

Nahanni National Park Reserve
Parks Canada Agency
Department of Canadian Heritage
P.O. Box 348
Fort Simpson, NWT X0E 0N0

October 18, 2001

Mr. Vern Christensen
Executive Director
Mackenzie Valley Environmental Impact Review Board
P.O. Box 938
Yellowknife, NWT X1A 2N7

Dear Mr. Christensen:

RE: Environmental Assessment – Prairie Creek Mine – Phase II Exploration Drilling Program and Metallurgical Pilot Plant/Underground Decline

The Parks Canada Agency of the Department of Canadian Heritage has reviewed the reply from Canadian Zinc Corporation in response to the technical comments that we provided dated August 31, 2001. Parks Canada has some outstanding concerns that have not been fully addressed in the response by Canadian Zinc Corporation as follows:

Tailings Pond Integrity

Discharge to the tailings pond was proposed by Canadian Zinc Corporation as mitigation to eliminate the need for direct discharge of effluent to the receiving environment. The company, in their recent response, is committed to engaging geotechnical consultant to complete the assessment of the integrity of the tailings pond prior to the commencement of tailings discharge. The Parks Canada Agency position with respect to the tailings pond stability is that the geotechnical assessment of the tailings pond should be completed by the geotechnical engineers before the tailings pond is used for any wastewater disposal. Given the excellent geotechnical evaluation conducted by DIAND and the conflicting opinion of CZN, Parks Canada is not confident that the alternative described by CZN in their response of having inspections carried out by their personnel provides adequate confidence that the tailings facility is stable in its present form. An independent third party evaluation by geotechnical engineers is recommended. Parks Canada is also of the opinion that discharge limits, if set at the regulatory stage, need to recognize and ensure that the pristine water quality of the South Nahanni River is not adversely affected by any authorized discharges.

Fuel Storage Facility

Recommendation 1:

Although CZN is of the opinion that a zero discharge limit is not reasonable, Appendix B, Section B.5.6 of the Canadian Council of the Ministers of Environment (CCME) Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products, states:

"Oil/water separators do not remove the soluble fraction of oil that is in the water or storm runoff. Therefore, it should be noted that even if an oil/water separator produces an effluent that has an oil and grease content that is below provincial or territorial discharge limits, the effluent may still be acutely toxic to fish."

Under Section 36(3) of the Fisheries Act, no person is allowed to deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions. Therefore it is reasonable for Canadian Zinc to test the water collected inside the berms of the fuel storage facility for toxicity before it is discharged to Harrison Creek or Prairie Creek and Parks Canada recommends that this requirement be made of Canadian Zinc.

Recommendation 2:

Although the CCME Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products, states in that existing aboveground storage tank systems be upgraded to the standards of Part 3 of the Code within 10 to 15 years, the primary purpose of the Code is to promote "environmentally sound management of aboveground petroleum product storage tank systems through the application of uniform performance standards throughout Canada". The Code further provides "**minimum requirements** for the prevention of losses of petroleum product from aboveground storage tank systems that may lead to environmental problems". Considering the size, location, age, etc. of the storage tank system at Prairie Creek, it would be prudent and reasonable to require Canadian Zinc to meet more than the minimum requirements for the storage tanks and to upgrade the existing tanks to meet current standards as set out in Part 4 of the Code.

Furthermore, the mine has been reluctant to provide a copy of the care and maintenance lease as stated in the response to the information request from CPAWS dated October 11, 2001. If CZN had been willing to provide a copy of the actual terms and conditions contained in the lease, reviewers would have more confidence in provisions for environmental protection from past activities at the site. In the absence of information on the requirements for environmental protection, reviewers of the projects can only conclude that any new development at the Prairie Creek mine site will contribute to existing environmental deficiencies and to potentially significant adverse cumulative effects.

Information Request

Considering the outstanding concerns that we have raised with respect to the fuel storage facility, Parks Canada has the following information request:

Date: October 16, 2001

From: Chuck Blyth
Superintendent
Nahanni NPR

Subject: Fuels Storage Facility

Objective: To ensure that Canadian Zinc is in compliance with the environmental provisions of the expired lease in their position of over-holding tenancy, and if not, to ensure that the company puts forward a plan to get into compliance within an established time-frame.

Request: It is our understanding that general clauses pertaining to the environment are included in leases issued by the Department of Indian and Northern Affairs. These clauses include provisions such as:

- the lessee shall not deposit refuse substances or waste materials in any body of water which may impair the quality of the water
- the lessee shall take any corrective action in the event of a spill
- the lessee shall report all spills and take reasonable precautions to prevent migration into bodies of water

- fuel storage areas require an impermeable dyke and dykes are to be equal to the capacity of the fuel plus 10%
- fuel containers are to be set back 31 metres from OHWM.

