

File.

# Mackenzie Valley Environmental Impact Review Board

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May 7, 2001

Box 938  
200 Scotia Centre, (5102-50th Avenue)  
Yellowknife, NT X1A 2N7  
Fax: (867) 920-4761

MVEIRB file: EA00-002

The Honourable Robert D. Nault, P.C. M.P.  
Minister  
Indian and Northern Affairs  
MINISTER'S OFFICE  
10 Wellington St North Tower  
Hull, P.Q., Canada  
K1A 0H4

Dear Mr. Nault,

The Mackenzie Valley Environmental Impact Review Board (Review Board) is pleased to convey its *Report of Environmental Assessment* for the proposed Canadian Zinc Corporation mineral exploration drilling program. The *Report of Environmental assessment* constitutes the Review Board's written reasons pursuant to s.121 of the Mackenzie Valley Resource Management Act (Act).

As required by ss.128(2) of the Act the *Report of Environmental Assessment* has been provided to the Canadian Zinc Corporation and the preliminary screeners.

Sincerely,



Gordon Lennie  
Chairperson

Attachment

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|  |                                    |                |
|--|------------------------------------|----------------|
| Roland Semjanovs   | A/Executive Director               | (867) 873-9029 |
| Bridgette Larocque   | Finance and Administration Officer | (867) 873-5257 |
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# Mackenzie Valley Environmental Impact Review Board

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May 7, 2001

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Yellowknife, NT X1A 2N7  
Fax: (867) 920-4761

By Fax 1-604-688-2043  
File: EA00-002

Mr. Alan Taylor  
Vice-President Exploration  
Canadian Zinc Corporation  
Suite 1202  
700 West Pender Street  
Vancouver, BC V6C 1G8

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As required by ss.128(2) of the *Mackenzie Valley Resource Management Act* (Act), the Minister of Indian Affairs and Northern Development and the preliminary screeners have been provided the *Report of Environmental Assessment*.

Sincerely,



Gordon Lennie  
Chairperson

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Mackenzie Valley Environmental Impact Review Board

Reports of Environmental Assessment  
On the

Canadian Zinc Corporation

Mineral Exploration Drilling Program

May 5, 2001

Mackenzie Valley Environmental Impact Review Board  
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**Mackenzie Valley Environmental Impact Review Board**

**Executive Summary**  
**Report of Environmental Assessment on the Proposed Development of  
the Canadian Zinc Corporation Mineral Exploration Drilling Program**

The Review Board has been guided by the principles outlined in sections 114 and 115 of the *Mackenzie Valley Resource Management Act* (MVRMA or Act) throughout this environmental assessment (EA). These include the need to protect the environment from significant adverse impacts, and to protect the social, cultural and economic well-being of residents and communities in the Mackenzie Valley. Having considered the views and concerns of the participants in this process, and the evidence on the public registry, the Review Board made its decisions according to section 128 of the *Mackenzie Valley Resource Management Act*.

The Review Board recommends approval of the proposed development. The Review Board concludes that the development is not likely in its opinion to have any significant adverse impact on the environment or to be a cause of significant public concern. This decision is taken under section 128(1)(a) of the Act.

The Review Board has made this decision based on the commitments and undertakings to mitigate environmental impacts made by the Canadian Zinc Corporation. If these measures are not implemented, the Review Board's conclusions about impact significance could be affected.

Mackenzie Valley Environmental Impact Review Board  
April 5, 2001.



## Mackenzie Valley Environmental Impact Review Board

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## **Mackenzie Valley Environmental Impact Review Board**

### **1 General Information**

This section of the Report of Environmental Assessment summarizes the development proposal under consideration, the roles and responsibilities of the Mackenzie Valley Environmental Impact Review Board (Review Board or Board) and the environmental assessment process to which the development proposals was subject.

Canadian Zinc Corporation applied for regulatory approval on July 28, 2000 to the Mackenzie Valley Land and Water Board (MVLWB) in support of activity in and around its Prairie Creek minesite proposed for the fall of 2000. The land use operations proposed under the application were two-fold: firstly, to undertake additional surface exploration drilling of up to seven (7) holes in an area close to the existing underground workings; and, secondly, to recover a cache of diesel fuel left over by previous operators dating back to 1982 when the mine was under construction. Following preliminary screening, the application (MV2000C0030) was referred to the Mackenzie Valley Environmental Impact Review Board for further assessment.

The Mackenzie Valley Environmental Impact Review Board is responsible for the assessment of the environmental, socio-economic and cultural impacts of the proposed development according to Part 5 of the *Mackenzie Valley Resource Management Act*. The Review Board has completed its environmental assessment of the proposed mineral exploration drilling development. The Board considered the benefits of the proposed development to the residents of the Mackenzie Valley and Canada in light of the possible environmental effects of the development and the public concerns expressed during the environmental assessment process.

This report constitutes the reasons for decision of the Review Board and the report of environmental assessment and recommendations required by the Act.

### **2 Referral of the proposed development to the Review Board**

The Prairie Creek Mine is 100% owned and operated by Canadian Zinc Corporation of Vancouver, British Columbia (BC). The Mine is located in the southern Mackenzie Mountains in southwestern Northwest Territories in the area claimed by the Nahanni Butte Dene Band of the Deh Cho First Nations as their traditional territory. A preliminary screening of the proposed development was initiated on July 28, 2000 in accordance with the MVRMA. On October 4, 2000 the MVLWB referred the development proposal to the Review Board, in accordance with ss.126(1) of the MVRMA, citing the following reasons for the referral:

*Referral of the development proposal to the MVEIRB due to the likelihood of the development to have a significant adverse impact on the environment and due to a high level of public concern expressed about the proposal.*

By letter dated October 11, 2000 the Review Board formally notified regulatory bodies of the referral and initiated work planning for the EA. The Review Board is required by s.126 of the MVRMA to conduct an



## **Mackenzie Valley Environmental Impact Review Board**

EA of the development proposal. The Review Board decided on October 30, 2000, to separately assess each of the land use operations treating them as separate developments.

### ***2.1 The Mackenzie Valley Environmental Impact Review Board***

The Mackenzie Valley Environmental Impact Review Board administers Part 5 of the MVRMA and has decision-making responsibilities in relation to the proposed developments. The Board must conduct an environmental assessment of the proposed developments in accordance with subsection 117(2) of the MVRMA. The Board is also required to prepare and submit its report of environmental assessment in accordance with ss.128(2), a decision under ss.128(1), and written reasons, required by s.121, to the Federal Minister of the Department of Indian Affairs and Northern Development (DIAND).

As part of its environmental assessment, the Review Board considered the following reports:

- project Description for the proposed development of the Cat Camp Fuel Cache and Mineral exploration and the Drilling Program, filed in October 2000;
- environmental Assessment Reports (EARs) for the Mineral Exploration Drilling Program, filed in January 2001;
- Information Requests and responses dated February and March 2000;
- relevant sections of the 1980 Prairie Creek Project, Environmental Evaluation for Cadillac Explorations Limited.; and,
- all of the information contained in the public registry established for this assessment.
- A complete list of the contents of the public registry and the documents considered during the preparation of this report is available from the Mackenzie Valley Environmental Impact Review Board.

## **3 General description of the development environment**

The Prairie Creek Mine is located in the southern Mackenzie Mountains in the southwest corner of Northwest Territories at 61° 33' north latitude and 124° 48' west longitude. The mine site facilities are situated adjacent to Prairie Creek about 43 km upstream from its confluence with the South Nahanni River and 32 km upstream of the point where Prairie Creek crosses the boundary of the Nahanni National Park Reserve. The minesite is located within the Alpine Forest-Tundra section of the Boreal Forest characterized by stunted black spruce with limited undergrowth and open areas dominated by lichen.

The minesite is at an elevation of 850 meters above sea level and is situated in topography characterized by low mountains and narrow valleys with an average relief of 300 meters. Short summers and long winters are typical of the area's sub-arctic climate, where the mean annual temperature is -5°C. Annual precipitation is approximately 40cm, most of which falls as rain. The regional climate can be characterized by information from communities around the park. At Fort Liard, temperatures have ranged from +34 to -46.7°C; at Tungsten +26.7 to -50.0°C. July and August typically have the highest total precipitation (60-90 mm); February and March the least (20 mm). Spring is generally drier than autumn. Despite the averages cited, occasional large-scale summer storms can provide general and widespread precipitation of two to three days duration. Due to the rapid runoff encountered in mountainous terrain, the South Nahanni and its tributaries are subject to relatively rapid flooding, particularly if such rains coincide with the spring



## **Mackenzie Valley Environmental Impact Review Board**

freshet, as occurred in 1999.

The property is within the area claimed by the Nahanni Butte Dene Band of the Deh Cho First Nations as their traditional territory. The nearest settled communities are:

- Nahanni Butte, NT - 90 km to the south-east
- Fort Liard, NT - 170 km to the south
- Fort Simpson, NT - 180 km to the east
- Yellowknife, NT - 480 km to the east

Land management responsibilities for the region are shared among the Department of Resources, Wildlife and Economic Development (RWED) of the Government of the Northwest Territories (GNWT), the Department of Indian Affairs and Northern Development, and the Deh Cho First Nations (DCFN), all of whom have offices in Fort Simpson. Local First Nation organizations, which assume varying degrees of land management responsibility in the region, include the Liidlii Kue First Nation (Fort Simpson), Acho Dene First Nation (Fort Liard) and Nahanni Butte Development Corporation (Nahanni Butte).

Extraction industries in the area include forestry and mining activity. There are forestry operations expanding into the region from the south, from Fort Liard to Nahanni Butte along the Liard River valley. The Mackenzie Mountains is a heavily mineralized area and claims are staked for gold, tungsten, silver, lead and zinc. Tungsten, a mine on care and maintenance with its adjacent townsite is located northwest of the proposed development. It has a mineable ore body and requires an improvement in tungsten prices to go back into operation. An abandoned mine site with buildings on-site and previous road access, exists at Lened Creek in the upper South Nahanni watershed.

The different levels of government account for the majority of employment in the region. Work associated with the oil and gas pipeline and other resource development provides many additional local employment opportunities. Current resource development, particularly oil and gas exploration in the Fort Liard area represents a significant potential for change in the regional socio-economic environment. Local prosperity and improved road and air access to the Nahanni area may affect the affordability, pattern and frequency of access by traditional users and others. Increasing tourism pressure is anticipated.

## **4 Development description**

This section summarizes the scope of development and scope of assessment for the environmental assessment of the proposed Mineral exploration Drilling Program.

### ***4.1 Drill Program***

The principal development is an exploration program to drill up to seven (7) exploration holes in an area adjacent to the existing underground workings on land for which active mining leases exist. Accessory developments and activities associated with the development proposal include using an existing tote road to access the drill sites, using water from a local water supply for drilling purposes and placing the return water and drill cuttings into a sump. Clearing of drill sites and additional tote roads as necessary to access the drill sites. Logistical support for the work includes using machinery and equipment from the minesite



## **Mackenzie Valley Environmental Impact Review Board**

and using the existing mine site facilities at Prairie Creek as base camp for operations.

### ***4.2 Overview of scoping process***

The Review Board undertook its development of on the scope of development and scope of assessment through the consultation on the Terms of Reference. The consultation period for the Terms of Reference was from November 6, 2000 to December 20, 2000. Overall, the comments received favoured splitting the land use permit application into two environmental assessments - one for the cache camp fuel recovery, the other on the exploration drill program. The Review Board considered all comments received before issuing the final workplan and final Terms of Reference. The Government of the Northwest Territories, Department of Fisheries and Oceans, Nahanni National Park Reserve provided government expert input. The Liidlii Kue First Nation and the Canadian Zinc Corporation submitted public comments. The Review Board also considered the contents of the preliminary screening public registry in arriving at the final work plan and final Terms of Reference.

### ***4.3 Scope of Development***

The Review Board is required to determine the scope of a development according to ss.117 (1) of the Act. Scope of the development includes those components of the proposed development that will be included for consideration in the environmental assessment. The scope of development takes into account the principal development and any accessory developments and activities.

In considering the scope of development, the Review Board paid close attention to the preliminary screening conducted by the Mackenzie Valley Land and Water Board to avoid unnecessary duplication. In particular, the Review Board was conscious of its obligation under s.117 of the MVRMA to consider the impact of the developments on the environment including the impact of malfunctions or accidents and any cumulative impacts as well as comments submitted by members of the public.

