



Environment & Conservation
Box 1500
YELLOWKNIFE NT X1A 2R3

October 14, 2008

MVEIRB File Number: EA0809-002

Alistair MacDonald
Environmental Assessment Officer
Mackenzie Valley Environmental Impact Review Board
P.O. BOX 938
YELLOWKNIFE NT X1A 2N7

BY FAX: 766-7074

**Re: Canadian Zinc Prairie Creek Environmental Assessment Scoping
Submission**

Dear Mr. MacDonald:

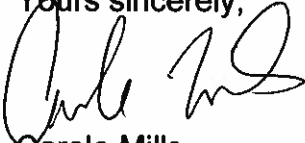
Thank you for the opportunity to provide comments on the above-noted topic. INAC's answers in response to the four scoping questions are attached. INAC has previously provided some comments in its August 8, 2008 letter to MVEIRB referring the project to environmental assessment.

INAC notes that one of the key purposes of scoping during an environmental assessment is to focus the assessment on the areas of greatest concern. INAC anticipates that Canadian Zinc will be providing substantial additional information about its project plans over the next several months. As this additional information is provided, some of the issues listed in the attached submission may be resolved and may not require further examination or new issues may need to be added.

Additionally, INAC recognizes that the proposed Prairie Creek mine is of great interest for Aboriginal people in the Dehcho region. Accordingly, INAC has commenced its Crown consultation activities and will continue to do so. As you are aware, INAC's approach to Crown consultation also builds upon procedural aspects of consultation that already occur, which in this case includes the environmental assessment process. We look forward to continuing to work with MVEIRB by assessing the information that comes to light during the course of this environmental assessment, as part of INAC's Crown consultation activities. It should be noted that INAC will also take into account any engagement activities undertaken by Canadian Zinc when assessing the extent of consultation in this case.

If you have any questions about this submission, please contact (Krystal Thompson) at 669-2595 or via email at thompsonkr@inac-ainc.gc.ca.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Carole Mills', written in a cursive style.

Carole Mills

A/Director, Renewable Resources and Environment

cc. INAC EA Working Group

**Canadian Zinc Prairie Creek Mine
EA 0809-002
Scoping Questions
INAC Submission**

Please find INAC's response to the four scoping questions set out by the Mackenzie Valley Environmental Impact Review Board below. Also attached are INAC, Water Resources' consultant's comments regarding scoping question 1. More detailed comments regarding scoping of the environmental assessment will be provided once the draft Terms of Reference is made available.

Scoping Question 1. What biophysical, socio-economic and cultural issues merit consideration during the environmental assessment and why?

BIOPHYSICAL

a. Water quality –

- Water management/treatment system: including mine water, various process plant discharges and sewage. The risk of elevated levels of metals as well as additional chemicals added during processing entering Prairie Creek must be addressed. Ammonia management must also be addressed.
- Paste backfill: Particular attention to the potential interaction of groundwater flow contacting the paste backfill and the effect that may have for water quality post closure. More information is required from the developer regarding paste backfill, including the paste backfill mix, method, placement and bulkheads.
- Seepage from ore and waste rock storage: A detailed hydrological and hydrogeological study should be conducted in order to determine the path the water takes through the valley, in order to identify any groundwater flow at the site and immediately upstream and downstream that might not be caught by the proposed system of drainage ditches.

b. Hydrogeology – The developer should conduct a hydrogeological study to determine the direction of groundwater flow at the site and immediately upstream and downstream of the site. This will also aid in determining the location of any future monitoring sites.

c. Slope/Berm Stability - The stability of the slope and berms should be included in the assessment. This is particularly true of the slope bordering the water holding ponds A and B, which has slumped in the past, and the portion of the berm separating Prairie Creek from the water holding ponds A and B. INAC notes Canadian Zinc's statement at the October 10, 2008 scoping session that the company will be installing inclinometers at certain locations on the site and will be making that data available during the environmental assessment.

d. Seismic Stability – all mine components and operations need to be assessed for seismic stability should an earthquake occur. This assessment should include the stability of specific structures as well as contextual information on the frequency of earthquakes and other seismic activity in the vicinity of the project site.

- e. Acid Rock Drainage – paste back fill, seepage from ore and waste storage areas.
- f. Karst features – changes in hydrology due to local Karst geology,

INAC also expects that the following areas would be included in the environmental assessment: impacts to wildlife, wildlife habitat, including vegetation, and wildlife harvesting, species at risk, migratory birds, and impacts to fish, fish habitat and fish harvesting. INAC will not be providing detailed comments on these areas at this time.

In relation to any or all of the above, as applicable, impacts of the environment on the project should be part of the assessment, e.g. how landslides, earthquakes, changes in climate could affect the project.

Socio-economic and cultural issues such as employment and training opportunities, community capacity, and traditional harvest and land use merit consideration.

Finally, both scientific and traditional knowledge should be considered in relation to the above questions, as applicable.

