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Date

Feb 18/03

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*Reserved  
2nd time  
Fax busy!*

Alan Ehrlich

*Spp tot  
+ cover*

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*Hi Alan Here in DIAND's  
response to the CZN*

*Jala**Marie*



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DIAND  
P.O. Box 1500  
Yellowknife, NT, X1A 2R3

February 18, 2003

*Your file - Votre référence*

*Our file - Notre référence*

Alan Ehrlich  
A/Manager, Environmental Impact Assessment  
Mackenzie Valley Environmental Impact Review Board  
P.O. Box 938  
Yellowknife, NT, X1A 2N7

Dear Alan:

**Re: Canadian Zinc Corporation - Decline and Metallurgical Pilot Plant - Comments on Response to MVEIRB from CZN dated January 31, 2003:**

Attached is DIAND's assessment of the response provided by Canadian Zinc Corporation's (CZN) with regard to deficiencies in the CZN development plan as identified by the Review Board. Protection of the water quality of Harrison Creek and Prairie Creek and ultimately, the South Nahanni River as is of prime importance to the Department and to the general public.

We feel that sufficient details were provided to address concerns expressed over the preferred means of water management plan for the decline development and pilot plant operations. CZN has provided estimates of expected water flows, the location and dimensions of a lined polishing pond for retention and treatment, if necessary, of mine water discharges. Predictions of water quality from the settling pond discharges were also provided.

While CZN's preferred treatment plan may be viable, the company's continued reliance on the tailings facility as an alternative means of containment without providing an assessment of the suitability of this facility as a contingency continues to be troubling. In its most recent correspondence on this issue to the Review Board, DIAND stated that:

"... it is important for CZN to also describe its alternatives to its proposal to discharge to the environment. CZN will need to provide an assessment of the impacts of carrying out its proposal and will also need to provide an assessment of its alternatives which are technically and economically feasible for containment of all effluent and discharge."

CZN has failed to certify the integrity of the tailings facility as previously requested. It should do so. Nor has CZN provided a backup to the tailings pond alternative (save ceasing operations) should its preferred treatment method be inadequate. It should do so.

2

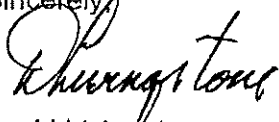
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- 2 -

Please do not hesitate to contact me for clarification on any of these matters.

Sincerely,

A handwritten signature in cursive script, appearing to read "D. Livingstone".

David Livingstone  
Director,  
Renewable Resources and Environment

**DIAND assessment:**

1

**Canadian Zinc Corporation's proposal for Underground Decline/Exploratory Drilling and Metallurgical Pilot Plant at the Prairie Creek Site - Information Request (dated January 31, 2003)**

In general DIAND feels that the company has substantially addressed many of the concerns expressed by the department on previous submissions from CZN. It is expected that monitoring at the regulatory stage will serve to verify predictions and that licencing conditions will enable fine-tuning of regimes if necessary.

Overall, CZN's water quality predictions look realistic with the available information. The water treatment basically relies on dilution to predict downstream water quality with four different treatment levels. The predicted concentrations of the different parameters are based on averages of water quality data from different sources, including DIAND site inspections, recent company samples and WSC data for downstream sites. While this has the disadvantage of combining old data with new and pooling results from different labs, in the absence of thorough past monitoring this is the most accurate means of prediction for local site conditions.

For downstream concentrations, it is expected that some localized flows are missing and the dilution would be greater than predicted. Once operations begin, the water quality results can be verified and treatment can be improved, if necessary through conditions of the water licence.

In terms of the actual projections, Table 5-4 is likely the most accurate scenario for establishing water licence limits. Predictions were made for metal concentrations in Harrison Creek, but it would have been more appropriate for these to have been made for the final discharge point from the settling pond. As the final point of control, the licence limits would be enforced there, not at any downstream point (ie: Harrison Creek at mouth). These should be easy to predict from the model. Again, zinc is the main concern, with Cd, Hg, Pb, and possibly As being noteworthy depending on ultimate licence limits. The information provided is sufficient to address concerns at this stage and can be discussed further during in the water licencing process.