Within the scope of these developments, the Review Board identified the principal development to be the drilling of up to seven exploration drill holes. The activities associated with the development proposal include:

- Use of an existing tote road.
- Development of additional tote roads to access the drill sites.
- Use of water from a local water supply for drilling purposes.
- Use of a sump to retain drill cuttings and any return water.
- Timber removal.
- site restoration
- Return of equipment to the main mine site.

### ***4.4 Scope of Assessment***

In its terms of reference, the Review Board established the scope of assessment for the evaluation of impacts from this proposed developments. In doing so, and, consistent with ss.117(2) of the Act, the Review Board also took into account the effect of malfunctions or accidents that may occur in connection with the development; any cumulative effect that was likely to result from the development in combination



## Mackenzie Valley Environmental Impact Review Board

with other developments; and any public comments. More than 30 letters expressing concern about the proposed development were received during the course of the environmental assessment. The Review Board's staff also met with representatives of environmental non-governmental organizations and the developer and provided regular environmental assessment updates on the Board's web site.

### 4.4.1 Consideration of the previous environmental assessments

In accordance with s.127 of the MVRMA, the Review Board is required to consider any report made in relation to the development proposal under the Canadian Environmental Assessment Act (CEAA) and the Environmental Assessment and Review Process Guidelines Order (EARPGO) before the proclamation of the MVRMA. The Prairie Creek mine was established in 1982/83, before EARPGO. Ker, Priestman & Associates Ltd. prepared an environmental evaluation of the Prairie Creek Project in October 1980. That environmental evaluation formed part of the public record.

### 4.4.2 Summary of potential impacts from the CZN development proposal

After receiving comments on the Terms of Reference, the Review Board settled on the following as the components of the environment that had to be evaluated for impacts from the proposed developments i.e., scope of assessment:

#### ***Physical and Biological Environment***

##### *Air Quality and Climate*

air quality

release of air contaminants (dust, particulate exhaust fumes and other air contaminants)

##### *Terrain*

surficial geology

bedrock or soils

##### *Vegetation and Plant Communities*

local plant communities

rare or highly valued species

long-term, direct and indirect, habitat loss or alteration

##### *General Water*

water quality

contaminant loading and dispersion (including surface runoff and airborne contaminants)

##### *Aquatic Habitat*



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aquatic organisms and their habitat

### *Wildlife and Wildlife Habitat*

wildlife

wildlife habitats

migratory birds

vulnerable or endangered Wildlife in Canada, (COSEWIC) list

## **Human Environment**

### *Cultural and Heritage Resources*

cultural and heritage resources

Land and Resources Use

### *Use of land, water and renewable resources*

Traditional land use and occupation

Existing land use and occupation

Hunting, trapping, and outfitting, recreational, commercial and sport fishing

Availability, abundance and quality of wildlife, fishing, gathering, recreational

Commercial land and water-based areas

Protected areas

### *Economy*

income

employment

incremental abandonment and restoration costs resulting from the proposed development

### *Noise*

changes to ambient noise levels

continuous exposure versus acute noise

### *Visual and Aesthetic Resources*

visual and aesthetic

design components that mitigate visual and aesthetic impacts.



## **Mackenzie Valley Environmental Impact Review Board**

### **Consultation**

This section summarizes the consultation that was undertaken in the course of this environmental assessment.

### **4.5 Consultation**

In November 6, 2000 the Review Board issued a draft workplan and draft Terms of Reference for the CZN environmental assessment for public comment. The Review Board also undertook its own consultation on the draft work plan and Terms of Reference. The draft documents were provided to the Canadian Zinc Corporation, the Government of the Northwest Territories, the Deh Cho First Nations, the Nahanni Butte Dene Band, the Liidlii Kue First Nation, The Village of Fort Simpson, the Canadian Parks and Wilderness Society, the World Wildlife Fund, Ecology North, the Canadian Arctic Resources Committee, the Fort Simpson Métis Local 52 the Nahanni National Park, Health Canada, the Department of Fisheries and Oceans, the Mackenzie valley Land and Water Board, Environment Canada, the Transport Canada, the department of Natural Resources Canada, the department of Indian and Northern Affairs Mr. Cizek, Mr. Chris Reid, Mr. Don Antoine. The documents were placed on the public register, and on the Review Board's web site.

Between August and December 2000 CZN consulted with the following communities and organizations:

- August 16, 2000 MVLWB Information Meeting
- November 21, 2000 – Mineral Development Advisory Group meeting
- November 22, 2000 – De Cho First Nation meeting minutes

#### **4.5.1.1.1 Conclusion**

The Review Board accepts the communication and consultation effort undertaken by the proponent in this environmental assessment given the scale, nature and location of the proposed exploratory drill program. In the Board's view, the efforts made by CZN were sufficient to ensure that this environmental assessment was open and fair.

## **5 Environmental Assessment**

This section of the report covers the environmental assessment processes and the outcome of the environmental assessment. Also included in this section are the Review Board's recommendations for mitigating for impacts.

### **5.1 Summary of the environmental assessment process**

The Review Board's work plan established the milestone dates and identified the Board's expectations for the completion of the environmental assessment. The Review Board advised CZN that a broader more detailed development description was needed. The detailed project description for Land Use Permit MV2000C0030 was provided by CZN on October 25, 2000. After reviewing this document, the Review Board issued its Terms of Reference for the environmental assessment on December 22, 2000.



## **Mackenzie Valley Environmental Impact Review Board**

### ***5.2 Conformity and Technical Reviews***

CZN completed its EAR on the basis of the final ToR and filed the EAR for the proposed exploratory drill program with the Review Board on January 26, 2001. After receiving CZN's completed EA Report the Review Board undertook a conformity review to ensure that CZN had provided the information requested in the Terms of Reference on February 19, 2001. The Review Board ruled that the CZN EA Report conformed to the requirements of the Terms of Reference and closed the conformity review.

A technical review of the EA Report was initiated concurrently with the conformity review. This was done through the Review Board's Information Request (IR) process<sup>1</sup>. The IRs helped to facilitate the technical analysis of the proposed development. The Review Board's staff co-ordinated the analysis of the EA. The analysis included opportunities for regulatory authorities (RA's), expert advisors, First Nations, communities, the public and other interested parties to present their evidence and facts to the Review Board. The result of this step was to find and focus on unresolved or unclear issues, and to provide the Review Board the additional information that would contribute to its decision.

### ***5.3 Findings: Temporal and Spatial Boundaries***

#### **5.3.1 Spatial Boundaries**

The terms of reference did not specify the spatial boundaries to be used when considering maximum zone of influence of the proposed development on the valued ecosystem components. CZN did not explain or identify the temporal boundaries for its analysis of environmental impacts.

#### **5.3.2 Temporal Boundaries**

The terms of reference did not specify the scope of the temporal boundaries to be used when considering the duration and occurrence of impacts from the proposed development on valued ecosystem components. CZN choose not to provide the scope of its temporal boundaries for the analysis of environmental impacts.

##### **5.3.2.1.1.1 Conclusion**

The Review Board concluded that the way CZN predicted and reported the scope of environmental impacts resulting from the proposed development limited subsequent analysis.

### ***5.4 Findings: Definitions of Significance***

It is the responsibility of the Review Board to decide when an effect, or change in the environment, that is caused by the development, or the development in combination with other developments is significant. Section 128 of the MVRMA requires the Review Board to decide whether CZN's proposed development will, in its opinion, have a significant adverse impact on the environment and report to the DIAND Minister. In reaching its conclusions about significance, the Review Board noted that its expert advisors accepted CZN's assessment methodology.

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<sup>1</sup> Information requests are an interrogatory in the form of written questions and answers.



## Mackenzie Valley Environmental Impact Review Board

To facilitate the process, the Review Board considered the residual impact of the proposed development in terms of the following attributes as applicable:

- magnitude
- geographic extent
- timing
- duration
- frequency
- irreversibility of impacts; and
- probability of occurrence and confidence level.

### 5.4.1.1.1.1 Conclusion

The Review Board would like to comment on the matter of significance determination. The Board would prefer to have an EAR emphasize the reporting of residual impacts using acceptable reporting attributes such as those in section 5.4, and refrain from drawing significance conclusions. The MVRMA requires that the Review Board decide if a development will have a significant adverse impact or significant public concern based on the evidence provided on the public registry.

## 5.5 *Alternatives to the proposed development*

The Terms of Reference requested CZN to provide a description of the alternatives to the principle and accessory development and to provide the risks associated with each alternative.

### 5.5.1 Alternative to the Principle Development

CZN indicated there are no viable alternatives to the practice of exploration diamond drilling of the type proposed for the purpose of establishing, confirming and enhancing the known mineral resource at the Prairie Creek property. CZN further indicated that the process of diamond drilling represents standard industry practice in the exploration mineral deposits. At Prairie Creek, the first diamond drill holes were drilled in 1966. Since that time about 232 holes have been drilled on the property.

#### 5.5.1.1.1.1 Conclusion

The Review Board accepts CZN's assertion that there are no viable alternatives to the principle development of exploratory drilling.

## 5.6 *Analysis of Environmental Effects*

The following section contains the Review Board's conclusions and recommendations for the environmental and cumulative environmental effects of the proposed development. Environmental effects analyses are based on information contained in CZN's environmental assessment report, augmented with information from technical reviews and documentation on the public registry. For each environmental effect, the CZN's position, reviewer's comments and the Board's conclusion and recommendation are



## Mackenzie Valley Environmental Impact Review Board

presented.

### 5.6.1 Physical and Biological Environment

This section of the report includes air quality, climate, terrain and water, wildlife, wildlife habitat, cultural and heritage resources, land and resources use, the economy, noise and visual and aesthetic resources. The Review Board did not discuss all Terms of Reference matters listed. Instead, this Report of Environmental Assessment focuses on those matters that the Review Board feels warrant discussion. For any other matters, the Review Board was satisfied with the Environmental Assessment Report and supporting documentation filed by CZN and expects all commitments will be fulfilled.

#### 5.6.1.1 Effects on Air Quality and Climate

CZN concluded that the residual effects of the proposed development on air quality and climate was negligible and that the proposed development was simply an addition to similar impacts associated with the routine care and maintenance of the mine, and ongoing exploration activity planned for the property.

CZN's response to a GNWT information request confirmed that water is the only circulating fluid used during the drilling process thus resolving possible environmental issues if air was a circulating medium. 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.

##### 5.6.1.1.1 Conclusion

The Review Board concludes, based on the analysis provided, that the effects on air quality and climate will not cause a significant environmental effect. The Review Board notes the GNWT's suggestion regarding the exclusive use of water as a drilling circulating medium and CZN's undertaking to use water as the exclusive drilling circulation medium.

##### 5.6.1.1.2 Recommendation

No recommendations made.

#### 5.6.1.2 Terrain

##### 5.6.1.2.1 *Effects on surficial geology, bedrock or soils*

CZN concluded that impacts of the proposed development on the environment resulting from disturbance of surficial geology, bedrock or soils are expected to be negligible. CZN conclusions are based on its opinion that the proposed drill locations are close to an existing exploration tote roads and that existing tote roads are expected to require extensions of typically from 10 or 20 meters, at a maximum, and that the 7 drill pads will be prepared only large enough to accommodate and position the approximate 7m x 4m drill rig. Where clearing is required to create short extensions of tote roads or the drill pads themselves, CZN proposes to reduce impacts to the environment by stripping and stockpiling surficial materials adjacent to the development area. When drilling is complete, cut banks will be re-contoured and stabilized, and stockpile surficial materials will be back bladed over the disturbed area.



## Mackenzie Valley Environmental Impact Review Board

The Nahanni National Park Reserve concluded in its technical report to the Review Board that the statement regarding the occurrence of permafrost – “*if encountered, appropriate measures will be taken to preserve its integrity*”<sup>2</sup> – was vague and provided little value. NNPR also indicated that there is no explanation of the ‘appropriate measures’ or an references cited to support or allow an evaluation of these measures.

### 5.6.1.2.1.1 Conclusion

The Review Board concludes, based on the evidence provided, that the effects of the proposed development on the terrain will not cause a significant adverse impact on the environment. The Review Board notes NNPR’s comments and agrees that wherever conclusions are made about the significance of an impact on the environment, the method used to arrive at the conclusion should be self evident or at least explained and verifiable. Vague statements regarding mitigation used to avoid or reduce impacts on the environment that do not contribute to the environmental assessment should be avoided.

