

# Fax

Organization: Louie Arrolini

Fax:

Phone: 920-4761

Date:

Subject: Cdn Zinc TRS

Pages: 11, including cover

Pls see attached TRS -

TRs

MTapell

FROM:

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Luciano Azzolini  
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*Your file - Votre référence*

*Our file - Notre référence*

July 23, 2001

SENT BY FAX: 920-4761

Dear Louie:

Enclosed, for the consideration of the Mackenzie Valley Environmental Impact Review Board, are DIAND's information requests for the Canadian Zinc Corporation's environmental assessments for the Phase II Drilling Program and the Decline and Metallurgical Test Plant. If you require additional clarification on any of these requests please contact Ranjit Soniassy at 669-2591.

Sincerely,

Mary Tapsell  
Manager, Environment & Conservation

**Environmental Assessment - Technical Review Information Request #1****Canadian Zinc Corporation Prairie Creek Project****Decline Development, Exploration Drilling, and Metallurgical Pilot Plant Program**

**Date:** 20 July 2001

**From:** Ranjit Soniassy, Environmental Scientist  
Department of Indian Affairs & Northern Development (DIAND)

**Phone:** 867-669-2591  
**Fax:** 867-669-2701  
**email:** [soniassvr@inac.gc.ca](mailto:soniassvr@inac.gc.ca)

**Subject:** Tailings Containment Area

**Objective:** To ensure integrity of the tailings pond. The tailings pond must be shown to be capable of containing the waste water that will be placed there.

**Time Limits:** Require information as soon as possible, to meet MVEIRB Environmental Assessment schedule.

**Reference:** EA Documents provided by proponent.

**Preamble:** The water management plan for the Pilot Plant is to dispose of about 4000 m<sup>3</sup> of waste water in the tailings pond that was constructed in 1982 but never used. The chemical contaminants are unknown at this time. Mine water from the decline development will also be disposed of in the tailings pond. At the rates provided in the document, there is potentially another 67,500 m<sup>3</sup> of water that may be diverted into the old tailings pond.

There have been concerns raised in the past regarding the integrity of the tailings pond: the clay liner has apparently been reported to be cracked, the synthetic liner is exposed to the weather and may have deteriorated, the upslope area has slumped into the pond and the containment dams along Prairie Creek have experienced some degree of erosion during normal high water events. A geotechnical survey of the tailings containment area was commissioned by San Andreas Resources in 1994 or 1995 which pointed out problems and deficiencies with the engineering. An assessment of the structure with respect to probable maximum floods was apparently done prior to construction of the dams in 1982.

**Request:** An updated report by qualified geotechnical engineers is required which includes assessment of the integrity of the tailings containment area and any recommendations for rehabilitation of the impoundment dam and pond liners. Also requested is a schedule for implementation of any rehabilitation measures proposed for the impoundment dam and pond liners before the pond is used for the disposal of contaminated water. An update of this with data from the Prairie Creek gauge (1974 to 1990) is required to verify the ability of the dams to withstand expected storm events. Recent water level data for the tailings pond and adjacent Prairie Creek is also required in support of the above assessment.

**Environmental Assessment - Technical Review Information Request # 2****Canadian Zinc Corporation Prairie Creek Project****Decline Development, Exploration Drilling, and Metallurgical Pilot Plant Program****Date:** 20 July 2001**From:** Ranjit Soniassy, Environmental Scientist  
Department of Indian Affairs & Northern Development (DIAND)**Phone:** 867-669-2591**Fax:** 867-669-2701**email:** [soniassy@inac.gc.ca](mailto:soniassy@inac.gc.ca)**Subject:** Groundwater flows in the decline and through the flood plain under the mine site.**Objective:** To ensure that groundwater flows are understood and properly dealt with.**Time Limits:** Require information as soon as possible, to meet MVEIRB Environmental Assessment schedule.**Reference:** EA Documents provided by proponent.