Although the replies to the information requests have answered the general concerns about the water management plans in Canadian Zinc's exploration project proposal, the nature of some responses will require verification through regulatory authorizations. Details are provided below.

Reply to IR Question #2, 2<sup>nd</sup> last paragraph.

The proponent states that the current discharge from site, including the 870 metre portal discharge, "*currently meet MMER requirements*".

The zinc concentration is within the maximum grab sample limit of 1 milligram per litre, but if the average limit for MMER of 0.5 milligrams per litre is considered, the zinc concentration has exceeded the limit in six of the last eight samples.

....2

Reply to IR Question # 3 last bullet and last two paragraphs

The developer states that construction of a "...wetland area downstream of the minesite to which ammonia contaminated minewater could be piped." "...Such wetlands are proven technology for treating mine effluents not only for ammonia and other nitrogen compounds, but also for metals."

DIAND has concerns over the construction of a wetland area at this site. The location of a wetland area will be difficult given site-specific characteristics. Although the company has stated that the prime purpose for a wetland area is for treatment of ammonia, the potential for using this technology as a treatment for metals is questionable. Should ammonia levels continue to be a concern, CZN may wish to consider atomizing as an alternate means of treatment.

Reply to IR Question #6, 1<sup>st</sup> paragraph.

The proponent states "*The discharge from the final catchment pond was authorized under Water License N3L3-0932 at the time of mining and has been monitored routinely<sup>1</sup> over the intervening years. Since Canadian Zinc's involvement with the property in 1991 the discharge from the catchment pond to Harrison Creek has never exceeded the MMLER maximum grab sample limit<sup>2</sup> for any element and has only exceeded the expired Water License maximum grab sample limit on a single occasion<sup>3</sup>, that being for zinc (0.851 mg/l) on October 18, 1994.*"

The following are DIAND's observations regarding those statements:

1. Since Canadian Zinc's involvement in the site since 1991, there are records of only three occasions when water samples were taken by the company and for which data were provided, July 1994 (sampled by Rescan), August 2001 (sampled by M. Swallow and filtered with coffee filter) and June 2002 (sampled by Canadian Zinc). The October 1994 sample referred to above was taken by the DIAND Water Resource Officer on an inspection trip. Between Sept 1995 (DIAND sample) and August 2001 (Cdn Zinc sample), there are no water quality data for the settling pond discharge from the Prairie Creek site. If samples were taken, data have not been provided by the company as requested by DIAND Water Resources.
2. CZN states that MMLER maximum grab sample limit was never exceeded for any element, but the MMLER maximum average limit for Zinc (0.5 mg/L) was exceeded in six of the last eight samples.
3. The proponent states that the expired water license maximum grab sample limit was exceeded once for Zinc (limit of 0.6 mg/L), yet the former water license maximum average limit of 0.3 mg/L for Zinc was exceeded in ALL samples taken since September 1993.

It is suggested that detail of the construction and specifications of the catchment pond be specified in regulatory authorizations for approval, as these have not been provided in this response.

....3

Reply to IR Question #8, 2<sup>nd</sup> paragraph.

The proponent states *"The decision to change the preferred alternative from containment within the existing tailings impoundment to treat and discharge was brought about by requests of the "responsible ministries" who were concerned over the stability of the tailings impoundment dam<sup>1</sup>. However, the tailings pond remains a viable alternative<sup>2</sup> to the current treat and discharge plan. Such use has been analysed and assessed in detail over the course of the EA. It is CZN understanding that the general consensus was that such use, if approved,<sup>3</sup> would be subject to geotechnical certification prior to use and CZN is in agreement with this approach."*

## DIAND observations regarding those statements:

1. The concerns raised about the tailings containment area include instability of the backslope, loss of integrity of the clay liner, sloughing on the interior of the dam and erosion at the base on the exterior of the dam.
2. As a recent geotechnical assessment is still forthcoming, use of the tailings impoundment cannot be considered as a viable water management alternative to the "treat and discharge" plan.
3. It is our recommendation that the use of the tailing pond should not be approved until the geotechnical assessment proves the integrity of the backslope, the clay liner and the dam and a risk assessment is carried out for the use of the facility with regard to the current proposal.