### 5.6.1.2.1.2 Recommendation

No recommendations made.

### 5.6.1.2.2 Effects on Vegetation and Plant Communities

CZN indicated that the impacts of the proposed development on local plant communities resulting in habitat loss or alteration are expected to be negligible. Reasons cited for the conclusion include minimal clearing requirements, the location of the proposed drilling in Alpine Forest-Tundra section of the Boreal Forest characterized by stunted black spruce and limited undergrowth and open areas dominated by lichen, and that rare or highly valued species have not been identified from past studies of vegetation and plant communities in the area.

The GNWT indicated that CZN did not 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 and an analysis of the extent of vegetation cover loss using current habitat suitability and classification techniques. CZN’s responded to the GNWT information request on February 16, noting that comprehensive vegetation and wildlife habitat assessments were conducted in 1981. At

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<sup>2</sup> Nahanni National park Reserve, March 9, 2001. Technical Report (Part II): An Assessment of Canadian Zinc Corporation=s (CZN) Proposal and EA Report Mineral Exploration Drilling Program - Prairie Creek Mine Land Use Permit Application MV2000C0030



## Mackenzie Valley Environmental Impact Review Board

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 m<sup>3</sup>). 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 2,100 m<sup>3</sup>.

### 5.6.1.2.2.1 Conclusion

The Review Board concludes, based on this analysis that the effects on vegetation and plant communities will not cause a significant environmental effect. The Review Board appreciates and supports the GNWT's suggestion that RWED participate in a preliminary site reconnaissance before the start of operations to assist in the evaluation of wildlife presence and response to disturbance. The GNWT's suggestion will serve to meet RWED's information request. The Review Board adds that RWED consider expanding the preliminary site reconnaissance to include vegetation and plant communities potentially impacted by the proposed development. The Review Board anticipates CZNs' full cooperation in RWED's undertakings to secure the requested information.

### 5.6.1.2.2.2 Recommendation

No recommendations made.

### 5.6.1.2.3 *Effects on the Quality and Quantity of Water*

CZN concluded that impacts of the proposed development on surface and groundwater quality and quantity are expected to be negligible. The rationale provided for the conclusion is that the drilling program will be carried out on the northwest side of the Harrison Creek valley approximately 750 – 1000m upstream of its confluence with Prairie Creek. That Harrison Creek is a small tributary of Prairie Creek with a catchment area of about 7.5 km<sup>2</sup> as compared to the catchment area of Prairie Creek above the minesite at 495 km<sup>2</sup>. That the average annual flow of Harrison Creek has been estimated at 3.6 cfs as compared to Prairie Creek at 204 cfs<sup>3</sup>, and that Harrison Creek commonly dries during the low flow late summer season and flows underground.

CZN's rationale for its conclusion was supported by its claim that the diamond drilling program utilizes very little water and discharges very little water, and that therefore minimal impact on water quality or quantity of either surface water or groundwater is expected to result from carrying out the exploration drilling program. CZN added that the existing sump adequately addressed sewage and greywater management requirements.

The GNWT in its technical report to the Review Board focused on the issues pertaining to greywater and sewage management and recommended that CZN adopt a sewage management systems similar to those used by licensed oil and gas operators in the Liard Valley and Nahanni Butte areas.

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<sup>3</sup> Cubic Feet Second (CFS).



## Mackenzie Valley Environmental Impact Review Board

### 5.6.1.2.3.1 Conclusion

The Review Board concludes, based on the information and analysis available that the likely changes to the quality and quantity of water will not cause a significant environmental effect. The Review Board notes the GNWT's concerns regarding the proposed development's sewage and greywater and concludes these concerns are more suitably considered in the regulatory phase of this development.

### 5.6.1.2.3.2 Recommendation

No recommendations made.

### 5.6.1.2.4 Effects on Aquatic Habitat

CZN concludes that the impacts of the proposed development on fisheries or other aquatic resources are expected to be negligible since impacts to water quality and quantity were also expected to be negligible. CZN identified limited fisheries habitat potential in Harrison Creek because its steep gradients restrict fish movement upstream of the mouth. CZN also indicated that Harrison Creek commonly dries during the low flow late summer season and flows subterranean, and provides no over-wintering habitat due to low winter flows and shallow depths. As a result, fish utilization appears restricted to the mouth where 7 slimy sculpin were captured in 1980, and 2 dolly varden, 10 mountain whitefish and 8 slimy sculpin were encountered in 1981. No fish were observed in Harrison Creek in 1994. Fish utilization of Prairie Creek appears to be confined largely to the headwaters and the mouth. The headwaters appear to be utilized by dolly varden (or bull trout) and rocky mountain whitefish. arctic grayling do not appear to move upstream in Prairie Creek beyond the lowest reaches near the mouth. Limited use appears to be made of Prairie Creek near the minesite, or downstream of the minesite above the mouth.

The Department of Fisheries and Oceans, Fish Habitat Management – Western Arctic Area determined that the development as described in the original Land Use Application would likely result in the harmful alteration, disruption or destruction of fish habitat. DFO concluded that its letter of advice dated October 2, 2000 would likely mitigate any potential effects on fish and fish habitat.

Nahanni National Park Reserve informed the Board that the Aquatic Habitat section (page 12) of the EA Report contained the following inaccurate statement. *"headwaters appear to be utilized by dolly varden (bull trout) and rocky mountain whitefish Limited use appears to be made of Prairie Creek in the vicinity of the minesite, or downstream of the minesite above the mouth"*. NNPR indicated that bull trout are a migratory species, hence they do likely pass by the area of the minesite seasonally, and may be affected by siltation at creek crossings and that this species has been found to be very sensitive to industrial disturbance, according to studies in the East Slopes of the Rocky Mountains.

### 5.6.1.2.4.1 Conclusion

The Review Board concludes, based on the analysis provided, that the effects of the proposed development on the aquatic habitat will not cause a significant adverse impact on the environment. The Review Board notes the expert advice provided by NNPR and DFO and the clarification provided regarding potential impacts on bull trout, and concludes that given the scale, timing and letter of advice from the DFO there is



## Mackenzie Valley Environmental Impact Review Board

likely no significant adverse impact on the aquatic environment resulting from the proposed development.

### 5.6.1.2.4.2 Recommendation

No recommendations made.

### 5.6.1.2.5 Effects on Wildlife and Wildlife Habitat

CZN concluded that Impacts of the proposed development on wildlife and wildlife habitat are expected to be negligible. CZN indicated that the proposed development will take place within 1000m of the existing mill and campsite facilities and within the area of traditional mining activity at Prairie Creek. Previous CZN also indicated that Dall Sheep which frequent the mill and campsite areas seemed generally unperturbed by ongoing site activity. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listed the grizzly bear and the wolverine in the Special Concern category. In areas removed from the minesite COSEWIC lists peregrin falcon, the woodland caribou, and the wood bison as threatened.

CZN cited that previous studies identified no critical habitats in the area of the minesite. CZN indicated that grizzly bears have been infrequently encountered in the area surrounding the mine and that no denning areas have been identified in the immediate area of the minesite, including the area of the proposed development. Wolverine have been rarely observed in the area surrounding the Prairie Creek mine over the past 20 years. Potential caribou habitat and caribou populations are located away from the minesite to the north and east in the Mackenzie mountains. The minesite area itself is not classified as prime caribou habitat and caribou are not generally observed in and around the minesite.

The GNWT concurred with CZN's conclusion that minimal impacts on wildlife and vegetation will result from the proposed drilling program. The GNWT did emphasize that CZN did not provide an assessment of indirect habitat loss that would result from disturbance effects but that 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. The GNWT also noted that the baseline inventories for wildlife and wildlife habitat in the Prairie Creek area on which CZN relies are now 20 years old.

NNPR concluded that there were questionable assertions made in the Wildlife and Wildlife Habitat sections of the EA Report. The NNPR notes that CZN indicates its proposed development will not impact caribou populations. However, NNPR cites that research in northern Alberta found that caribou do avoid linear disturbances, including roads, and even seismic cutlines and that therefore, the reopening of roads and construction of new roads associated with this proposal, in addition to the increased activity on site, some disruption to caribou movement patterns is likely to occur.

NNPR also noted that CZN's statement that dall's sheep "*seem generally unperturbed by ongoing site activity*" is unsupported and that there are no data or references presented to quantify or corroborate this claim. NNPR cites that its staff have observed dall's sheep showing escape behavior even when overflowed



## **Mackenzie Valley Environmental Impact Review Board**

in helicopter at high cruising altitudes, therefore the lower flights and ground machinery associated with this proposal are likely to cause greater disturbance. NNPR indicates that drilling activity could also cause noise disturbance, potentially lessen habitat quality, and cause displacement of herds. NNPR notes that similar displacement could be caused to wolverines, a COSEWIC listed species, which require large home ranges, and are known to occur in the Prairie Creek area.

NNPR questioned CZN's conclusions about grizzly bears. NNPR noted that reputable studies in the Rocky Mountains (*i.e.* Banff-Bow Valley Study, 1999) have shown that grizzlies are very susceptible to disturbance, and are often forced out of habitat as human use increases and that no mention is made of bear safety training for work crews – this should be included in the orientation & training programs of all field workers.

NNPR also questioned CZN's conclusion that "*no impacts are expected on migratory bird populations as no usage of the minesite area by such populations has been identified*". NNPR noted that many species of migratory birds are present in the region, and that of the 170 recorded bird species in NNPR, of which 19 were considered permanent residents, and 4 were of unknown status, at least 147 species exhibited migration of some sort, and the vast majority of these would be international migrants, covered by the *Migratory Birds Convention Act*. NNPR claimed that although not all the birds found in NNPR would occur in the minesite area, it is extremely unlikely that there are no migratory bird populations in the area.

### **5.6.1.2.5.1 Conclusion**

The Review Board appreciates the thorough analysis provided by NNPR and the GNWT and concludes, based on the evidence provided, that the effect of the proposed development is not likely to have a significant adverse impact on wildlife and wildlife habitat.

### **5.6.1.2.5.2 Recommendation**

No recommendations made.

## **5.6.2 Social, economic, and cultural environment**

This portion of the report covers cultural and heritage resources; land and resource use; economy, noise and visual aesthetics. The Review Board did not discuss all terms of reference matters listed. Instead, this report of environmental assessment focuses on those matters that the Review Board feels warrants discussion. For any other matters, the Review Board was satisfied with the Environmental Assessment Report and supporting documentation filed by CZN and expects all commitments will be fulfilled.

### **5.6.2.1.1 Cultural and heritage resources**

CZN concludes that as all areas proposed development are within 1000 metres of the existing facilities and within the area of traditional mining activity. As such, impacts of the proposed development on cultural and heritage resources are expected to be negligible.



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The NNPR indicated that the proposed development was occurring near the NNPR, an area recognized for its national and international heritage value having been declared a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site for its unique geological features, and that the South Nahanni River has been given Canadian Heritage River designation, recognizing the wilderness quality and rich history of the rivers. The NNPR concluded that from the information provided by CZN it appeared that the proposed development would have the potential to cause significant environmental impacts and was inappropriate place for this type of development as it could compromise the ecological integrity of Nahanni National Park Reserve - a Canadian Heritage River and World Heritage Site - and the South Nahanni Watershed.

The NNPR informed the Board about the recently revised National Parks Act and its declaration that the "maintenance of ecological integrity through the protection of natural resources shall be the first priority of the Minister in the consideration of park zoning and visitor use" and that this purpose of National Parks is echoed by the report of the Panel on the Ecological Integrity of Canada's National Parks, which stated that "conserving, restoring and maintaining ecological integrity is the core of Parks Canada's mandate."

The Canadian Parks and Wilderness Society summed up its views regarding the proposed drilling program by requesting that the land use permit application for the mineral exploration drilling program be denied on the basis of the importance of protecting the world class wilderness values of the watershed and NNPR, as well as the status of the South Nahanni Watershed as a proposed protected area to be negotiated through the Deh Cho Process. CPAWS notes that the NNPR is also internationally recognized as a UNESCO natural World Heritage Site for its globally significant natural features and wilderness values on par with other Sites such as the Great Barrier Reef, the Galapagos Islands and the Grand Canyon. CPAWS also notes that the Nahanni was designated under two different criteria; as "an outstanding example representing significant ongoing ecological processes or biological evolution" and for its "superlative natural phenomena, formations or features or areas of outstanding natural beauty."