Scoping Question 2. What principal and accessory development components (physical works and activities) should be considered within the scope of development for this environmental assessment?

The scope of the development should be based upon Canadian Zinc's three land use permits and one water license application. INAC suggests that the Review Board scope the development to focus on the proposed changes and additions to the existing infrastructure and its use in light of the requirements set out in the MVRMA, the Board's own Environmental Impact Assessment Guidelines. The May 2005 ruling of the NWT Supreme Court (Docket S-0001-CV2004000236) with respect to the exemption of the existing winter road land use permit (MV2003F0028) from Part V of the MVRMA and associated rulings should also be considered. The emphasis should be on the following components in relation to the existing infrastructure.

- A. Paste backfill system
- B. Polishing pond
- C. Catchment pond/water storage pond
- D. Transportation, specifically use of the Liard Highway and air travel
- E. Tetcela and Liard Transfer facilities
- F. Sewage management
- G. Waste Management, including waste rock pile
- H. Power plant
- H. Other new project components not listed above e.g. Kitchen/diner block with accommodations, ore stockpile, Dense Media Separation (DMS) Plant, incinerator

In relation to any or all of the above, as applicable, alternative methods should be considered.

Scoping Question 3. What are appropriate temporal and geographic scopes of assessment for consideration of project specific and cumulative effects assessments?

Project – Specific Assessment Scope

- **Temporal** - The temporal scope should be determined as appropriate for each Valued Component. Generally speaking, the scope may begin as early as exploration of the site and could extend to post mine closure. For hydrology, the effects should be considered in perpetuity since the paste backfill will remain there forever.
- **Geographic** - The spatial scope should be determined as appropriate for each Valued Component. Generally speaking, for water quality and quantity, the scope of the assessment could include the South Nahanni River watershed, the Prairie Creek watershed, the Liard River downstream of the South Nahanni River.

Cumulative Effects Assessment Scope

Paragraph 117(2)(a) of the MVRMA requires that every environmental assessment “include a consideration of ...any cumulative impact that is likely to result from the development in combination with other developments.” INAC notes that MVEIRB has developed Cumulative Effects Assessment Guidelines to provide further details around the implementation of this requirement.

In INAC’s view, the winter road and any future plans for exploration Canadian Zinc has in the Prairie Creek area are within the scope of the cumulative effects assessment. INAC expects that MVEIRB will identify any other applicable components. In INAC’s view, conditions or mitigation cannot be retroactively applied to the winter road due to its grandfathered status.

- **Temporal** – The temporal scope should be determined as appropriate for each Valued Component. Generally speaking, the scope may begin as early as exploration of the site and could extend to post mine closure. For hydrology, the effects should be considered in perpetuity since the paste backfill will remain there forever.
- **Geographical** – The spatial scope should be determined as appropriate for each Valued Component. For water quality and quantity, the scope of the cumulative effects assessment should include the South Nahanni River watershed, the Prairie Creek watershed, the Liard River downstream of the South Nahanni River, and the watersheds crossed by the winter road.

4. What evidence (if any) from previous studies, management plans or environmental assessments should be transferred onto the public record for this environmental assessment, and why?

MVEIRB should consider all **relevant** evidence from existing studies and management plans.

All studies and management plans in existence that are still applicable to the current project description should be added to the public record. To date Canadian Zinc has not provided detailed management plans for the operating mine; INAC looks forward to reviewing them during the environmental assessment as they become available.

INAC recommends considering the following documents, in addition to the documents Canadian Zinc has previously identified to the Review Board:

- A. Mine water contingency plan from Pilot Plant Water Licence
- B. Inspection Reports from Pilot Plant Water License and Land Use Plan, as well as comments on 2008 renewal applications for Pilot Plant Water License and Land Use Plan.
- C. Summary Document Water Quality and Aquatic Biology, Beak Consultants Feb 1982
- D. Further 1981 Aquatic Studies Related to the Cadillac Mines Development Ker, Priestman and Associates 4/28/1981
- E. Dene and Métis Association Intervention NWTWB 4/10/1981
- F. Cadillac Mine project outline (and reviews and comments on it) Ker, Priestman and Associates 11/4/1980
- G. INAC and other government agency water quality data, including Aquatic Baseline Study INAC June 81-June 82 (INAC is assembling a list of its reports)
- H. Prairie Creek Project Vegetation and Wildlife Studies, 1981
- I. Prairie Creek Project Fisheries and Invertebrate Studies 1981
- J. Draft Guidelines for EA Report Prairie Creek Project San Andreas Corp 6/1/1995 (INAC provided a copy to the MVEIRB registry for EA 01-002 in June 2001)
- K. Existing abandonment and restoration/closure and reclamation plans
- L. Prairie Creek Mine Scoping Study, Canadian Zinc Corporation, January 2001
- M. Technical Report on the Prairie Creek Mine, MineFill Services, October 2007
- N. Letter from INAC to MVLWB concerning Crown consultation on the winter road permit (Feb14, 2007)

Please note that the above list is not intended to be exhaustive and the fact that a particular document is not on the list does not mean that INAC would not consider it relevant.

