromatography methods) must be conducted upon commencement of flaring. If the H₂S content in the gas is found to exceed 50 moles of H₂S per kilomole of gas, operations must be suspended and a written application to flare the gas must be submitted to the EUB"*.

RWED recommends that if the H₂S content in the gas is found to exceed 50 moles of H₂S per kilomole of gas, then Paramount should be required to suspend operations and revise the air quality modeling. The analysis conducted should be supplied to the MVLWB and RWED.

If it is demonstrated that the flaring activities are having an impact on the environment, or if a concern with the flaring is raised, the GNWT suggests that Paramount should install air-monitoring equipment to record contaminant deposition rates & ambient air quality.

Abandonment and Restoration

The proponent has stated its intention to reclaim all sites associated with the project to a condition that promotes revegetation and does not impair pre-disturbance land use activities (August 2000 EAR, p. 70). Further, the proponent intends to allow natural revegetation to proceed, and to seed areas with non native species only where erosion problems are likely to develop.

The GNWT accepts these measures as the most practical for reclaiming disturbed sites. However, the GNWT suggests that Paramount should undertake proactive abandonment and restoration of their leases. Operational leases should be reduced in size to leave the smallest possible footprint. Paramount has committed to conducting inspections subsequent to project completion to assess the success of revegetation (August 2000 EAR, p. 70). RWED supports this intention, and recommends that a copy of the revegetation assessment be provided to the Department.

Paramount indicates in its response to information requested by Environment Canada that it intends to dispose of drilling wastes to sumps, that will be reclaimed by the mix-bury-cover method. Methods will adhere to EUB Guide 50 and 58 for drilling waste (IR Response, July 27, 2001). The GNWT supports this commitment, as EUB Guide 50 requires operators to test drill waste liquids for contaminants.

Wildlife and Wildlife Habitat

Description of Existing Environment

RWED notes a minor inaccuracy in the list of mammals provided by the proponent. In Table IV-2 the proponent lists caribou (*Rangifer tarandos groenlandicus*) as a common sub-species in the region. This species of caribou is a species of barren ground caribou and should be replaced with *Rangifer tarandus caribou*, which is the woodland caribou sub-species common to the region.

Impact Assessment

The dispersion modeling results provided by Paramount in Section 9.4 of the June, 2001 report indicate that the ground level impacts should be below the established air quality criteria. On this basis, the proponent concludes that no impacts on wildlife and wildlife habitat relating to flaring and venting are anticipated (section 9.6.2, June, 2001). The GNWT agrees that air emissions from flaring and venting are not likely to cause impacts on wildlife or wildlife habitat. However, the proponent acknowledges that negative, but not significant impacts on wildlife are predicted, relating to disturbance and habitat fragmentation (p. 59, August 2000 EAR).

The GNWT notes that the project will be carried out in an area that is considered prime habitat for neither caribou nor moose. While moose may benefit to some extent from the emergence of early successional vegetation that occurs as a result of clearing, caribou will not. Caribou prefer mature forest stands and fen complexes, which will to some extent be modified by the proposed project. Additional impacts due to disturbance are also predicted. However, given the limited extent of development in the area and the limited duration of the project, the GNWT does not expect that these impacts will have significant effects on the woodland caribou population in the Cameron Hills.

Cultural and Heritage Resources

The proponent contracted an archaeologist from Golder Associates to conduct a heritage impact assessment of the proposed project development areas during the summer of 2000. In addition to the EA documents the GNWT has also reviewed the archaeologist's field report. Based on this review we are confident that the proponent has demonstrated that there is very little likelihood that heritage resources will be impacted as a result of the project.

However, all proponents, once permitted, should be reminded to proceed with caution, and report any archaeological sites accidentally uncovered during the course of operations to the appropriate land authority. Work at the discovery should cease until it is inspected. Paramount has stated its commitment to adhere to this procedure with respect to the proposed new well sites (August 2000 EAR, p. 47). The GNWT recommends that this procedure be respected for all project elements requiring new disturbance.

Accidents and Malfunctions

The proponent notes that the probability of a serious accident resulting in a release to the environment or human injury is very low (June, 2001 EAR, p. 23). Further, the proponent has prepared an Emergency Response Plan for the project (August, 2000 EAR, p. 73). However, the GNWT recommends that a site specific Spill Contingency Plan should be supplied with each Land Use Permit and Water License application. These plans should provide specific instructions to employees about how to proceed in the case of a spill, taking into account site specific topography, soils, etc.

