

**TECHNICAL REVIEW OF THE ENVIRONMENTAL
ASSESSMENT REPORT FOR CANADIAN ZINC MINERAL
EXPLORATION PROGRAM AT PRAIRIE CREEK MINE**

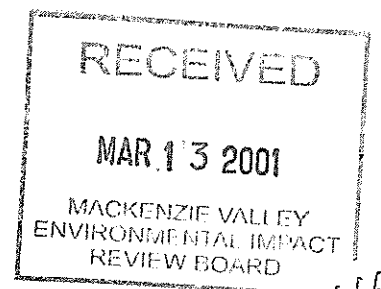
Submission to:

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

Submitted by:

Government of the Northwest Territories

MARCH 12, 2001



Introduction

The Department of Resources, Wildlife and Economic Development (RWED), on behalf of the the Government of the Northwest Territories, has conducted a technical review of the Environmental Assessment Report submitted by Canadian Zinc Corporation for a proposal to diamond drill six or seven holes of 500m each from the surface on the existing mine site. The purpose of the project is to delineate the area of known mineralization at the Prairie Creek property. This information will be combined with results from a further drill program planned for the summer of 2001 to provide information for a feasibility study to attract financing.

The proposal was referred to the Mackenzie Valley Environmental Impact Review Board (MVEIRB) for an environmental assessment on October 4, 2000. The Government of the Northwest Territories (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 Government of the Northwest Territories also participates in environmental assessment through the provision of expert advice on areas within its mandate. The Environmental Assessment Report 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 Terms of Reference issued by the MVEIRB on December 22, 2000 have been reviewed by the GNWT.

- 4.1.1 Air quality
- 4.1.2 Terrain
- 4.1.3 Vegetation and plant communities
- 4.1.4 Water quality and quantity
- 4.1.5 General water
- 4.1.7 Wildlife and habitat
- 4.1.8 Culture and heritage resources
- 4.1.9 Land and resources use
- 4.1.10 Economy
- 4.1.11 Noise
- 4.2.5 Accidents and malfunctions
- 4.2.7 Alternatives
- 4.2.8 Closure and reclamation

The following technical report will discuss the adequacy of the proponent's Environmental Assessment Report, including their responses to information requests that were submitted on February 6, 2001. Although RWED has reviewed all the terms of reference lines noted above, the technical review will

discuss only those items where the GNWT wishes to provide comment. Where no comments are provided, the Mackenzie Valley Environmental Impact Review Board 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 suggested below.

Air Quality

Section 4.1.1 of the Terms of Reference directed the proponent to report on impacts of the proposed development on air quality. This was to include a discussion of measures to minimize the emission of contaminants, including dust. Based on the project description submitted in the proponent's EAR, (Canadian Zinc EAR, p. 6) the GNWT had raised concerns with the generation of airborne particulates if air were used as a circulating aid rather than water. If air were to be used for drilling, dust generation would be substantially greater than if the drill rig employed water or other drilling fluids.

In response to an information request, the proponent has clarified that use of air for drilling was only intended as a general description of diamond drilling processes, and not as a description of the proposed methods employed on the project. The proponent states that water will, in fact, be the only circulating fluid used during the drilling process. The GNWT suggests that the exclusive use of water as a circulating fluid for the drill process be included as a condition of project approval in order to minimize dust emissions. With this mitigative measure, the GNWT is satisfied that no significant environmental impacts will result.

Vegetation and Plant Communities; Wildlife Habitat

Terms of Reference section 4.1.3 directed the proponent to discuss impacts on vegetation and plant communities, and long term direct and indirect habitat loss or alteration. Section 4.1.7 of the Terms of Reference required a discussion of direct and indirect impacts on wildlife and their habitat. The proponent responded by concluding that impacts on local plant communities would be negligible, as "minimal clearing will be required" and no rare or highly valued species are located in the area (Canadian Zinc EAR, p. 11). Wildlife impacts were similarly predicted to be negligible. This conclusion was based on the fact that the drill program will take place on a previously disturbed mine site. The most frequently observed species in the area is Dall's sheep, which were said to be habituated to activity at the mine. Grizzly bears and wolverine have also been occasionally observed in the vicinity. These species are listed by COSEWIC as Special Concern (Canadian Zinc EAR, p. 13).

The proponent did not, however, provide any quantitative assessment of the amount of vegetation and wildlife habitat that would be lost or altered, directly or indirectly, as a result of the proposed drill program. The GNWT submitted an information request seeking a quantification of direct and indirect cumulative habitat loss. The proponent was requested to provide an analysis of the extent of vegetation cover loss using current habitat suitability and classification techniques.

The proponent replied to this request on February 16, noting that comprehensive vegetation and wildlife habitat assessments were conducted in 1981 as part of the environmental assessment process under which the mine was originally permitted. At that time, the Prairie Creek minesite was determined to be located within a spruce/lichen vegetation unit that covered 30,819 ha (308,190,000 m³). Historical disturbance has removed approximately 40 ha from this landscape unit, and the proposed project would result in the additional direct loss of a maximum of 2100 m³.