The Government of Canada informed the Board in its response to an Information Request that "Canada is currently engaged with the Deh Cho First Nations and the Government of the Northwest Territories in a process aimed at resolving land, resource and self government issues in the Deh Cho Region" and that "following the signing of the Interim Measures Agreement (IMA) Canada will enter into land withdrawal negotiations with the Deh Cho First Nations for the purposes of addressing issues such as land withdrawals within the South Nahanni River Watershed. *However, at this time, Canada has no position or policy regarding which areas the parties may agree to withdraw.*"<sup>4</sup> (emphasis added).

### 5.6.2.1.1.1 Conclusion

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<sup>4</sup> Department of Indian Affairs and Northern Development. January 29, 2001. IR-Canadian Zinc.



## **Mackenzie Valley Environmental Impact Review Board**

The Review Board understands and appreciates the importance placed on the NNPR but concludes, based on the evidence provided, that the seven hole exploration drill program will not cause a significant adverse impact to cultural and heritage resources.

### **5.6.2.1.1.2 Recommendation**

No recommendations made.

### **5.6.2.1.2 Land and Resources Use**

CZN predicts that the impacts of the proposed development on the use of land, water and renewable resources to be negligible. All areas proposed for use in this application are within 1000 metres of the existing facilities and within the area of traditional mining activity at Prairie Creek. No uses, other than mining, have been made of the land or resources in this area in recent history.

#### **5.6.2.1.2.1 Conclusion**

The Review Board concludes based on the evidence provided, that the effects of the proposed development on land and resource use will not cause a significant adverse environmental effect. The Review Board in arriving at its conclusion noted that environmental assessment issues pertaining to heritage and cultural resources were comparable with issues pertaining to the use, or desired use, of the land and resources. The Review Board recognizes that CZN is in possession of valid interests<sup>5</sup> and has valid expectations about the development it wishes to undertake on land leased to it for such purposes. The Review Board notes that there appear to be conflicting policy issues regarding the use, management and administration of lands and resources and that environmental assessment is an inappropriate tool for such policy resolution.

#### **5.6.2.1.2.2 Recommendation**

No recommendations made.

### **5.6.2.1.3 Economy**

CZN indicated that the proposed development is expected to employ about 8 persons, including a cook, caretaker, mechanic, drillers, geologist, First Aid attendant, and labourer. Fixed wing aircraft and helicopter support will provide opportunities for charter companies in Fort Simpson and Fort Liard. Consumables will also be sourced from local suppliers and flown into site. Project management will necessitate travel for head office and other personnel, resulting in positive economic impacts for commercial airlines servicing Yellowknife and Fort Simpson, as well as hotels and restaurants in Yellowknife, Fort Simpson, and other local communities.

CZN also noted that in 1996, the Company and the Nahanni Butte Dene Band successfully negotiated and executed the Prairie Creek Development Cooperation Agreement. The overall intent of the agreement was

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<sup>5</sup> Department of Indian Affairs and Northern Development. January 26, 2001. Map illustrating surface and subsurface lease interests.



## **Mackenzie Valley Environmental Impact Review Board**

to establish and maintain a positive and cooperative working relationship between the Company and Nahanni Butte in respect of the further development and operation of the mine, while at the same time supporting an economically viable and environmentally sound operation and maximizing economic opportunity and benefits to Nahanni and other Deh Cho First Nations. To this end, the Agreement provides employment and contracting opportunities as well as equity participation for the Nahanni Butte First Nation and the DCFN. The negotiation of this Agreement by Nahanni Butte was supported by the DCFN by Tribal Council Resolution and Nahanni Butte Band Council Resolution endorsed the final agreement itself.<sup>6</sup>

### **5.6.2.1.3.1 Conclusion**

The Review Board concludes, based on the evidence provided, that the effects of the proposed development on the economy will not cause a significant adverse environmental effect. The Board also commends CZN for its pro-active and cooperative initiatives in the Deh Cho and with First Nations and the regulatory authorities.

### **5.6.2.1.3.2 Recommendation**

No recommendations made.

## **5.6.3 Cumulative Effects**

CZN concludes that the potential for cumulative effects in association with other past, existing or future developments or activities would also be negligible. CZN predicts that within the broader spatial context of the entire South Nahanni watershed, the potential for cumulative effects of the proposed program are also considered minor. CZN expects that there will be no significant adverse effects on Prairie Creek, the South Nahanni River or the Nahanni National Park Reserve associated with the proposed development.

The Canadian Parks and Wilderness Society indicated that there are two mine sites and three other sites with high potential that it is aware of in the watershed. These are Copper Ridge Exploration's Howard Pass lead, zinc and silver mining project, the Union Carbide project at Lened Creek, the Mactung and Cantung tungsten mines owned by North American Tungsten, and the Prairie Creek mine. With these potential projects existing in the same watershed CPAWS claims there is high potential for significant adverse and cumulative environmental impacts. CPAWS submitted that a watershed scale environmental impact review in conjunction with a cumulative environmental effects assessment be conducted if and when an application to begin operating any single mine in the South Nahanni watershed is received, in order to determine if mining, given its potential environmental risks, is an acceptable land use in the watershed.

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<sup>6</sup> Canadian Zinc Corporation. February 26, 2001. Requests Environmental Assessment Information



## Mackenzie Valley Environmental Impact Review Board

The Nahanni National Park Reserve concluded that the cumulative effects component of the environmental assessment report was inadequate, lacked detail, and that it was inappropriate for CZN to claim that since developments occurred in the past, additional new construction on site would have no impact. NNPR also indicated that the consideration of 'reasonably foreseeable future actions' is not appropriately addressed in the cumulative effects section as there are 'reasonably foreseeable activities', not considered in the environmental assessment. NNPR noted an unsubstantiated CZN conclusion that "*residual impacts [of previous activity] are principally visual and aesthetic, and confined to physical disturbance directly associated with the construction development of the existing facilities*" citing that CZN provided no data analysis to verify its claim. NNPR indicated that such data could include quantified wildlife inventories, vegetation plots or fisheries assessments, to determine conditions before and after use, and thereby indicate whether or not there are effects beyond the 'visual and aesthetic.'

### 5.6.3.1.1.1 Conclusion

The Review Board concludes, based on the evidence provided, that the cumulative effects of the proposed development will not cause a significant adverse environmental effect. The Review agrees with NNPR that CZN's cumulative effects assessment could have been significantly bolstered. The Board also recognizes that there is an existing mine with surface and subsurface interests, and reasonable expectation by CZN about having the necessary access to land to undertake exploratory work.

### 5.6.3.1.1.2 Recommendation

No recommendations made.

## 6 Review Board Environmental Assessment Decision

The Review Board concludes, based on the analysis provided, that the development is not likely in its opinion to have any significant adverse impact on the environment or to be a cause of significant public concern. The development may proceed subject to section 129 of the Act.

The Review Board fully expects the Canadian Zinc Corporation to discharge all the commitments and undertakings given in its environmental assessment report and supporting documentation as well as the conditions imposed by the Review Board.



Mackenzie Valley Environmental Impact Review Board

Report of Environmental Assessment

On the

Canadian Zinc Corporation

Cat Camp Fuel Cache Retrieval and Clean-up Development

May 9, 2001

Mackenzie Valley Environmental Impact Review Board  
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## Executive Summary

The Mackenzie Valley Environmental Impact Review Board (Review Board) has been guided by the principles outlined in Sections 114 and 115 of the *Mackenzie Valley Resource Management Act* (MVRMA or Act) throughout this environmental assessment (EA). These include the need to protect the environment from significant adverse impacts, and to protect the social, cultural and economic well being of residents and communities in the Mackenzie Valley.

Having considered the views and concerns of the participants in this process, and the evidence on the public registry, the Review Board made its decisions according to section 128 of the *Mackenzie Valley Resource Management Act*.

The Review Board concludes, based on the analysis provided, that the proposed development will likely cause a significant adverse impact on the terrain, particularly karst features.

Section 128(1)(b)(ii) of the Act gives the Review Board the authority to recommend approval of the development proposal subject to the imposition of such measures as it considers necessary to prevent any significant adverse impacts. As such, the Review Board has decided to recommend approval of the development subject to the following condition:

*That the development occur in the winter of 2001/2002 using the access road from the mine to the fuel cache as a winter road, not as an all-weather road.*

For the consideration of the Mackenzie Valley Land and Water Board, the Review Board recommends that:

1. The Cat Camp fuel tanks be regularly inspected and determined to be able to safely contain the diesel fuel until its retrieval in the winter of 2001/2002.
2. Canadian Zinc Corporation (CZN) have the mine tank farm inspected by Indian and Northern Affairs Canada (INAC) before the fuel cache retrieval occurs and that CZN should address the deficiencies in their spill response plan noted by participants in this proceeding,
3. CZN develop more detailed reclamation plans for the Cat Camp including soil and groundwater sampling and monitoring programs and rehabilitation methods.

To make its decision, the Review Board has relied upon the information in CZN's Environmental Assessment Report (EAR) and all of the other information on the public registry. The Review Board fully expects CZN to discharge all of the mitigative measures given in its EAR as well as the condition recommended by the Review Board. If these mitigative measures are not implemented, the Review Board's conclusions about impact significance could be affected.

Mackenzie Valley Environmental Impact Review Board  
May 9, 2001



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## 1 Development Description

*The following description is based on CZN's EAR.*

The Prairie Creek Mine is 100% owned and operated by Canadian Zinc Corporation of Vancouver, British Columbia. The mine is located in the southern Mackenzie Mountains in the southwest corner of Northwest Territories at 61° 33' north latitude and 124° 48' west longitude. The mine site facilities are situated adjacent to Prairie Creek about 43 km upstream from its confluence with the South Nahanni River and 32 km upstream of the point where Prairie Creek crosses the boundary of the Nahanni National Park Reserve (NNPR).

Cat Camp was established in 1981-82 as a transportation staging area during the construction of the mine. The camp is approximately 41 km from the mine along the alignment of the access road. A fuel cache was maintained at the camp to support the mine construction. The diesel is stored in three skid mounted bulk storage tanks that have been there since 1982. The estimated volume of fuel in the tanks is 153,000 - 174, 000 liters. The three tanks and a number of barrels of Jet B fuel are contained within two separate containment berms constructed of locally sourced natural materials. Several trailers, a supply of culverts and other materials are also at the camp.

An inspection of the site by INAC in August 1999 found staining on the exterior of the tanks and drips coming from valves and clean-out plates. In September 1999, CZN tightened the valves and plates and applied sealant as necessary. CZN states that no evidence of significant seepage has been detected since that time.

Access to Cat Camp for the purposes of recovering the diesel and cleaning up the site will require rehabilitation of the access road. The road up to Km 17 was used as recently as 1995 under Land Use Permit N95C373 in support of exploration activity. According to CZN, this portion of the road requires only surface clean-up. CZN states that the roadbed from Km 17 to 41 is largely intact and passable with surface clean-up, however a number of washouts require more substantial repair. Although it was constructed as part of the original winter road, the majority of this portion, being through mountainous terrain, was constructed to all-weather standards using cut and fill construction techniques along side slopes. Sections constructed over flood plain alluvial gravels towards the east end nearer to Cat Camp require only surface clean-up.

CZN will repair washouts using local fill available adjacent to the existing roadbed, with culverts placed as necessary to control drainage. Where the potential for future washouts is identified, CZN will remove the culverts following completion of the program and store them near the wash-out locations for future use.

The road maintenance will be accomplished utilizing equipment from the mine site including a D-8 Cat, loader and backhoe. CZN proposes that the work will be undertaken during the low flow period in August - September, and in a manner to minimize water quality impacts due to sediment loadings. They expect the road rehabilitation to take approximately 4 weeks from the commencement of activity.

Upon completion of the access road upgrade, fuel recovery will commence using two Volvo 5350 rock trucks with suitable containment vessels, purchased for the purpose, located and fixed in the truck boxes. These vessels will likely be either collapsible fabric such as the Terra Tank Petro Guard bladders, lightweight polyethylene hard plastic tanks, or steel tanks of a size and weight that can be flown into the mine site.