Since Canadian Zinc is stating that the fuel storage tank facility is part of the existing infrastructure at the Prairie Creek mine site and is only prepared to monitor the tanks and not to upgrade the tanks, Parks Canada is seeking evidence that Canadian Zinc is in fact in compliance with these standard provisions. Based on the visit of the mine site on August 28, 2001, it is apparent that not all of the general environmental clauses are met (i.e. the water collected inside the berms was deposited to Harrison Creek, the fuel containers are not set back 31 m from OHWM). Is Canadian Zinc in compliance with the environmental provisions of the lease in their over-holding tenancy position? If not, how does Canadian Zinc propose to meet the provisions and under what timeframe?

Wildlife

Recommendations 1 and 2:

Although CZN appropriately recognizes that responsibility for wildlife matters in the NWT rests with GNWT-RWED, the fact remains that the grizzly bear movements can exceed 250 km over the course of a year. It is therefore probable that the grizzly bears that are seen at the Prairie Creek site also include Nahanni NPR in their home range. Parks Canada has requested that CZN contact the park if a bear becomes a problem at Prairie Creek to ensure that an adequate level of protection can be provided to both park staff and visitors who may become exposed to the bear as it wanders in its home range. This information, provided on a timely basis, could prevent injury or death.

Water Quality Monitoring

Recommendation 3:

CZN acknowledges that the setting of reasonable discharge limits and that the design of a monitoring program is reasonable in their response. They are prepared to participate with the MVLWB and other regulatory authorities at the regulatory stage to achieve these objectives. However, CZN appears reluctant to work in cooperation with Parks Canada, Environment Canada and other mining interests to develop a water quality monitoring program in order to prevent degradation of Nahanni NPR water quality as a result of cumulative impacts from mining development. The water quality as it enters Nahanni NPR should be pristine and Parks Canada is committed to maintaining the Nahanni wilderness as "an essentially unaltered, primitive and unpolluted corridor". As stated in the technical report by Parks Canada, the water quality program would involve identifying water sampling locations both upstream and downstream of the Prairie Creek mine site, determining a sampling frequency and testing for a list of parameters. The list of water quality parameters and established objectives can be found in the report entitled "*Protecting the Aquatic Quality of Nahanni National Park Reserve, N.W.T.*", Environment Canada, December 1998 on page 71. Parks Canada also recommended that the testing should also include mercury and antimony, which are associated with zinc extraction. Testing should include a reference site located at the mouth of Prairie Creek to confirm that the mining activity from Canadian Zinc does not adversely impact on Prairie Creek water quality as it enters the South Nahanni River and Nahanni NPR. This testing would be specific to the Prairie Creek Mine, as requested by CZN, and should be conducted both prior to the issuance of the water licence and during the period of the water licence. This program of water quality monitoring, as part of the care and maintenance of the current operation, before these three permits are approved and actioned, is essential in order demonstrate that there are no new or cumulative effects arising from the new developments.

Tailings Impoundment

Recommendation 1:

Although the impoundment has withstood the past 20 years, the proponent fails to address the fact that the riprap armour is eroding at the base of the berm. How will the berm hold up with the erosion that is occurring at the base as a result of the constant forces of normal stream flows? The proponent needs to have this erosion problem and the stability of the impoundment addressed by a geotechnical engineer.

Recommendation 2:

In the discussion under Issue 3 Tailings Impoundment, Recommendation #2, CZN discusses the potential of adding 67,000 cubic metres of potential flow from the decline to the tailings pond. CZN will need to determine whether the tailings pond has the geotechnical stability to hold an additional volume of water from the combined process and mine water operation. As stated earlier, this is of particular concern to Nahanni NPR since any breach of the tailings pond could result in the discharge of the contents to Prairie Creek and result in adverse impact to the water quality in Prairie Creek and the South Nahanni watershed. This is particularly significant when flows in Prairie Creek are low in July and August, limiting the ability of the creek to dilute mining waste discharges. In addition, if the volume of combined process and mine water discharged to the tailings pond is 70 000 m³, CZN will need to re-examine the toxicity of the pond water using a dilution factor of 3 to 1 rather than 50 to 1.

Recommendation 3:

Discussed above under "Tailings Pond Integrity".