**Preamble:** The groundwater flows given for the 870m level adit suggest that throughout a summer about 67,500 m<sup>3</sup> of groundwater can issue from this adit 20m above the 850m elevation of the mine site, which suggests that the adit intersected a seasonally perched aquifer. The proposed decline from the 905m level will descend to near the 825m level approximately 1460 m upstream of the mouth of Harrison Creek, where a greater hydraulic head may be encountered which is likely to produce greater flows than at the 870m level if the decline intersects a similar aquifer. The report also states that the probability of sump failure in the decline is "low" and the consequences of failure would be "small" volumes of "water and suspended solids", to "max. 50 gals.", which are "unlikely to migrate much beyond drill pad". A flow rate of 0.5 m<sup>3</sup>/min will yield 50 U.S. gals. in 2.5 minutes, and can potentially flood the end of a 15% decline (2.3m high by 3m wide) to the ceiling and 15m along its length in 1 hour.

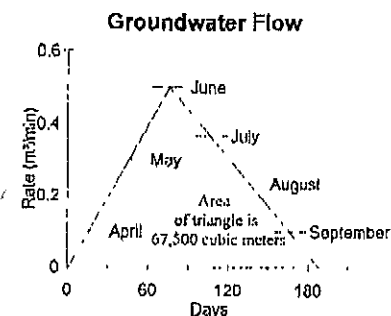


Figure 1. Total groundwater volume is the integral of flow rate times the duration of flow.

Well and pump hose No.1 on the flood plain mine site are also a source of data for deriving hydraulic conductivity of the sands and gravels which underlie the tailings pond.

**Request:** A statement is required of intent to monitor and report the rate of groundwater flow encountered in the decline, and to commission pumps capable of handling the flow, with sufficient backup pumps in the event of pump failure(s). Also requested is an analysis of the hydraulic conductivity of the flood plain sands and gravels using draw-down and pumping-volume data from well and pump hose No. 1, and information on what treatment of the tailings impoundment will be undertaken to counteract this hydraulic conductivity.

**Environmental Assessment - Technical Review Information Request # 3****Canadian Zinc Corporation Prairie Creek Project  
Metallurgical Pilot Plant Program**

**Date:** 20 July 2001

**From:** Ranjit Soniassy, Environmental Scientist  
Department of Indian Affairs & Northern Development (DIAND)

**Phone:** 867-669-2591  
**Fax:** 867-669-2701  
**email:** [soniassy@inac.gc.ca](mailto:soniassy@inac.gc.ca)

**Subject:** Water quality in the Tailings Area

**Objective:** To better understand project impacts on downstream water quality.

**Time Limits:** Require information as soon as possible, to meet MVEIRB Environmental Assessment schedule.

**Reference:** EA Documents provided by proponent.

**Preamble:** The water management plan for the Pilot Plant is to dispose of about 4000 m<sup>3</sup> of waste water in the tailings pond that was constructed in 1982. Although they have provided a list of possible reagents to be used in processing, CZN has not given any information on the predicted quality of effluent from the pilot plant. It is stated that the effluent will be held in the plant pending testing and/or treatment, then released to the tailings area. No data is provided regarding the quality of the water in the existing tailings area or the expected performance of the tailings containment system. CZN states that the effluent from this program will be diluted by a factor of 50:1, but this figure is meaningless without knowing the quality of the existing liquid in the tailings area and the predicted quality of the effluent. It is stated that there will be negligible impacts on the water quality of Harrison Creek, Prairie Creek and the South Nahanni, but this is not justified by comparing actual data with guidelines for the protection of aquatic life.

**Request:** CZN is asked to provide all current information which exists about the water quality of the existing liquid in the tailings area. CZN should also provide an assessment of the predicted quality of the effluent from the pilot plant and the expected performance of the tailings area in treating this effluent. CZN is asked to identify the water quality standards or guidelines that they have used in reaching their conclusions of negligible impact on water quality.