Fuel from the Cat Camp bulk storage tanks will be transferred to the transport vessels in the Volvo trucks using portable gas pumps. Two attendants will be present at all times to supervise the fuel transfer. Fuel will then be transported to the mine site where it will be transferred to the main tank farm using a second gas pump.

Upon completion of the fuel transfer, the skid-mounted tanks will be transported to the mine site by flatbed. The trailers, barrels and excess culverts will also be relocated to the mine site.



## **Mackenzie Valley Environmental Impact Review Board**

The containment berms at Cat Camp will be inspected for contamination and any contaminated soil will be relocated to the mine site for placement in a plastic lined and covered cell for bioremediation. Following clean-up, the berms will be recontoured to prevent water ponding and allowed to revegetate naturally.

A total of 8 people are estimated to be employed in completing the retrieval and clean-up. The employees will stay in camp at the Prairie Creek Mine site where full accommodations are available. Personnel transportation between Cat Camp and the mine site will be by pick-up truck. The pick-up trucks will have radio communications with the camp and each other and will be equipped with first aid and spill kits.

A qualified person carrying a valid required First Aid Certificate will be based in camp at all times. Outside communications will be via satellite phone/fax. Access to the mine will be via air onto a privately owned 1000 metre airstrip at the mine from either Ft. Nelson or Ft. Simpson.

It is anticipated that the entire program will take up to 60 days to complete over the period from August - September, 2001.



## 2 Physical Environment

*The following description is based on CZN's EAR.*

The mine site is at an elevation of 850 meters above sea level and is situated in topography characterized by low mountains and narrow valleys with an average relief of 300 meters. The mine site is located within the Alpine Forest-Tundra section of the Boreal Forest characterized by stunted black spruce with limited undergrowth and open areas dominated by lichen.

Short summers and long winters are typical of the area's sub-arctic climate, where the mean annual temperature is -5°C. Annual precipitation is approximately 40 cm, most of which falls as rain. The regional climate can be characterized by information from communities around the park. At Fort Liard, temperatures have ranged from +34 to -46.7°C; at Tungsten +26.7 to -50.0°C. July and August typically have the highest total precipitation (60-90 mm); February and March the least (20 mm). Spring is generally drier than autumn. Despite the averages cited, occasional large-scale summer storms can provide general and widespread precipitation of two to three days duration. Due to the rapid runoff encountered in mountainous terrain, the South Nahanni and its tributaries are subject to relatively rapid flooding, particularly if such rains coincide with the spring freshet, as occurred in 1999.

The mine access road leaves the mine site heading north along the Prairie Creek valley for about 7 km before turning east to cross the Mackenzie Mountains. As the access road climbs out of the Prairie Creek valley it enters into the Subalpine Shrub and Alpine Tundra from about the 1000 m elevation at Km 10. The road continues to climb through the Alpine to the summit of 1530 m at Km 17, then dropping down and leaving the Subalpine again at the 1000 m elevation around Km 25. As the road drops from the 1000 m elevation to the 900 m elevation it passes through a spruce-lichen Alpine forest zone similar to that found at the mine site and then into a Riparian Alluvial habitat in the Sundog tributary valley bottom. Cat Camp itself is located in an open forest Black Spruce/Parkland setting at around the 830 m elevation.

Cat Camp and that portion of the access road from Km 17 to Km 41 are located on the east side of the Mackenzie Mountain divide. All drainage associated with activity in these areas reports to the tributary to Sundog Creek, the Ram River, the North Nahanni River and then the Mackenzie River near Camsell Bend.

The Prairie Creek mine site and that portion of the access road from Km 0 to Km 17 are located on the west side of the Mackenzie Mountains divide. All drainage associated with activity in these areas reports to Prairie Creek, the South Nahanni River, the Liard River and then the Mackenzie River at Fort Simpson.

Baseline studies describing the existing environment in the vicinity of the Prairie Creek mine and along the access road corridor were undertaken in 1980-81 as a component of previous environmental assessments conducted in support of operating permits and licences issued at that time. Additional studies were undertaken in 1994 in support of further permitting efforts. These studies included field assessments and descriptions of fisheries and aquatic resources, wildlife populations and wildlife habitat. They have been used by CZN as the basis for their discussions on impacts of the proposed development.



### **3 Socio-Economic, Political And Regulatory Environment**

*The following description is based on CZN's EAR and the NNPR's Fact Sheet - July 2000.*

The region around the Nahanni National Park Reserve is sparsely populated with approximately 2000-2500 people with the majority of the population being of Dene origin. The nearest settled communities are:

- Nahanni Butte, NT - 90 km to the south-east
- Fort Liard, NT - 170 km to the south
- Fort Simpson, NT - 180 km to the east

The mine site, road and camp are within the area claimed by the Nahanni Butte Dene Band of the Deh Cho First Nations as their traditional territory.

Traditional hunting, trapping and fishing activities continue to occur in the southeastern portion of the NNPR. The primary traditional land users are from the communities of Nahanni Butte although some hunting occurs by members of the other communities.

There are forestry operations expanding into the region from the south, from Fort Liard to Nahanni Butte along the Liard River valley. The Mackenzie Mountains is a heavily mineralized area and claims are staked for gold, tungsten, silver, lead and zinc. Tungsten, a mine on care and maintenance with its adjacent townsite, is located northwest of the proposed development. It has a mineable ore body and requires an improvement in tungsten prices to go back into operation. An abandoned mine site, with buildings on-site and previous road access, exists at Lened Creek in the upper South Nahanni watershed.

The various levels of government provide the majority of employment in the region. Work associated with the oil and gas industry and other resource development provides much of the additional local employment opportunities. Current resource development, particularly oil and gas exploration in the Fort Liard area represents a significant potential for change in the regional socio-economic environment. Local prosperity and improved road and air access to the Nahanni area may affect the affordability, pattern and frequency of access by traditional users and others.

Land management responsibilities for the region are shared among the Renewable, Wildlife and Economic Development (RWED) branch of the Government of the Northwest Territories (GNWT), INAC, and the Deh Cho First Nations (DCFN), all of who have offices in Fort Simpson. The Mackenzie Valley Land and Water Board (MVLWB) issues Land Use Permits and Water Licenses.



## 4 Regulatory History of the Proposed Development

On July 28, 2000, CZN applied to the Mackenzie Valley Land and Water Board (MVLWB) for regulatory approval of activity in and around its Prairie Creek mine site proposed for the fall of 2000. The land use operations proposed under the application were to undertake surface exploration drilling of up to seven (7) holes in an area proximal to the existing underground workings and to recover a cache of diesel fuel left by previous operators dating back to 1982 when the mine was under construction.

A preliminary screening of the proposed development was initiated on July 28, 2000 in accordance with the MVRMA. On October 4, 2000 the MVLWB referred the development proposal to the Review Board, in accordance with ss.126(1) of the MVRMA, citing the following reasons for the referral:

*Referral of the development proposal to the MVEIRB due to the likelihood of the development to have a significant adverse impact on the environment and due to a high level of public concern expressed about the proposal.*

The Review Board is responsible for the assessment of the environmental, socio-economic and cultural impacts of the proposed development according to Part 5 of the *Mackenzie Valley Resource Management Act*. The Review Board is required by s.126 of the MVRMA to conduct an EA of the development proposal and must conduct the EA in accordance with subsection 117(2). The Review Board is also required to prepare and submit its report of environmental assessment in accordance with ss.128(2), a decision under ss.128(1), and written reasons, required by s.121, to the Federal Minister of Indian and Northern Affairs Canada (INAC).

By a letter dated October 11, 2000, the Review Board formally notified regulatory bodies of the referral and initiated work planning for the EA. The Review Board decided on October 30, 2000, to separately assess the mineral exploration development and the fuel cache retrieval and clean-up development. The Review Board came to the conclusion that the fuel cache retrieval development and the mineral exploration development were distinct projects that should not be assessed together due to the fact that there is no linkage between them.

The Review Board has completed its environmental assessment of the fuel cache retrieval and clean-up development. The Board considered the benefits of the proposed development to the residents of the Mackenzie Valley and Canada in light of the possible environmental effects of the development and the public concerns expressed during the environmental assessment process.

As part of the environmental assessment of the fuel cache retrieval, the Review Board considered the following:

- Project Description for the proposed development of the Cat Camp Fuel Cache and Mineral Exploration and the Drilling Program, filed in October 2000;
- Environmental Assessment Report (EAR) for the Fuel Cache Retrieval and Clean-up, filed in January 2001;
- Information Requests and responses dated February and March 2000; and
- All other information contained in the public registry established for this assessment.

A complete list of the contents of the public registry and the documents considered during the preparation of this report is available from the Mackenzie Valley Environmental Impact Review Board.

This report constitutes the reasons for decision of the Review Board and the report of environmental assessment and recommendations required by the Act.



## **5 Summary of the Environmental Assessment Process**

This section of the report explains the methodology used during the environmental assessment process.

### **5.1 Scoping Process**

The Review Board must determine the scope of the development pursuant to ss. 117(1) as well as the scope of the environmental assessment. The Review Board makes these determinations on the basis of comments submitted during the development of the Work Plan and Terms of Reference for the EA.

#### **5.1.1 Scope of Development**

The scope of the development includes those components of the proposed development that will be included for consideration in the environmental assessment. The scope of development takes into account the principal and accessory development activities.

The Review Board identified the principal development activities to be:

- ? re-establishing a 40 km portion of an original access road from the mine site to the fuel cache at Cat Camp, and
- ? clean-up of the fuel cache and relocating the fuel and tanks to the mine site.

Accessory development activities include:

##### **Access Road**

- ? Surface clean-up of the road.
- ? Repair of road wash-outs.
- ? Excavation and use of local fill as repair material.
- ? Placement of culverts for drainage control.
- ? Use of a D-8 Cat, loader and backhoe.
- ? Three weeks of work in July and August.

##### **Fuel Cache Removal**

- ? Use of two Volvo 5350 rock trucks fitted with a suitable containment vessel located and fixed to the truck boxes. Containment vessels are either collapsible fabric such as the Terra Tank Petro Guard Bladder or lightweight polyethylene hard plastic tanks.
- ? Transfer 30,000 gallons of fuel from the Cat Camp bulk storage tanks to the Volvo trucks using a portable gas pump.
- ? Transport of fuel to the mine site.
- ? Transfer of the fuel to the mine's main tank farm using a second pump.

##### **Cat Camp Clean-up**

- ? Transport the skid mounted tanks to the mine site by flatbed truck.
- ? Relocate trailers, barrels and excess culverts to the mine site.

##### **Logistical Support**

- ? Use of the existing mine site facilities as a base camp for the operations.
- ? Use of existing trucking equipment to haul fuel and fuel tanks to back to the mine site.
- ? Helicopter support for safety purposes and personnel transport between Cat Camp and the mine site.
- ? Storage of fuel and other materials at the mine site.

Concern was expressed during the EA that if the Review Board were to approve the fuel cache removal development, thereby allowing a portion of the access road to be upgraded to all-weather status, that this would



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be the first step in incrementally approving the re-establishment of the entire access road to all-weather status. The Review Board came to the conclusion that the fuel cache retrieval development was not linked to the potential development of the Prairie Creek mine. If CZN decides in the future to open the mine and use the access road, the mine and the entire road will be examined for potential impacts on the environment at that time.

### **5.1.2 Scope of Assessment**

Scope of assessment covers the components of the environment that will be evaluated for impacts from the proposed development. In determining the scope of assessment, the Review Board was conscious of its obligation under ss.117(2) of the MVRMA to consider:

- ? the impact of the development on the environment including the impacts of malfunctions or accidents, any cumulative effects that are likely to result from the development in combination with other developments, and
- ? comments submitted by members of the public.

