



**Environment Environnement
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Our file: 4705 037 NANI

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Via Facsimile and Email at bcarreau@breakwater.ca

Dear Mr. Duxbury and Mr. Carreau:

RE: Nanisivik Mine Reclamation and Closure Plan – Preliminary Issue List

Environment Canada (EC) has completed its preliminary review of the revised Nanisivik Reclamation and Closure Plan, as distributed by the CanZinco Ltd. on March 25, 2004. As requested by the NWB in their March 22, 2004 letter, please find below an overview of the major issues that have been identified to date during our review of the Reclamation and Closure Plan. Please note that EC has not yet completed its technical review of this document. As such, the list contained herein is not exhaustive and additional concerns may be identified during the course of our review.

To date, Environment Canada has identified the following issues requiring further clarification / information:

Landfill Closure Plan

- The Landfill Closure Plan indicates that the landfill will be left intact and covered with a thermal cover, despite the possibility of the presence of hazardous materials within the landfill. While the Phase III ESA indicates that no hydrocarbon contamination was detected in soil or water samples down gradient or cross gradient of the landfill and all analyses were less than the method detection limits, EC recommends that until monitoring results indicate that permafrost has aggraded into the thermal cover, measures be implemented to reduce or eliminate movement of hydrocarbons from the landfill, such as the construction of an intercept ditch. This seems particularly relevant given that surface runoff is currently controlled with down gradient berms, with outflow through an absorbent boom to remove hydrocarbon residuals.

Closure and Monitoring Plan

- As currently proposed, the Reclamation and Closure Plan indicates that the capture rate for contaminated soils will be 95%. Environment Canada recommends that the proponent aim to capture 100% of all contaminated soils, with a 95% capture rate as the minimum amount that will be removed. Given that there is ample underground storage available on site, EC believes that the proponent should strive to remove as much contamination as possible.
- The Reclamation and Closure Plan indicates that the East Adit Dyke is to be left in place until water quality from the site has reached required parameters. However, EC has ongoing concerns regarding the stability of this dyke. A major seep through the shale dyke was reported in August 2000, which indicates that there are issues surrounding the stability of this structure. Environment Canada recommends that measures be taken to ensure the stability of the dyke, such as including the East Adit Dyke in the geophysical monitoring plan.

Underground Disposal Plan

- Environment Canada has totaled the amounts presented of hydrocarbon and co-contaminated soils present on site. According to our calculations, there are 179,800 m³ of contaminated soils present, as opposed to 90,000 m³, as presented in the Underground Disposal Plan. EC recognizes that there is ample space overall in the underground workings to allow for the disposal of both contaminated soils and non-hazardous debris (approximately 50% will be filled using the recalculated total). However, given the substantial differences in calculations, EC recommends that CanZinco Ltd. include a swell factor for the contaminated soils in their calculations to ensure that there will be enough available space in each of the underground storage areas.
- CanZinco Ltd. applied to the NWB for approval for Interim decommissioning and reclamation activities on June 13/03. In this letter they state that construction debris, including the concrete slab (mezzanine flooring) of the Industrial Complex, will be transported to the open pit or underground for disposal, and that the remaining foundation cavity will be infilled. However, the current plans call for the concrete foundations to be left in place. Environment Canada recommends that given the ample space available underground, these slabs be removed.

West Twin Disposal Area Closure Plan

- Environment Canada requires additional information regarding why a 1.25 m thermal cover is proposed for West Twin Disposal Area (WTDA), while a 2.2 m cover is proposed for both the landfill and waste rock piles. Environment Canada has concerns that given that the active layer for the WTDA has been identified as 0.73 – 1.4 m, a 1.25 m thermal cover does not build in any conservativeness or allow for any contingency.
- Given that it is projected that a complete freeze back of taliks under the Reservoir and Surface Cell will take 27-32 years, EC recommends that the monitoring period be expanded past 7 years to allow for more time to assess the impacts of the WTDA Closure Plan.
- Environment Canada has concerns regarding the weight of the cover material to be used on the WTDA. Environment Canada requires more information regarding how the possibility of piping occurring from the additional weight will be controlled and how CanZinco Ltd. plans on ensure the stability of the West Twin Dyke.

