Indian and Northern Affairs Canada
www.inac.gc.ca

Affaires indiennes et du Nord Canada
www.ainc.gc.ca

Nunavut Regional Office
P.O. Box 2200
Iqaluit, NU, X0A 0H0

Your file - Votre référence
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Our file - Notre référence

August 23, 2002

Phyllis Beaulieu
Acting Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0E 1J0

Sent by email to:
rbecker@polarnet.ca

Comments on August 20, 2002, Technical Meeting regarding Nanisivk Mine *Closure and Reclamation Plan*.

As mentioned in our previous letter, EBA Engineering Consultants (EBA) and Brodie Consulting Ltd. (Brodie) attended a technical meeting on August 20, 2002, regarding the Nanisivik Mine *Closure and Reclamation Plan* on behalf of Indian and Northern Affairs Canada (INAC). Also in attendance at this meeting were the consultants of CanZinco, notably Gartner Lee Limited and BGC Engineering Inc., as well as the consultants to the Nunavut Water Board (NWB), notably Acres International.

This technical meeting resulted in an agreement by all parties as to the additional work that still remains to be done. The specific details are presented in the attached Summary of Meeting, prepared by CanZinco Ltd. Although INAC is including an English version of the summary as an attachment to this letter, it is our understanding that the summary will officially be submitted to the Nunavut Water Board (and translated) by CanZinco.

INAC would merely like to state that we are in agreement with the conclusions of the technical meeting as presented in the meeting summary, and that we look forward to the results of the additional work that will be performed by CanZinco.

If you have any concerns or questions, please feel free to contact me.

Sincerely,

Original Signed By: Michael Roy

Michael Roy
Qikiqtani Regional Coordinator, Water Resources
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Canada

CANZINCO LTD. NANISIVIK MINE CLOSURE AND RECLAMATION PLAN
MEETING OF TECHNICAL CONSULTANTS, AUGUST 20, 2002
SUMMARY OF MEETING

Location: Calgary

Attendees: CanZinco Ltd.: Robert Carreau
Consultants to CanZinco Ltd.: Eric Denholm, Gartner Lee Limited
Jim Cassie, BGC Engineering Inc.
Consultants to Nunavut Water Board: Ramli Halim, Acres International
Caius Priscu, Acres International
Consultants to DIAND Water Resources and Government of Nunavut:
Don Hayley, EBA Engineering Consultants Ltd.
Brent Murphy, EBA Engineering Consultants Ltd.
Consultant to DIAND Water Resources:
John Brodie, Brodie Consulting Ltd.

MEETING OBJECTIVES AND AGENDA

The global goal for the meeting was stated as:

"Commitment" on Path Forward with circulation of notes to the Nunavut Water Board

The specific objectives that were described for achieving the goal of the meeting were:

1. Technical review of engineering and geo-engineering issues.
2. Respond to technical questions, if possible, or forward info.
3. Agreement on fieldwork studies to be implemented.

The agenda was stated as follows:

1. EBA Letter of July 30, 2002
    - surface cell
    - reservoir
    - tailings closure plan
    - underground disposal
    - landfill
    - ESA
    - town surface soil report
2. Other
    - Nunavut Water Board
    - John Brodie
3. Meeting Summary

OVERVIEW

The meeting began at 10:00 a.m. The agenda was followed and the meeting consisted largely of open discussions equally involving all attendees, which covered these broad areas:

- Review and clarification of existing information or intents.
- Relevant experience from similar projects brought forward by attendees.
- Specific and beneficial information needs and formats for technical review of submissions.
- Specific technical needs for the Nanisivik closure plan.
- Specific methodologies for filling technical information gaps for the Nanisivik closure plan.

The meeting was concluded at 4:30 p.m. All attendees expressed agreement that the meeting was beneficial for the project and, specifically, that:

- Meetings of this nature (i.e. attended by technical consultants with a focus on discussing specific technical details) should be contemplated for other significant projects as a means of ensuring an adequate two-way transfer and understanding of technical information and needs between the proponent and the reviewers.
- In hindsight, it would have been beneficial for such a meeting to have taken place prior to the initial submission of technical review reports in June and July of this year.
- It may prove to be beneficial to convene additional meetings of this nature as additional technical information becomes available, and particularly upon completion of Phase II ESA (2002).