As the environmental assessment proceeds and additional information about the project becomes available, INAC may identify additional documents for MVEIRB to consider transferring to the public record for EA 0809-002.

INAC recommends that the Review Board add the following INAC guidelines to the public registry:

- Guidelines for Spill Contingency Planning (April 2007) (available online at http://nwt-tno.inac-ainc.gc.ca/pdf/wr/INAC_Spill_guidelines_web.pdf)
- Mine Site Reclamation Guidelines, 2007 Version (available online at http://nwt-tno.inac-ainc.gc.ca/pdf/wr/2007_Mine_Site_Closure_and_Reclamation_Guidelines_E.pdf)
- Mine Site Reclamation Policy for the Northwest Territories, (2002) (available online at http://www.ainc-inac.gc.ca/ps/nap/recpolnwt_e.pdf)

INAC – Water Resources retained the services of WESA to provide detailed technical comments as part of the Scoping Phase of the CanZinc – Prairie Creek EA. Below is a table listing their comments.

The following discussion of the recommended scope of Environmental Assessment is focused on those components of the Prairie Creek mine that have been modified since the original activities proposed by Cadillac Explorations Ltd. The discussion is framed within the four questions put forward by the MVEIRB for consideration during the scoping phase (letter dated August 28, 2008):

Issue/Topic	Descriptions/Notes/Comments
<p>1. What biophysical, socio-economic and cultural issues merit consideration during the environmental assessment and why?</p> <p>Hydrogeology – physical flow regime</p>	<ul style="list-style-type: none"> - A more accurate prediction of groundwater inflows to the mine are required during development, and upon backfilling with cement paste backfill; - This will produce an improved prediction of the resultant flows of mine drainage to the water storage pond. At present, the mine drainage is estimated at twice current flows (2 x ~20 L/sec), without any scientific evidence to support such an estimate. - An improved water balance should be undertaken for use of groundwater inflows for drilling & blasting, and any excess water management or make-up water requirements should be better defined. - Impact of the use of cement paste backfill on mine opening physical stability, mine water inflows and groundwater quality. Groundwater inflow can be expected to remain following backfill and mine closure, these quantities and potential effects need to be assessed. - It is stated that groundwater inflow is the result of recent precipitation & infiltration; however, there has been no assessment of groundwater-surface water interaction and the potential impact from mine development on baseflows to surface watercourses; - There is a need to define the groundwater & surface water flow regime in the proposed area of the waste rock pile. - Better definition of groundwater flows through the underlying alluvial deposits is required. It can be expected that precipitation will infiltrate through the waste during operation and post-closure, thereby generating leachate that can enter the groundwater flow regime. The proposed sediment pond system does not consider that leachate can flow through the underlying alluvial deposits and discharge into Harrison Creek.

Hydrogeology – water quality

- An assessment is required of the mine water effluent quality (metals, ammonia, solids, alkalinity, pH) as mine development progresses (e.g., to the deeper SMS ore zone); it can be expected that the mineralization will result in significantly increased concentrations of metals and other dissolved solids that will need to be treated. This can have potential effects on mill water quality, the water treatment system and final effluent discharge to Prairie Creek;
- The potential for leachate generation and contaminant transport (pathways, receptors) from the waste rock pile needs to be assessed.
- Leachate management from the temporary DMS rock storage area should be better defined.
- There is a significant difference in Zn concentrations in Prairie Creek immediately downstream of Catchment Pond discharge (Table 3-6 of *Project Description Report*); there is a need for a more detailed quantitative assessment of the proposed increased scope of mine development on the proposed water treatment system and final effluent quality (including mine water, mill process effluent, sewage treatment system discharge);
- Effect of proposed reagent chemicals on treatment processes and final effluent quality needs to be assessed (eg., organics, nutrients, salts);
- The aquatic species identified in Prairie Creek and its tributaries are sensitive to un-ionized ammonia concentrations. Ammonia sources and concentrations (mine water, explosives residue, sewage treatment plant) need to be better defined; the impact of elevated pH on the un-ionized ammonia concentrations in the final effluent should be evaluated;
- Long-term slope stability under static and seismic conditions should be assessed;
- The final cover design needs to be evaluated in more detail – slopes & long-term stability of the clay cover at 2H:1V, the source and required quantities of the proposed clay-rich soil should be identified, post-closure infiltration rates & leachate generation quantified;
- Completion of a preliminary Mine Closure and Reclamation Plan should be included as part of the Terms of Reference for the Environmental Assessment, as outlined in the *Mine Site Reclamation Guidelines for the Northwest Territories* (INAC, January 2007).

Miscellaneous