**Environmental Assessment - Technical Review Information Request # 4****Canadian Zinc Corporation Prairie Creek Project  
Metallurgical Pilot Plant Program**

**Date:** 20 July 2001

**From:** Ranjit Soniassy, Environmental Scientist  
Department of Indian Affairs & Northern Development (DIAND)

**Phone:** 867-669-2591  
**Fax:** 867-669-2701  
**email:** [soniassyrc@inac.gc.ca](mailto:soniassyrc@inac.gc.ca)

**Subject:** Test work to be performed in this phase and the utility of the resulting information.

**Objective:** To better understand project impacts on downstream water quality.

**Time Limits:** Require information as soon as possible, to meet MVEIRB Environmental Assessment schedule.

**Reference:** EA Documents provided by proponent.

**Preamble:** It is stated that test work performed in this period would produce results representative of future conditions, should the mine proceed to production. However, there is little information regarding how the data from this phase will be collected and used. CZN mentions that they will be testing effluent from processing but does not identify which parameters they consider to be of concern. It is also stated that the representative tailings solids will be characterized using procedures including ABA and neutral pH metal leaching potential.

**Request:** The company should provide more detail as to which parameters will be examined in the examination of the effluent. CZN is asked to identify which specific ABA and Kinetic Tests will be used on the tailings solids, and the number of "representative" samples to be taken. The company is also asked if any further kinetic testing will be performed on waste rock or coarse ore with a NPR less than 4.

**Environmental Assessment - Technical Review Information Request # 5****Canadian Zinc Corporation Prairie Creek Project  
Underground Decline Development and Exploration Drilling**

**Date:** 20 July 2001

**From:** Ranjit Soniassy, Environmental Scientist  
Department of Indian Affairs & Northern Development (DIAND)

**Phone:** 867-669-2591  
**Fax:** 867-669-2701  
**email:** [soniassy@inac.gc.ca](mailto:soniassy@inac.gc.ca)

**Subject:** Minewater quality

**Objective:** To determine the quality of water that may be encountered in the decline.

**Time Limits:** Require information as soon as possible, to meet MVEIRB Environmental Assessment schedule.

**Reference:** EA Documents provided by proponent.

**Preamble:** Water is expected to be encountered during the development of this decline. The proponent has proposed that this water be disposed of in Harrison Creek, a tributary of Prairie Creek and ultimately, the South Nahanni River (National Park, Canadian Heritage River, UNESCO World Heritage Site). It is stated that the water quality of minewater is "expected to be typical" of the groundwater in the area.

Significant volumes of groundwater was encountered with previous underground developments and there has apparently been water flowing from the 870m adit on occasion ever since.

**Request:** CZN is asked to provide water chemistry data from previous mine water discharges so that the chemistry of the expected discharge can be assessed. In addition, please provide additional information about the proposed minewater sampling program.

**Environmental Assessment - Technical Review Information Request # 6****Canadian Zinc Corporation Prairie Creek Project  
Underground Decline Development and Exploration Drilling**

**Date:** 20 July 2001

**From:** Ranjit Soniassy, Environmental Scientist  
Department of Indian Affairs & Northern Development (DIAND)

**Phone:** 867-669-2591  
**Fax:** 867-669-2701  
**email:** [soniassyt@inac.gc.ca](mailto:soniassyt@inac.gc.ca)

**Subject:** Waste rock and ore drainage management

**Objective:** To determine the consideration given to potential runoff and seepage from waste rock and ore piles.

**Time Limits:** Require information as soon as possible, to meet MVEIRB Environmental Assessment schedule.

**Reference:** EA Documents provided by proponent.

**Preamble:** There is little information about the potential for seepage water contamination from the waste rock and coarse ore piles on surface. The proponent indicates that these materials have no acid generating potential, but this should be confirmed with operational monitoring; as well, the possibility of other contaminants leaching into the water remains.

There is not a collection system proposed for waste rock seepage and from the ABA testing performed on waste rock and ore it is assumed that no significant adverse impacts to the environment will occur.

**Request:** Please provide any historical water quality data for drainage from the surface ore stockpile and waste rock, as well as information regarding contingency plans for containment, monitoring and treatment should waste rock testing identify parameters that could cause deleterious surface runoff. Please include information on the design of containment sumps including that of the runoff settling pond and its control gates, what liners, sampling frequency and pumps are to be incorporated to contain, monitor and treat deleterious runoff.