Additional Comments

In the reply to the Information Request from CPAWS, CZN states that the purpose of the "Prairie Creek Mine Reclamation Report" produced by the NWT Land Administration was to provide preliminary cost estimates to assist in finalizing negotiations, establishing the terms and conditions of the renewal leases and the requirement for a security deposit. The documents reviewed in completing the report included, among others, the most recent site inspection report and current lease agreements. Although the company has removed the costs and units of calculation, the list of reclamation activities required is lengthy and reflects many of the same environmental concerns raised by the reviewers in the Information Requests. Of particular concern are the presence of lab chemicals, fuel, oil, PCBs and contaminated soil on site; grading and contouring of drill pads; and stabilizing banks of tailings impoundment. Since CZN remains in an "over-holding tenancy" position, it is evident that a security deposit to address these environmental deficiencies has not been posted by CZN and therefore, that no remediation work has been undertaken to address any of these problems. Unless specific mitigation to reduce or eliminate the environmental effects from the new activities proposed by CZN is included in the terms and conditions of the new licences and permits for the proposed activities, the environmental effects may combine with existing environmental problems, and result in significant adverse cumulative effects.

In addition, the failure of the proponent to provide the actual environmental terms and conditions in their existing lease for care and maintenance is disturbing and leads to speculation. For example, the environmental assessments of the 1980's recommended detailed monitoring and treatment of the water coming out of the mine portal as part of the lease agreement. There is no evidence that this has occurred. Recently, the company stated that the water being pumped from the fuel tank berm into Harrison Creek had not been monitored or tested because it was too expensive. If this expenditure of less than one thousand dollars is too great to undertake, a reviewer cannot be confident that any other environmental monitoring or mitigation is occurring. When asked in the Information Requests about monitoring, the mine stated that monitoring was occurring, but failed to provide data to substantiate this information. In the absence of information, it is possible that significant adverse cumulative effects are occurring, since there is no data to prove that the terms and conditions of the existing lease for the care and maintenance of the site are adequate.

In conclusion, based on the information provided by all parties, there appears to be many important questions and information pointing toward potential significant adverse effects that may result from the land use permits and water licence currently under consideration. In addition, it is our conclusion that there are adverse effects on the environment from the current activities at Prairie Creek that have occurred in the past and have not been mitigated or are allowed to continue because they have been grand-fathered. These include the fuel storage, presence of contaminated soil, cyanide/other reagent storage, water discharge from the mine portal, use of tailings pond, network of old tote roads, and drill pad disturbances. Together, the cumulative effects of all the past activities, present activities and current site condition, and those activities proposed in the land use permits and water licence have the potential to cause significant adverse effects that cannot be mitigated through standard terms and conditions that may be applied. Although there may be mitigation available to reduce these effects, it appears that the appropriate methods are under debate or they may be beyond the capability of the proponent because of site, environmental, financial and logistic constraints that are beyond standard terms and conditions that are usually applied in these circumstances.

In closing, Parks Canada concurs with the response from DIAND that the re-assessment of the flood potential is warranted. Data used to calculate the flood potential appears to have been based on the Ker Priestman report entitled "Environmental Evaluation for Cadillac Explorations Limited Prairie Creek Project, NWT.", report, which calculates maximum possible flood modelling on the years 1975-1980, but cautions that "estimation of flood flows by statistical methods from data with a short period of record is uncertain at best".

Furthermore, Parks Canada would like to point out that many environmental concerns had been addressed in the environmental assessment reports completed in the 1980s with respect to the development of the Prairie Creek mine. The report by Ker Priestman and Associates Limited highlights the environmental effects from the mine operation and includes mitigation for impacts that are continuing today, such as the generation of discharge water from the existing mine portal. We respectfully request that the Mackenzie Valley Environmental Impact Review Board review this assessment and others to ensure that specific mitigation measures proposed in past assessments be considered when developing the terms and conditions of the licences and permits for Canadian Zinc Corporation. In this way, the cumulative effects from the past operation of the mine could be considered with the environmental effects associated with the new developments, and possibly mitigated. We thus would like to recommend to the Board that these permits only be approved under the following conditions:

- 1) significant environmental improvements are made to the existing operation to reduce cumulative effects from past activities,
- 2) special terms and conditions be developed and demonstrated to be effective which will assure that the environment downstream is not adversely affected,
- 3) the proponent applies for and receives the other required licences noted in DCFN and Federal Fisheries technical submissions, and
- 4) the proponent demonstrates that they have the ability to carry out the environmental improvements and mitigation prescribed in these terms and conditions. With respect to the latter, a performance bond should be required. This latter point may require costing of environmental mitigations.

Alternatively an environmental impact review could be undertaken with specific terms of reference to achieve the points above noted.

Sincerely,

Chuck Blyth
Superintendent
Nahanni National Park Reserve