After considering the information placed on the public registry, the Review Board decided on the following scope of assessment:

#### ***Physical and Biological Environment***

##### ***Air Quality and Climate***

air quality

release of air contaminants (dust, particulate exhaust fumes and other air contaminants)

##### ***Terrain***

surficial geology

bedrock or soils

##### ***Vegetation and Plant Communities***

local plant communities

rare or highly valued species

long-term, direct and indirect, habitat loss or alteration

##### ***General Water***

water quality

contaminant loading and dispersion (including surface runoff and airborne contaminants)

##### ***Aquatic Habitat***

aquatic organisms and their habitat

##### ***Wildlife and Wildlife Habitat***

wildlife

wildlife habitats

migratory birds

vulnerable or endangered Wildlife in Canada, (COSEWIC) list

#### ***Human Environment***

##### ***Cultural and Heritage Resources***

Places of cultural, spiritual and/or archaeological significance

##### ***Land, Water and Renewable Resources Use***

Traditional land use and occupation

Existing land use and occupation

Hunting, trapping, and outfitting, recreational, commercial and sport fishing

Availability, abundance and quality of wildlife, fishing, gathering, recreational

Commercial land and water-based areas

Protected areas

##### ***Economy***

Income

Employment

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Incremental abandonment and restoration costs resulting from the proposed development

### *Noise*

Changes to ambient noise levels

Continuous exposure versus acute noise

### *Visual and Aesthetic Resources*

Visual and aesthetic

Design components that mitigate visual and aesthetic impacts.

## **5.2 Work Plan and Terms of Reference**

The Review Board advised CZN that a broader, more detailed development description was needed than that provided in the land use application. The detailed project description for Land Use Permit MV2000C0030 was provided by CZN on October 25, 2000.

On November 6, 2000, the Review Board issued a draft Work Plan and draft Terms of Reference (ToR) for the environmental assessment for public comment on the documents as a whole, particularly on the timeline, scope of development, scope of assessment and directions to Canadian Zinc. The documents were placed on the Review Board's public registry and web site. They were also provided to Canadian Zinc Corporation, the Government of the Northwest Territories, the Deh Cho First Nations, the Nahanni Butte Dene Band, the Liidlii Kue First Nation, the Village of Fort Simpson, the Canadian Parks and Wilderness Society, the World Wildlife Fund, Ecology North, the Canadian Arctic Resources Committee, the Fort Simpson Métis Local 52, the Nahanni National Park Reserve, Health Canada, Fisheries and Oceans Canada, the Mackenzie Valley Land and Water Board, Environment Canada, Transport Canada, Natural Resources Canada, Indian and Northern Affairs Canada, Mr. Petr Cizek, Mr. Chris Reid and Mr. Don Antoine.

The consultation period on the draft documents was from November 6, 2000 to December 20, 2000. The Government of the Northwest Territories, Fisheries and Oceans Canada and the Nahanni National Park Reserve provided expert advice.

More than 30 letters from the public were received during the course of the environmental assessment expressing concern about the proposed development. The Review Board's staff also met with representatives of environmental non-governmental organizations and the developer. Regular environmental assessment updates were placed on the Review Board's web site.

The Review Board considered all comments received and available information before issuing the final Work Plan and final Terms of Reference on December 22, 2000. The Work Plan established the milestone dates and identified the Review Board's expectations for the completion of the environmental assessment. The Terms of Reference detailed the scope of development and scope of assessment and provided directions to Canadian Zinc and others regarding their roles, responsibilities and deliverables in the remaining EA process.

## **5.3 Conformity Review**

CZN completed its EA Report (EAR) on the basis of the final ToR and filed the report for the fuel retrieval and clean-up project with the Review Board on January 26, 2001. The Review Board undertook a conformity review to ensure that CZN had provided the information requested in the Terms of Reference. On February 19, 2001, the Review Board ruled that the CZN EAR conformed to the requirements of the Terms of Reference and closed the conformity review.



#### **5.4 Technical Review**

A technical review of CZN's EA Report was initiated concurrent with the conformity review. This was done through the Review Board's Information Request (IR) process<sup>1</sup>. The IRs helped to facilitate the technical analysis of the proposed development. The Review Board's staff co-ordinated the analysis of the EA. The analysis included opportunities for regulatory authorities (RA's), expert advisors, First Nations, communities, the public and other interested parties to present their information to the Review Board. The result of this step was to find and focus on unresolved or unclear issues, and to provide the Review Board with the additional information that would contribute to its decision.

#### **5.5 Development Impact Boundaries**

The terms of reference did not specify the spatial or temporal boundaries to be used when considering the maximum zone of influence or the duration and occurrence of impacts of the proposed development with the expectation being that CZN would describe the boundaries that they used for their environmental impact analysis. However, CZN did not include this information in the EA Report. It would have been beneficial for the Review Board had CZN included both the methods they used to predict impacts were or were not going to happen and the methods they would have used to predict how long the impacts would last and where they would occur. It is assumed that this information on impact boundaries was not provided because CZN concluded that there would not be any significant impacts.

#### **5.6 Determining Significance**

Section 128 of the MVRMA requires the Review Board to decide whether or not a development will have a significant adverse impact or significant public concern based on the evidence provided and report their conclusion to the Responsible Minister. Where a secondary source of evidence is provided, the sources should be appropriately referenced. In this process, the Review Board has no objection to the proponent or others applying professional judgement and the use of previously completed reports. In fact, it is encouraged as long as the basis for the conclusion is documented, the expertise applied is identified and, if possible, the person and/or source of information responsible for the conclusion is also identified.

For the Review Board to make the decision required by Section 128, there must be a clear explanation of the effect that the mitigation measure to be imposed will have on the impact that it is meant to ameliorate. In other words, it is the Review Board's view that it must, under ss.117(2) of the MVRMA, be advised of the significance of an impact without mitigation and then receive a careful explanation of the effect mitigation will have in reducing that impact.

In determining significance, the Review Board considered the impact of the proposed development on each component of the scope of assessment. When potential impacts were identified, the factors considered included:

- ? magnitude
- ? geographic extent
- ? timing
- ? duration
- ? frequency
- ? irreversibility of impacts; and
- ? probability of occurrence and confidence level.

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<sup>1</sup> Information requests are an interrogatory in the form of written questions and answers.



## 6 Review Board Conclusions and Recommendations

Sections 4.1 and 4.2 of the EA Terms of Reference provided instructions to CZN on the issues/items that should be included in the EA Report. This report discusses only those issues/items that generated comments or are deemed by the Review Board to warrant inclusion in this report.

Each of the following sections includes:

- ? the instructions provided in the Terms of Reference;
- ? a summary of CZN's EA submission;
- ? a summary of comments received from technical reviewers;
- ? Review Board conclusions; and
- ? Review Board recommendations, if any.

The Review Board's conclusions and recommendations are based upon a consideration of all of the information listed on the public registry.

### 6.1 Terrain

*Report the impacts on the environment when surficial geology, bedrock or soils are disturbed, or used for construction purposes.*

*A portion of the tote road passes through the Nahanni Karst area, an area identified by Parks Canada as one of three Parks Canada NNPR expansion areas. Explain and report what efforts are being made to keep the impact to the environment to a minimum on the Karst portion of the tote road.*

CZN concluded that the impacts of the proposed development on the terrain are expected to be negligible and that the minor surficial terrain impacts associated with the proposed undertaking will be additional to those that have already occurred in conjunction with previous construction of the winter road alignment and development at the site. The borrow materials used by CZN in repairing the roadbed will be sourced from locally available materials immediately adjacent to the road bed. They expect residual impacts to be minor as the borrow areas represent relatively small areas and will be re-contoured and stabilized following use.

CZN states that the Cat Camp fuel cache is located approximately 2 km north of the northern boundary of the Nahanni Karst candidate area. The access road between the mine site and Cat Camp passes through the extreme northwest corner of the candidate area from approximately Km 32 to Km 35 as the road drops down into the Sundog Creek tributary valley. Only minor repair work is required on the existing roadbed so CZN concludes that negligible disturbance or impact to the environment is expected to occur.

The GNWT is satisfied that the information provided by CZN in their EA Report is sufficient to support their conclusion of negligible impacts.

The NNPR does not think that CZN has provided adequate justification for their conclusion of negligible impacts and state that CZN appears to have based this conclusion largely on the fact that the area has been previously developed. The NNPR points out that the previous development was a winter operation and that the impacts are potentially greater for a summer operation than for a winter operation.

The NNPR states that CZN is incorrect in their statement that the Cat Camp is approximately 2 km north of the Nahanni Karst candidate area. The NNPR states that both the Cat Camp and a long stretch of the former winter road alignment are well within the Nahanni Karst candidate area.



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The NNPR notes that the international significance of its geology, including karst features, is part of the reason Nahanni National Park Reserve was designated as a World Heritage Site although the Reserve itself contains only a small and unrepresentative sample of the surficial landforms.

The NNPR concludes that construction of a permanent road on this sensitive terrain could have serious, potentially irreparable impacts. The underground passages found in karst terrain are often modified by mechanical erosion (i.e. the collapse of walls or roofs). Although total avoidance of vehicle traffic is preferred, the use of a winter road would likely serve to reduce impacts as the solution processes of karst landscapes will presumably be reduced or entirely halted in the winter. The corresponding likelihood of collapse and damage to features will likely be lessened by restricting activity to the winter.

The NNPR notes that CZN fails to mention the implications to worker safety due to the potential collapse of karst features.

The NNPR also notes that CZN does not appear to understand what karst landforms really are and cannot, therefore, understand their potential sensitivity to disturbance. CZN states that the Ram Plateau is the most representative area of high value in terms of karst development. The NNPR contradicts this and states that the Ram Plateau does not have karst landforms.

### **6.1.1 Conclusions**

The Review Board recognizes that CZN would be sourcing the borrow material from areas immediately adjacent to the road bed and that CZN is proposing mitigative measures to reduce potential impacts. The Review Board also recognizes that some repair of the road bed would be required to address potential safety implications. However, the Review Board is of the opinion that CZN should have provided more information in their assessment, including such items as identifying the number and location of those sections of the road requiring repair and the estimated quantities of borrow material required. Given that CZN is estimating four weeks will be required for road rehabilitation, CZN should have some idea of the work required.

CZN should also have provided more accurate and detailed evidence to support their conclusion of negligible impacts on karst features.

The Review Board appreciates the comprehensive analysis completed by the NNPR on this issue. The Review Board considered the following to be significant factors to be considered when making their decision:

- ? CZN made errors in their EAR concerning the location of karst features;
- ? Karst features are sensitive and impacts on them are permanent;
- ? The geological significance of karst features; and
- ? The road and cache site are within an area of karst features.

The Review Board concluded that the proposed development will likely have a significant adverse impact on the terrain, particularly karst features. The area of the impact would be the immediate vicinity of the road, the fuel cache site and the borrow locations. The extent of the impact would be the permanent alteration of karst features.

### **6.1.2 Recommendations**

To mitigate the environmental impacts, the Review Board recommends that the development only be permitted to occur during the winter season when the impacts on karst features can be avoided or minimized. The mine access road should be utilized as a winter road, not as an all-weather road.



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The Review Board also recommends that the fuel cache tanks be subjected to regular inspections until their removal.

### **6.2 Vegetation and Plant Communities**

*Analyze impacts of the proposed development on local plant communities, rare or highly valued species, and long-term, direct and indirect, habitat loss or alteration.*

CZN concluded that the impacts of the proposed development on vegetation and local plant communities resulting in habitat loss or alteration are expected to be negligible. CZN's reasons for their conclusion includes the facts that minimal clearing will be required in order to carry out the proposed program and that borrow materials will be sourced immediately adjacent to the existing roadbed and will entail minimal disturbance of vegetation or plant communities. CZN's assessment did not identify any rare, highly valued, threatened, endangered or special concern species in the area.

The GNWT agrees with CZN that the development of the road should not cause significant impacts on vegetation but they note that CZN did not provide a detailed account of borrow quantities and locations. The GNWT recommends that mitigative measures be employed to reduce potential impacts. These measures include scarifying and reseeded those areas disturbed to obtain borrow material.

The NNPR does not think that CZN has provided adequate justification for their conclusion of negligible impacts. They state that CZN appears to have based this conclusion largely on the fact that the area has been previously developed. NNPR points out that the previous development was a winter operation and that the impacts are potentially greater for a summer operation than for a winter operation.

#### **6.2.1 Conclusions**

The Review Board is of the opinion that CZN should have provided more information in their assessment, including such items as identifying potential borrow locations and the types of plant communities in these areas.

The Review Board recognizes that the development will occur primarily on an existing road bed and fuel storage site so the impacts on vegetation in these areas should not be significant. The primary source of impacts on vegetation and plant communities will be the excavation of borrow materials.

The Review Board concludes that the proposed development will not likely have a significant adverse impact on vegetation and plant communities.

#### **6.2.2 Recommendations**

The Review Board does not have any recommendations.