**Environmental Assessment – Technical Review Information Request # 7****Canadian Zinc Corporation Prairie Creek Project  
Underground Decline and Drilling and Metallurgical Pilot Plant Developments**

**Date:** July 20, 2001 to the Review Board

**From:** Ranjit Soniassy, Environmental Scientist  
Department of Indian Affairs & Northern Development (DIAND)

**Phone:** 867-669-2591

**Fax:** 867-669-2701

**email:** [soniassy@inac.gc.ca](mailto:soniassy@inac.gc.ca)

**Subject:** South Nahanni water quality

**Objective:** To determine the applicability and relevance of the water quality data that CZN references in assessing the potential cumulative impacts to the South Nahanni River.

**Time Limits:** Require information as soon as possible, to meet MVELRB Environmental Assessment schedule.

**Reference:** Page 36, fourth paragraph, and page 39, paragraphs three and four of the Environmental Assessment report for the Metallurgical Pilot Plant Program and page 33, fourth paragraph and page 36, paragraphs three and four of the Underground Decline Development and Exploration Drilling report.

**Preamble:** CZN utilized the results of the Environment Canada and Parks Canada water sampling program when assessing potential cumulative impacts to water quality in the South Nahanni River. The Environment Canada and Parks Canada study was initiated in 1988, which is 2 years after operations at the Cantung Tungsten Mine ceased in 1986. According to CZN's report, exploration at Howard's Pass was actively explored between 1972 and 1981, and in 2000. CZN did not indicate whether any operations took place between 1981 and 2000 in association with the Howard's Pass Project. According to this information, from 1986 to present, the only mining activity that took place in the Flat River and South Nahanni watershed was the drilling of 8 holes in 2000 at the Howard's Pass site. CZN also utilizes water quality data from the Surveillance Network Program associated with the Cantung Mine. This data was also collected following cessation of mining operations in 1986.

**Request:** Please provide:

- (a) Clarification regarding the operating schedules from 1986 to present at the Cantung Mine and Howard's Pass sites. Also include details regarding the activities undertaken;
- (b) Water quality data acquired as part of the Cantung mine operations prior to 1986 if available;
- (c) An analysis of the data limitations and uncertainties; (Substantiate why similar data would be expected when the Cantung Mine, Howard's Pass, and CZN projects are operating simultaneously).

**Environmental Assessment – Technical Review Information Request # 8****Canadian Zinc Corporation Prairie Creek Project  
Underground Decline and Drilling and Metallurgical Pilot Plant Developments**

**Date:** July 20, 2001 to the Review Board

**From:** Ranjit Soniassy, Environmental Scientist  
Department of Indian Affairs & Northern Development (DIAND)

**Phone:** 867-669-2591

**Fax:** 867-669-2701

**email:** [soniassy@inac.gc.ca](mailto:soniassy@inac.gc.ca)

**Subject:** Water Quality and Quantity Assessment.

**Objective:** Obtain clarification of water usage and discharge rates, and the projected water quality resulting from the decline and underground drilling programs.

**Time Limits:** Require information as soon as possible, to meet MVEIRB Environmental Assessment schedule.

**Reference:** Page 19, 20 and page 34 last paragraph of the Environmental Assessment Report for the Underground Decline Development and Exploration Drilling report.

**Preamble:** CZN indicates that de-watering of the underground workings will be required, but have not provided any estimates. CZN has provided estimates of groundwater flow at the 870 m level, but have not used this data to estimate the total volume of water to be discharged. CZN also does not provide any details regarding the chemical and physical characteristics of the discharge water. CZN indicates, without sufficient substantiation, that the discharge water should be typical of the local groundwater regime. CZN does not assess the impact of blasting and drilling operations on discharge water. CZN also does not provide estimates for water usage.