Socio-Economic Impacts

The proponent states that the proposed Project will consist of a short period of relatively intense activity during drilling. Due to the self contained nature of the camp and the short duration of the project, no adverse effects from social interaction are expected. The socio-economic effects predicted for the drilling and evaluation project are primarily related to short-term employment and contracting opportunities for northerners and northern businesses, and localized, short-term impacts to traditional land use at the project work sites. When all factors are combined, the overall socio-

economic effects are predicted to be positive and sub-regional, but short term, low in magnitude and not significant (EAR, June, 2001, p. 16). Paramount is committed to utilizing northern labour and business contractors as much as practical to meet the demands of the Project.

The GNWT submitted an information request seeking clarification of the total number of employees, and the number of those expected to be sourced from local communities. The proponent replied that such information was not available at this time, as the scope of the project is dependent upon the success of the initial wells (IR Response, July 27, 2001). Therefore, the GNWT concludes that the socio-economic impacts of the project are uncertain, although they are likely to be positive and insignificant in a regional context. The GNWT appreciates that the proponent plans to implement a reporting system to track northern employment and business expenditures associated with this project (EAR, June, 2001, p.17), and recommends that the proponent produce such a report and provide it to the GNWT. This information will be useful in assessing the effects of similar projects in the future as oil and gas development in the region continues.

Cumulative Effects Assessment

Natural Environment – Wildlife

The proponent notes that all existing and possible future project related disturbance to habitat would be approximately 1,141.67 ha, or 1.35% of the Cumulative Effects Study Area (June 2001 EAR, p. 73). The proponent goes on to discuss the effects of disturbance on caribou, who exhibit some avoidance of project related elements (June 2001 EAR, p. 77). The proponent correctly notes that avoidance of human activities by caribou varies with the season. Generally, caribou use of areas immediately adjacent to the disturbance is reduced in the late winter, but increases in the summer. However, the proponent has not taken the next step in the analysis of cumulative effects to provide a quantitative estimate of reduced habitat effectiveness for caribou as a result of the observed avoidance behaviour.

Existing research suggests that during the late winter, a critical season for caribou survival, caribou avoid project features such as rights of way and well sites over a buffer zone of approximately 100 meters around the disturbance. Therefore, the GNWT notes that caribou will experience reduced habitat effectiveness over a much larger area than that represented by the direct area of disturbance calculated by the proponent (1,141.67 ha).

Nevertheless, in light of the relatively low levels of development in the Cameron Hills at present, the disturbance, including that of the buffer zone, will not reduce habitat effectiveness on a regional scale to such an extent that a negative impact on woodland caribou would be likely. However, in light of the possibility of future projects occurring in the Cameron Hills, it would be of value to future resource

management to conduct a thorough habitat effectiveness assessment for the region. This would enable managers to provide a quantitative estimate of the decrease in habitat effectiveness that can be expected from those future projects.

Conclusion

RWED has confined its technical review of the proposed project to areas that are within the mandate of the GNWT, or areas in which RWED staff are able to provide expert advice. Upon review of the proponent's EAR and responses to Information Requests, the GNWT is satisfied that the proposed project will not result in significant adverse impacts on the environment, provided that the mitigative measures committed to by the proponent in their EARs are adhered to.

Summary of Recommendations:

If the H₂S content in the gas is found to exceed 50 moles of H₂S per kilomole of gas, Paramount should be required to suspend operations and revise the air quality modeling. The analysis conducted should be supplied to the MVLWB and RWED.

If it is demonstrated that the flaring activities are having an impact on the environment, or if a concern with the flaring is raised, the GNWT recommends that Paramount should install air-monitoring equipment to record contaminant deposition rates & ambient air quality.

Paramount should undertake proactive abandonment and restoration of their leases.

Paramount should complete the proposed monitoring program to assess the success of revegetation efforts, and provide a copy of the report to RWED.

Paramount should adhere to a EUB Guide 50 protocols for the disposal of drilling waste, including testing waste liquids for contaminants.

The GNWT recommends that the proponent stops work and contact the Prince of Wales Northern Heritage Center in any instance where work reveals the existence of heritage resources.

The GNWT recommends that the proponent complete its program to monitor northern business participation and employment achievements related to the project, and provide such a report to the GNWT.