### **6.3 General Water**

*The assessment of proposed development impacts on water quality should consider contaminant loading and dispersion (including surface runoff and airborne contaminants).*

CZN concluded that the impacts of the proposed development on water are expected to be negligible. They believe that the fuel recovery program will result in negligible emissions or discharges to air, land or water that will then have the capability of being transported to surface waters.



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DFO found that CZN adequately addressed the potential effects of the project but urged that the mitigative measures in DFO's Letter of Advice to CZN be incorporated into the project design to minimize potential impacts.

EC stated that appropriate sediment control measures (such as diversion berms and silt curtains) must be adopted as necessary to prevent sediment entering any stream course. EC also stated that the road alignment must be stabilized during and after project to ensure that surface erosion does not occur.

The GNWT is satisfied that the information provided by CZN in their EA Report is sufficient to support their conclusions regarding environmental impacts on water.

### **6.3.1 Conclusions**

The Review Board recognizes that siltation into water bodies is a common environmental issue that can be dealt with through standard mitigative measures applied at the regulatory stage.

The Review Board concludes, based on the analysis provided, that the proposed development will not likely have a significant adverse impact on water.

### **6.3.2 Recommendations**

The Review Board does not have any recommendations.

## **6.4 Aquatic Habitat**

*The impacts on aquatic organisms and their habitat shall be considered taking into account predicted water quality and quantity impacts.*

CZN concluded that the impacts of the proposed development on fisheries or other aquatic resources are expected to be negligible, since, as stated previously, impacts to water quality and quantity are also expected to be negligible.

Based on previous studies, CZN concluded that fish utilization of Prairie Creek appears to be confined largely to the headwaters, upstream of the mine site and access road, and to the mouth some 48 km downstream. The headwaters appear to be utilized by Dolly Varden and Rocky Mountain Whitefish. Arctic Grayling do not appear to move upstream in Prairie Creek beyond the lowest reaches near the mouth. Limited use appears to be made of Prairie Creek in the vicinity of the mine site, or downstream of the mine site above the mouth. Arctic Grayling have been observed to utilize the Sundog Creek tributary in the vicinity of Cat Camp for spawning in the spring. However, water flow decreases substantially in the late summer and early fall, in some cases disappearing altogether. Completing the work at this time will minimize impacts to aquatic resources.

DFO found that CZN adequately addressed the potential effects of the project but that the mitigative measures in DFO's Letter of Advice to CZN should be incorporated into the project design to minimize potential impacts.

The NNPR disputes CZN's conclusion that there is limited use of Prairie Creek in the vicinity of the mine or downstream of the mine site above the mouth. The NNPR states that Bull Trout are a migratory species and likely do pass by the area of the mine site seasonally and may be affected by siltation at creek crossings. The NNPR also notes that the Bull Trout has been found to be very sensitive to industrial disturbance.



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### 6.4.1 Conclusions

The Review Board would have appreciated a more comprehensive review of this issue from DFO. Given the analysis provided by DFO and the uncertainty in the review by the NNPR, the Review Board has decided to accept CZN's assessment with the understanding that the mitigative measures provided by DFO will be incorporated into the project design.

The Review Board concludes, based on the analysis provided, that the proposed development will not likely have a significant adverse impact on aquatic habitat.

### 6.4.2 Recommendations

The Review Board does not have any recommendations.

## 6.5 Wildlife and Wildlife Habitat

*The environmental assessment report shall provide an analysis of the proposed development's impacts, (both direct and indirect), on wildlife and wildlife habitats, including migratory birds. Special consideration shall be given to species listed as vulnerable or endangered on the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) list.*

CZN concluded that the impacts of the proposed development on wildlife and wildlife habitat are expected to be negligible. CZN states that the activity will be of short duration and undertaken by limited numbers of personnel and equipment, thus limiting impacts. CZN also cited past studies that identified no critical habitats in the area of the mine site or access road for the principal wildlife species observed in the area, these species being Dall Sheep, Moose and Caribou.

The GNWT agrees with CZN's assessment that the impacts should not be significant. The GNWT offered to participate in a preliminary site reconnaissance for the road prior to the commencement of operations to assist in determining the presence and response of wildlife to disturbance.

The NNPR concluded that there were questionable assertions made in the Wildlife and Wildlife Habitat section of the EA Report. The NNPR notes that CZN indicates its proposed development will not impact caribou populations. However, the NNPR cites that research in northern Alberta found that caribou do avoid linear disturbances, including roads, and even seismic cutlines and that, therefore, the reopening of roads and construction of new roads associated with this proposal, in addition to the increased activity on site, some disruption to caribou movement patterns is likely to occur.

The NNPR also questioned CZN's conclusion that "*no impacts are expected on migratory bird populations as no usage of the minesite area by such populations has been identified*". The NNPR noted that many species of migratory birds are present in the region, and that of the 170 recorded bird species in the Reserve, of which 19 were considered permanent residents, and 4 were of unknown status, at least 147 species exhibited migration of some sort, and the vast majority of these would be international migrants, covered by the *Migratory Birds Convention Act*. The NNPR claimed that although not all of the birds found in the Reserve would be present in the mine site area, it is extremely unlikely that there are no migratory bird populations in the area.

### 6.5.1 Conclusions

Although the Review Board appreciates the opinions expressed by the NNPR, the Review Board does not agree with the arguments presented by the NNPR. CZN is not proposing to build new roads or clear any additional land, with the exception of borrow locations beside the road bed. There will not be any additional linear disturbances for caribou to avoid or migratory bird habitat destroyed. As such, the Review Board agrees with



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CZN and the GNWT that the impacts of the development will be of a short duration within an existing right-of-way.

The Review Board concludes, based on the analysis provided, that the proposed development will not likely have a significant adverse impact on wildlife and wildlife habitat.

### 6.5.2 Recommendations

The Review Board does not have any recommendations.

## 6.6 Cultural and Heritage Resources

*Describe potential impacts of the proposed development on cultural and heritage resources.*

CZN concludes that the impacts on cultural and heritage resources are expected to be negligible. No archaeological sites were identified within the area by an archaeological database search conducted by the Canadian Museum of Civilization for CZN. CZN believes that since all activity will take place in areas previously developed, the disturbance of any currently unknown archaeological sites is very unlikely.

The GNWT is satisfied that the information provided by CZN in their EA Report is sufficient to support their conclusions regarding environmental impacts.

The Canadian Parks and Wilderness Society summed up its views regarding the proposed development by requesting that the land use permit application be denied on the basis of the importance of protecting the world class wilderness values of the watershed and NNPR, as well as the status of the South Nahanni Watershed as a proposed protected area to be negotiated through the Deh Cho Process. CPAWS notes that the NNPR is also internationally recognized as a UNESCO natural World Heritage Site for its globally significant natural features and wilderness values on par with other Sites such as the Great Barrier Reef, the Galapagos Islands and the Grand Canyon. CPAWS also notes that the Nahanni was designated under two different criteria; as “an outstanding example representing significant ongoing ecological processes or biological evolution” and for its “superlative natural phenomena, formations, features or areas of outstanding natural beauty.”

The Government of Canada informed the Review Board in its response to an Information Request that “Canada is currently engaged with the Deh Cho First Nations and the Government of the Northwest Territories in a process aimed at resolving land, resource and self government issues in the Deh Cho Region” and that “following the signing of the Interim Measures Agreement (IMA) Canada will enter into land withdrawal negotiations with the Deh Cho First Nations for the purposes of addressing issues such as land withdrawals within the South Nahanni River Watershed. *However, at this time, Canada has no position or policy regarding which areas the parties may agree to withdraw.*”<sup>2</sup> (emphasis added).

### 6.6.1 Conclusions

The Review Board agrees with the assessment of CZN that new archaeological sites are unlikely to be discovered on the road bed. The possibility exists for new sites to be discovered during the clean-up of the Cat Camp (if soil excavation is required) or at the borrow material locations. However, assuming procedures are in place for this situation, the discovery of a new site can be dealt with at that time.

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<sup>2</sup> Department of Indian Affairs and Northern Development. January 29, 2001. IR-Canadian Zinc.



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The Review Board understands and appreciates the importance placed on the South Nahanni Watershed and the Reserve but concludes, based on the analysis provided, that the proposed development will not likely have a significant adverse impact on cultural and heritage resources.

### 6.6.2 Recommendations

The Review Board does not have any recommendations.

## 6.7 Economy

*The impact of the proposed development on the economy, having regard to direct, indirect and induced impacts on income and employment. Incremental abandonment and restoration costs resulting from the proposed development.*

CZN states that in the short term, the proposed development will create modest positive economic impacts for local communities in terms of employment opportunities and contracted support and supply services. CZN employed two local residents of Nahanni Butte for the majority of the 2000 summer season. Similar opportunities are anticipated in 2001 in support of this and other planned programs. The proposed development is expected to employ about 8 people, including a cook, caretaker, mechanic, truck drivers, First Aid attendant, and labourers. Fixed wing aircraft and helicopter support will provide opportunities for charter companies in Fort Simpson and Fort Liard. Consumables will be sourced from local suppliers and flown into the site.

Project management will necessitate travel for head office and other personnel, resulting in positive economic impacts for commercial airlines servicing Yellowknife and Fort Simpson, as well as hotels and restaurants in Yellowknife, Fort Simpson and other local communities.

CZN expects the proposed development to have a positive effect on incremental abandonment and restoration costs as it constitutes progressive reclamation in addressing an outstanding item that would normally be included in reclamation cost estimates. As well, in order to carry out full site reclamation, including removal of the existing buildings and equipment, the access road between the minesite and Cat Camp would have to be similarly rehabilitated to support off-site transport services, again serving to reduce incremental abandonment and restoration costs.

The GNWT is satisfied that the information provided by CZN in their EA Report is sufficient to support their conclusions regarding the development's impacts on the economy.

### 6.7.1 Conclusions

The Review Board concludes, based on the analysis provided, that the proposed development will not likely have a significant adverse impact on the economy.

### 6.7.2 Recommendations

The Review Board does not have any recommendations

## 6.8 Accidents and Malfunctions

*Provide the probability, risk and potential magnitude of an accident or malfunction, and contingencies in the event of an accident and/or malfunction occurrence, related to the proposed development including, but not limited to fuel and other hazardous material spills.*

CZN states that a spill of diesel either during transfer or transport operations represents the only significant potential environmental impact due to accidents or malfunctions associated with this proposed program. The

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potential impacts will be mitigated through careful planning, diligent supervision and emergency preparedness. CZN has developed a Spill Contingency Plan for the Prairie Creek mine. The company maintains a supply of spill clean-up materials at the site including a variety of absorbent materials and ready access to a large inventory of heavy equipment, tools and supplies at the site. Spill response equipment and personnel will be located at key points along the haul route. As a result, the probability, risk and potential magnitude of an accident or malfunction associated with the proposed development are deemed to be low.

The GNWT notes that CZN did not discuss the possible release of fuel from the mine's tank farm. In response to the GNWT's information request, CZN acknowledged that the tank farm was not in compliance with either the CCME Environmental Code of Practice for Above Ground Storage Tank Systems Containing Petroleum Products or the National Fire Code of Canada. CZN correctly notes that the mine tank farm does not have to meet CCME standards until 2009; however, the National Fire Code is in force in the NWT.

The GNWT reviewed CZN's Prairie Creek Emergency Spill Response Plan for 2000-1 and noted several deficiencies with respect to the requirements of the NWT Environmental Protection Plan.

The NNPR notes that CZN has not provided evidence to support their statement that the tanks in the mine's tank farm are in good condition and can safely store the Cat Camp fuel.

EC identified the potential spillage of diesel fuel as one of the main areas of concern with this development. EC states that the proposed measures identified by CZN should provide mitigation against the potential for fuel spills.

### 6.8.1 Conclusions

Based on the analysis provided, the major issue with regards to accidents and malfunctions appears to be a potential spill of diesel fuel at some point in the development or afterwards from the mine tank farm. The Review Board recognizes the commitments made by CZN to address this issue and also the concerns of the GNWT and the NNPR with regards to the integrity of the tank farm.

The Review Board concludes, based on the analysis provided, that the proposed development will not likely have a significant adverse impact due to accidents and malfunctions.

### 6.8.2 Recommendations

The Review Board recommends that CZN have the mine tank farm inspected by INAC before the fuel cache retrieval occurs and that CZN should address the deficiencies noted in their spill response plan by participants in this proceeding.