The spruce/lichen zone in the Prairie Creek area is classified as fair Dall's sheep range, good caribou winter range, and fair moose habitat along the river bottom. However, the main species observed near the site has been Dall's sheep. Caribou and moose were only rarely observed. Based on this response, the GNWT concurs with the proponent's conclusion that minimal impacts on wildlife and vegetation will result from the proposed drilling program. It should be noted however, that the proponent did not provide an assessment of indirect habitat loss that would result from disturbance effects. RWED is prepared to participate in a preliminary site reconnaissance prior to the commencement of operations to assist in the evaluation of wildlife presence and response to disturbance.

Furthermore, the baseline inventories for wildlife and wildlife habitat in the Prairie Creek area on which the proponent relies are now 20 years old. It does not appear that habitat effectiveness models were used during the original assessment to determine reduced habitat availability. Should the mine re-open, new baseline inventories and impact assessments will need to be carried out within a cumulative effects framework for the purpose of impact assessment and effects monitoring. It should also be noted that the Environmental Evaluation for the Prairie Creek Project (1980) recommended additional surveys to better define winter range and calving and lambing areas for caribou and sheep. This work was not carried out. RWED suggests for future reference that should the proponent apply for permits to bring the mine into production, a new, comprehensive assessment of impacts on wildlife should be required, including completion of the above noted studies.

Since this development occurs in bear country, and grizzly bears have been observed in the mine area, the proponent should make every effort to avoid

bear/human interactions. RWED recommends that the proponent be required to follow proper food handling and garbage disposal procedures to reduce the likelihood that bears will be attracted to the operation. Combustible food waste should be completely burned in a forced-air, diesel fired incinerator daily, and the residue should be either removed off site or buried at the on-site landfill. It is also recommended that the proponent prepare a bear response plan to prepare project personnel to deal with problem bear situations. Further information on camp management to avoid bear encounters is available from RWED's Deh Cho regional office.

Water Quality

Terms of Reference items 4.1.4 and 4.1.5 direct the proponent to report on the impacts of the development on water quality and quantity, including contaminant loading and dispersion. The proponent notes that drilling utilizes very little water, and that water used in drilling will be directed to a sump to settle out cuttings. The planned drill activity will occur near Harrison Creek, which is usually dry during the summer when the drilling will occur (p. 11).

With respect to the impacts of the camp facilities on water quality, the proponent notes simply that sewage is discharged into a septic sump located in floodplain sands and gravels, downgradient from drinking water supplies. RWED requested that the proponent provide further details about the capacity of the sump to accommodate the anticipated volumes from all planned camp operations in 2001, its imperviousness to ground and surface water flows, and its location relative to water bodies.

The proponent replied to the information request noting that the anticipated number of people using the mine camp in the summer of 2001 varies between 20 and 25, but the maximum could be as high as 35. The existing sump was constructed in 1991-92 to support the low levels of activity associated with care and maintenance programs. As many as 20-25 people have been on site, and the sump has performed adequately with this volume of waste according to DIAND inspection reports.

However, the design of the sump is such that sewage and grey water exfiltrates through porous gravel deposits to groundwater. The sump is located 115m away from the crest of the dike separating the plant site from Prairie Creek. Due to the fact that no groundwater testing has been done or is planned, the impact of the sewage system on the quality of water entering Prairie Creek is unknown. Given the high variability in the number of people expected on site, the fact that the sump water exfiltrates into ground water, and the fact that no testing has been done, RWED recommends that the proponent be required to adopt sewage management systems similar to those used by licensed oil and gas operators in

the Liard Valley and Nahanni Butte areas. Further information on sewage containment and land farming methods is available from the DIAND Fort Simpson District office.

Conclusion and Summary of Recommendations

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 Environmental Assessment Report and responses to Information Requests, the GNWT is satisfied that the proposed drilling project will not result in significant adverse impacts on the environment, provided that the recommendations for mitigation summarized below are implemented.

1. RWED recommends the exclusive use of water as a circulating fluid for the drill process be included as a condition of project approval in order to minimize dust emissions.
2. RWED recommends that the proponent be required to follow proper food handling and garbage disposal procedures to reduce the likelihood that bears will be attracted to the operation. Combustible food waste should be completely burned in a forced-air, diesel fired incinerator daily, and the residue should be either removed off site or buried at the on-site landfill.
3. RWED recommends that the proponent prepare a bear response plan to prepare project personnel to deal with problem bear situations. Further information on camp management to avoid bear encounters is available from RWED's Deh Cho regional office.
4. RWED recommends that proponent be required to adopt sewage management systems similar to those used by licensed oil and gas operators in the Liard Valley and Nahanni Butte areas. Further information on sewage containment and land farming methods is available from the DIAND Fort Simpson District office.