Quarry Report

- Additional information is required regarding how CanZinco Ltd. plans to manage runoff from material which is rejected for use as a cover material. Rejected materials may be potentially acid generating, and this material will have to be managed to prevent surface runoff.

Federally Regulated Materials

- Additional information regarding the disposal of PCBs is required. As CanZinco Ltd. has received a warning letter from EC regarding the storage of their PCBs, EC requests that a detailed management plan for the disposal of these materials be submitted. Required information includes the location of all in use and stored PCB's, both above and underground. Further, EC requires information regarding the timing for the disposal of all PCB's. According to the *Canadian Environmental Protection Act*, registered PCB storage areas require inspections on a monthly basis. Therefore, given that site personnel and visits will be limited during the Closure Period, EC recommends that all PCB's be removed prior to this time. Environment Canada also requires information regarding how the mine site will manage the transition during the decommissioning of the five (5) active PCB transformers.
- Information is required regarding the identification, use, and disposal of ozone depleting substances on site. The Federal Halocarbon Regulations (2003) under the *Canadian Environmental Protection Act* regulate the end-use of halocarbons. Environment Canada requires information regarding the amount of halocarbons and halocarbon-containing equipment on site, including fire-suppression systems, coolant systems, and refrigerants. Information regarding the disposal of this equipment is required for review.
- In quantities over 4.5 tonnes, propane is a federally regulated substance under the Environmental Emergencies (E2) Regulations. Therefore, EC requires more detailed plans regarding CanZinco Ltd.'s plans to dispose of propane, including the amount currently on-site, the amount that will remain on site to support ongoing activities, and the expected shipment date off-site. Environment Canada recommends that CanZinco Ltd. modify their Spill Contingency Plan to reflect the decreased quantities of propane, and other hazardous substances, kept on site.

General Considerations

- The Community Summary indicates that the "An important part of mine closure will be ensuring that the site is returned to a condition that protects the health and safety of Nunavut residents and permits the continued use of the land by local residents." Environment Canada recommends that continued use of the water should also be included as an important objective of the Reclamation and Closure Plan.
- Environment Canada has concerns regarding the stability of unsupported portions of the underground mine workings. Environment Canada would like additional information regarding how CanZinco Ltd. plans to prevent subsidence of the underground mine workings.
- Environment Canada requires additional information regarding how the sludge/precipitate from the polishing ponds will be disposed of once the ponds are abandoned.
- Environment Canada continues to have concerns regarding contamination of marine sediments in Strathcona Sound. Environment Canada recommends that the monitoring plan include ongoing monitoring of marine sediments
- Environment Canada requires information regarding the reclamation plans for the facilities on site owned by the Government of Nunavut and Fisheries and Oceans Canada. Environment Canada recommends that the reclamation plans for these facilities be finalized and that CanZinco Ltd. work with the GN and DFO to ensure that the entire Nanisivik mine site is remediated.

Environment Canada hopes that these initial comments are helpful to CanZinco Ltd and the Nunavut Water Board. Environment Canada will continue with our technical review of the Nansivik Reclamation and Closure Plan, and look forward to working with CanZinco Ltd. and the Nunavut Water Board to ensure that the Nanisivik Mine Site is remediated to the best degree possible. Please do not hesitate to contact me with any questions or comments with regards to the foregoing at (867) 975-4639 or by email at colette.meloche@ec.gc.ca.

Yours truly,

Original Signed by

Colette Meloche
Environmental Assessment Specialist

cc: (Paula Packolek, Northern Environmental Assessment Coordinator, Environment Canada, Yellowknife)
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