## 6.9 Consultation

*Provide a summary of all consultations completed, including those with government, the Nahanni Butte Dene Band, the Liidlii Kue First Nation (Fort Simpson) and the Deh Cho First Nation, and the Village of Fort Simpson indicating how any concerns raised by the community have been addressed.*

Between August 2000 and January 2001, CZN consulted with the following communities and organizations:

|                    |  |
|--------------------|--|
| August 14-16, 2000 | Meetings in Yellowknife with INAC, GNWT RWED, EC, DFO, MVLWB, MVEIRB, Parks Canada, DCFN (Petr Cizek). |
| October 6, 2000    | Letter request to NBDB, LKFN, ADKFN, DCFN for meeting.   |
| November 21, 2000  | Meeting in Yellowknife with Mineral Development Advisory Group (INAC, EC, DFO, GNWT RWED, WCB, SRHB).  |

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November 22, 2000      Meeting in Nahanni Butte with NBDB, LKFN, DCFN, CPAWS and Parks Canada.  
January 5, 2001      Letter request to NBDB, LKFN and ADKFN for traditional knowledge.

CZN states that no specific concerns were raised at any of these meetings with respect to the proposal for fuel recovery. Issues raised concerning the proposed development during the course of public and community consultation have been restricted to comments submitted in writing to the Mackenzie Valley Land and Water Board during the public comment period on the original Land Use Permit application and to the Mackenzie Valley Environmental Impact Review Board during the public comment period on the Draft Terms of Reference. CZN is of the opinion that these issues have been incorporated into the Final Terms of Reference in response to which they prepared their EA Report.

### 6.9.1 Conclusions

The Review Board accepts the communication and consultation effort undertaken by the proponent in this environmental assessment given the scale, nature and location of the proposed development. In the Review Board's view, the efforts made by CZN were sufficient to ensure that this environmental assessment was open and fair.

### 6.9.2 Recommendations

The Review Board does not have any recommendations.

### 6.10 Alternatives

*Provide an explanation of viable alternatives to the principle and accessory parts of the development (e.g., winter Cat Trail haul, on-site incineration). Indicate the risks associated with each alternative and indicate whether or not a winter completion of the proposed development is a viable alternative, and if not, explain why not.*

CZN indicated that there were four alternatives evaluated in comparison to the principal development. These alternatives were:

- ? burning the fuel at the present location;
- ? hauling the fuel by winter road out to the Liard Highway;
- ? flying the fuel out; and
- ? relocating the fuel to the Prairie Creek mine site during the winter.

CZN provided descriptions of the activities required for each of these alternatives and their reasoning for why each of these alternatives were rejected in favor of the proposed development.

The GNWT noted that oil and gas operations occur during the winter in terrain similar to that encountered by the proponent and does not agree with CZN's assertion that risks to workers or the environment would become unacceptable with a winter operation. The GNWT believes that a winter recovery of the fuel would be the preferred alternative for removing the fuel given the reduced impacts on wildlife and the reduced impacts that would result from a spill. However, the GNWT also believes that the risk of further fuel leaks by delaying the fuel recovery until winter 2002 outweighs the potentials risks of utilizing an all-weather road in the summer of 2001.

The NNPR is of the opinion that the alternative clean-up methods are rejected by CZN without adequate justification. The NNPR notes that CZN states *the sole objective of this program is to mitigate a known environmental risk*. Given that stated objective, NNPR believes that either a fuel fly-out or winter road removal



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are the preferred options for maintaining ecological integrity, as they appear to have the least impact on the environment.

The NNPR concludes that the fly out option would require no construction, less equipment, and fewer field personnel. It would also complete the project much faster. The NNPR does not accept CZN's argument that the fly out option would be too expensive because it does not appear that CZN fully explored or explained the option in the EA Report.

For the winter road option, the NNPR state that the potential impacts would be lessened on terrain, vegetation, water quality, wildlife and aquatic habitat as compared to using the road in the summer. The NNPR concur with CZN's opinion that the safety of personnel during the winter operation is a valid concern but the NNPR point out that the access road was originally designed, built and used as a winter road. The NNPR do not believe that the re-use of a part of this road would create undue safety risks.

The NNPR reviewed a document titled *Draft Reclamation Costing Model for Prairie Creek Minesite* in the presence of INAC personnel. This document contained some information on the various alternatives for the fuel cache retrieval and Cat Camp clean-up, however, the NNPR found that the comparison of alternatives was deficient given that estimated costs were presented for the options of flying out the fuel or incinerating the fuel but no costs are provided for the proposed development of an all-weather road. The EA Report also presents some costs for the fly-out and incineration alternatives but did not provide any costs for the other two rejected alternatives or for the chosen method of using an all-weather road.

The NNPR also found that details of the road proposal were missing from the costing model such as the number, type and location of stream crossings.

CPAWS supports the removal of the fuel cache but not the method being proposed for its removal. CPAWS states that flying out the fuel would be the preferred option as it would be the least environmentally intrusive. If a road is used, CPAWS would prefer to have the removal occur using a winter road as opposed to the re-establishment of the existing road to all-weather status, which would likely lead to further development and activity along the road and possible direct and cumulative impacts.

CPAWS would support delaying the removal of the fuel until using the winter road in 2002 only if the integrity of the fuel tanks is proven through inspection. If the integrity of the tanks is considered suspect, CPAWS would prefer to have the fuel removed by air in the summer of 2001.

### 6.10.1 Conclusions

The Review Board concludes, based on the analysis provided, that CZN should have provided a structured, quantifiable method of evaluating development alternatives. The Review Board agrees with the NNPR that the development alternatives are rejected without adequate justification and that the evidence for selecting the proposed development is incomplete.

### 6.10.2 Recommendations

The Review Board does not have any recommendations.



## **6.11 Closure and Reclamation**

*Describe, report and evaluate, in relation to the proposed development, the abandonment and reclamation of the Tote road and the fuel cache cat camp areas.*

CZN states that final reclamation and abandonment of the access road is not proposed at this time. Reclamation of the road would be incorporated into the overall reclamation plan developed for the property to be completed at the termination of mining operations, or at a time when a decision not to proceed with mining operations at Prairie Creek was made.

Upon completion of the fuel transfer, CZN will transport the skid mounted tanks at Cat Camp to the mine site by flatbed. The trailers, barrels, excess culverts and other materials will also be relocated to the mine site. The Cat Camp containment berms will be inspected for contamination and any contaminated soil will be relocated to the mine site for placement in a plastic lined and covered cell for bioremediation. Following clean-up, berms will be recontoured to prevent water ponding and allowed to revegetate naturally.

The GNWT is satisfied that the information provided by CZN in their EA Report is sufficient to support their conclusions regarding environmental impacts.

EC supports the proposed removal of contaminated materials from the Cat Camp fuel storage site for remediation at the mine site in an engineered (lined) land farm area.

The NNPR found during their review of the reclamation costing model that soil and water sampling programs, a PCB sampling program, soil replacement and re-vegetation plans are included as part of the costing model but these items have not been discussed in the EA Report.

### **6.11.1 Conclusions**

The Review Board concludes, based on the analysis provided, that CZN has not provided adequate information on how they will determine the extent of contamination at the Cat Camp, how they will monitor the site to ensure that it has been fully reclaimed and how they will rehabilitate the site.

### **6.11.2 Recommendations**

The Review Board recommends that CZN develop more detailed reclamation plans for the Cat Camp including soil and groundwater sampling and monitoring programs and rehabilitation methods.

## **6.12 Cumulative Effects**

*Not listed as a separate issue in the Terms of Reference.*

CZN concludes that within the narrow spatial boundaries of the immediate mine site area and the surrounding Prairie Creek watershed, the potential for cumulative effects is considered minor. No other development or activity, other than mineral exploration and mine development at the Prairie Creek mine, has occurred in the past, been proposed, or can be reasonably foreseen in the future. The only other activity that has taken place in the area was the peripheral staking of mineral claims surrounding the pre-existing Prairie Creek claim block in May 2000. As the Prairie Creek claim block encompasses the whole of the mineralized trend zone based on current geological interpretation, this staking is believed to be primarily speculative in nature.

Within the broader spatial context of the entire South Nahanni watershed, CZN considers the potential for cumulative effects of the proposed program to also be minor. It is expected that there will be no significant



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adverse effects on Prairie Creek, the South Nahanni River or the Nahanni National Park Reserve associated with the proposed development.

The Canadian Parks and Wilderness Society indicated that there are two mine sites and three other sites with high potential that it is aware of in the watershed. These are Copper Ridge Exploration's Howard Pass lead, zinc and silver mining project, the Union Carbide project at Lened Creek, the MacTung and CanTung tungsten mines owned by North American Tungsten, and the Prairie Creek mine. With these potential projects existing in the same watershed CPAWS claims there is high potential for significant adverse and cumulative environmental impacts. CPAWS submitted that a watershed scale environmental impact review in conjunction with a cumulative environmental effects assessment be conducted if and when an application to begin operating any single mine in the South Nahanni watershed is received, in order to determine if mining, given its potential environmental risks, is an acceptable land use in the watershed.

CPAWS also takes the position that the access road to the mine is linked and interdependent to the operation of the mine and that an application to re-establish the road would be tantamount to operating the mine and would, therefore, require a full environmental impact review.

The Nahanni National Park Reserve concluded that the cumulative effects component of the environmental assessment report was inadequate, lacked detail, and that it was inappropriate for CZN to claim that since developments occurred in the past, additional new construction on site would have no impact. The NNPR also indicated that the consideration of 'reasonably foreseeable future actions' is not appropriately addressed in the cumulative effects section as there are 'reasonably foreseeable activities', not considered in the environmental assessment. The NNPR noted an unsubstantiated CZN conclusion that "*residual impacts [of previous activity] are principally visual and aesthetic, and confined to physical disturbance directly associated with the construction development of the existing facilities*" citing that CZN provided no data analysis to verify its claim. NNPR indicated that such data could include quantified wildlife inventories, vegetation plots or fisheries assessments, to determine conditions before and after use, and thereby indicate whether or not there are effects beyond the 'visual and aesthetic.'

The NNPR found the paragraph on water quality misleading. The water quality monitoring mentioned started two years after CanTung closed. With no baseline data from before CanTung or data from when CanTung was operating, it is not possible to conclude that CanTung did not affect the water quality.

### 6.12.1 Conclusions

The Review Board does not agree with CPAWS' assertion that re-establishing the access road to retrieve the fuel cache would be tantamount to operating the mine. The Review Board also notes that the MacTung deposit is not within the South Nahanni Watershed.

The Review Board agrees with the NNPR that CZN's cumulative effects assessment could have been significantly bolstered. However, the Review Board concludes, based on the scale of the project and the analysis provided, that the proposed development will not likely have a significant adverse cumulative impact.

### 6.12.2 Recommendations

The Review Board does not have any recommendations.



## 7 Review Board Environmental Assessment Decision

The Review Board concludes, based on the analysis provided, that the proposed development will likely cause a significant adverse impact on the terrain, particularly karst features.

Section 128(1)(b)(ii) of the Act gives the Review Board the authority to recommend approval of the development proposal subject to the imposition of such measures as it considers necessary to prevent any significant adverse impacts. As such, the Review Board has decided to recommend approval of the development subject to the following condition:

*That the development occur in the winter of 2001/2002 using the access road from the mine to the fuel cache as a winter road, not as an all-weather road.*

For the consideration of the Mackenzie Valley Land and Water Board, the Review Board recommends that:

1. The Cat Camp fuel tanks be regularly inspected and determined to be able to safely contain the diesel fuel until its retrieval in the winter of 2001/2002.
2. Canadian Zinc Corporation (CZN) have the mine tank farm inspected by Indian and Northern Affairs Canada (INAC) before the fuel cache retrieval occurs and that CZN should address the deficiencies in their spill response plan noted by participants in this proceeding.
3. CZN develop more detailed reclamation plans for the Cat Camp including soil and groundwater sampling and monitoring programs and rehabilitation methods.

To make its decision, the Review Board has relied upon the information in CZN's Environmental Assessment Report (EAR) and all of the other information on the public registry. The Review Board fully expects CZN to discharge all of the mitigative measures given in its EAR as well as the condition recommended by the Review Board. If these mitigative measures are not implemented, the Review Board's conclusions about impact significance could be affected.