**Request:** Please provide:

- (a) Estimated discharge rates during underground decline development and exploration drilling ;
- (b) Estimated chemical and physical characteristics of discharge water (consider impacts from drilling operations and nitrogen loading from blasting operations);
- (c) Estimated water usage rates during underground decline development and exploration drilling.

**Environmental Assessment – Technical Review Information Request # 9****Canadian Zinc Corporation Prairie Creek Project  
Underground Decline and Drilling and Metallurgical Pilot Plant Developments**

**Date:** July 20, 2001 to the Review Board

**From:** Ranjit Soniassy, Environmental Scientist  
Department of Indian Affairs & Northern Development (DIAND)

**Phone:** 867-669-2591  
**Fax:** 867-669-2701  
**email:** [soniassy@inao.gc.ca](mailto:soniassy@inao.gc.ca)

**Subject:** Cumulative Effects Assessment.

**Objective:** Include consideration of all current and foreseeable CZN applications in the cumulative effects assessment.

**Time Limits:** Require information as soon as possible, to meet MVEIRB Environmental Assessment schedule.

**Reference:** Cumulative Impacts section, pages 32 to 44 of the Environmental Assessment (EA) Report for the Metallurgical Pilot Plant Program, and pages 29 to 43 of the Underground Decline Development and Exploration Drilling report.

**Preamble:** CZN's cumulative impact assessment sections in both reports do not take CZN's other applications into account when assessing potential impacts. For example, the cumulative impact section in the EA report for the Metallurgical Pilot Plant Program does not consider impacts associated with the Underground Decline Development and Exploration Drilling program and vice versa. The sections also do not consider the Phase I or II drilling programs, or the Cat Camp Fuel Recovery Program when assessing potential cumulative impacts

**Request:** Please provide:  
(a) A revised cumulative impact assessment including consideration of all current and foreseeable CZN applications.

**Environmental Assessment – Technical Review Information Request # 10****Canadian Zinc Corporation Prairie Creek Project  
Underground Decline and Drilling and Metallurgical Pilot Plant Developments**

**Date:** July 20, 2001 to the Review Board

**From:** Ranjit Soniassy, Environmental Scientist  
Department of Indian Affairs & Northern Development (DIAND)

**Phone:** 867-669-2591  
**Fax:** 867-669-2701  
**email:** [soniassy@inac.gc.ca](mailto:soniassy@inac.gc.ca)

**Subject:** Cumulative Effects Assessment

**Objective:** To determine the applicability and relevance of the water quality data that CZN references in assessing the potential cumulative impacts to the South Nahanni River.

**Time Limits:** Require information as soon as possible, to meet MVEIRB Environmental Assessment schedule.

**Reference:** Page 7, first and second paragraphs of the Cumulative Impact Assessment for the Phase II Mineral Exploration Drilling Program at Prairie Creek Mine report.

**Preamble:** CZN utilized the results of the Environment Canada and Parks Canada water sampling program when assessing potential cumulative impacts to water quality in the South Nahanni River. The Environment Canada and Parks Canada study was initiated in 1988, which is 2 years after operations at the Cantung Tungsten Mine ceased in 1986. According to CZN's report, exploration at Howard's Pass was actively explored between 1972 and 1981, and in 2000. CZN did not indicate whether any operations took place between 1981 and 2000 in association with the Howard's Pass Project. According to this information, from 1986 to present, the only mining activity that took place in the Flat River and South Nahanni watershed was the drilling of 8 holes in 2000 at the Howard's Pass site. CZN also utilizes water quality data from the Surveillance Network Program associated with the Cantung Mine. This data was also collected following cessation of mining operations in 1986.

**Request:** Please provide:

- (a) Clarification regarding the operating schedules from 1986 to present at the Cantung Mine and Howard's Pass sites. Also include details regarding the activities undertaken;
- (b) Water quality data acquired as part of the Cantung mine operations prior to 1986 if available; and
- (c) An analysis of the data limitations and uncertainties; (Substantiate why similar data would be expected when the Cantung Mine, Howard's Pass, and CZN projects are operating simultaneously.