SYNOPSIS / EXECUTIVE SUMMARY

The following provides a synopsis of the primary conclusions that were reached and agreed to by all attendees based on the detailed discussions and detailed review of information (i.e. test cell thermal monitoring data).

1. The proposed cover thickness of 1.25 m over the Surface Cell is considered to be adequate provided that quality control measures are in place during placement of the cover and that maintenance is assured for the initial years after placement. Verifying the cover thickness against extreme annual temperature variations (i.e. 1:100 yr warm event) is an important issue to be verified within the boundaries already provided by the global warming estimate (either or).

2. It is of critical importance that the extent of the (assumed) talik in the Surface Cell and the thermal regime in the lakebed sediments throughout the surface cell be investigated. This should be a drill investigation with drilling into bedrock and collection of water samples for incorporation into the water quality predictive model. The closure plan for the WTDA can not be advanced or finalized until this information is available.

3. A complete picture of the water depth in the Reservoir for closure needs to be developed. Options for increasing the minimum depth of water cover (for example, through redistributing bottom sediments and extending cover at the beaches) should be evaluated with particular emphasis on the possible effects of waves and winter ice cover on long term water quality.

4. Standalone documents that include detailed plans and sections, on full size paper where applicable, need to ultimately be prepared for the topics of:
    - West Twin Disposal Area Closure Plan.
    - Underground Mine Solid Waste Disposal Plan.
    - Landfill Closure Plan.

    These documents should be circulated for technical review as they become available.

5. The recently released EBA report regarding sampling of surficial soil in the townsite was deemed to indicate that concentrates tracked on vehicle tires were a cause of elevated metal concentrations in the town. This and other possible sources will be further investigated in the Gartner Lee ESA. The reference in the report to the "toxicity" of surficial soils was not intended as a conclusion regarding human or ecological health effects and the need for an Ecological and Human Health Risk Assessment, as proposed by CanZinco, that follows the procedures specified in Federal guidelines was re-affirmed by the group.

6. Additional geochemical testing needs to be carried out for any mine related mineralized materials that will remain exposed to atmospheric effects including waste rock, pit walls and roadfill.

7. John Brodie has revised the reclamation cost estimate prepared for Water Resources downwards by approximately $6M in recognition of the previous discussions around methods of transporting goods to the mine site in the post closure scenario. This revision has been submitted to Water Resources. Therefore, the cost dropped from approximately $27.9 M to approximately $21.9 M, including approximately $3M for buildings.

DETAILED SUMMARY

The following detailed summary, by topic area, was developed by consensus at the conclusion of the meeting:

West Twin Disposal Area (WTDA)

Cover Placement
- contour tailings as economic versus extra shale fill
- qa/qc for material sizing
- 1.25 m is MINIMUM thickness, closure plan to provide quantities and areas incl. plan views
- allow for repairs/mtce in first years

Cover Thickness
- check against 1:100 yr warm event

2002 Field Investigation
- chilled brine drilling
- delineate talik, verify freezing under surface cell and incorporate into compilation of existing info.
- collect water samples and install standpipes; porewater quality from thawing of tailings may be "iffy" (assess quality w.r.t. artificial impacts)

Reservoir
- assess (site specific) wave action and ice entrainment of submerged tailings during spring thaw re. water quality
- 1.0 m is MINIMUM depth; need current and "closure" bathymetry
- confirm armour protection extent around reservoir rim

Spillways
- consider spillway location over face of West Twin Dyke
- define configuration of Reservoir outlet (West Twin Lake)

Closure Plan
- standalone design document; incl. full size dwgs.
- incorporate water quality predictions and water treatment contingency and "EBA points" (per July '02 letter)

Landfill

- recognize public perception issues
- cover design objective is (primarily) to shed water; assess cover thickness w.r.t. the design objective
- incorporate old and new water quality info. and construction history into design
- assess need for leachate collection system
- standalone "Landfill Closure Plan" including plans and sections (Appendix to Final Closure and Reclamation Plan?)

Underground

- new plans re. storage locations and filling plan including co-ordinates grid on all plans showing underground openings
- add exact co-ordinates of all surface openings (shafts, adits, ramps, etc) to existing CanZinco table
- qa/qc for cleaning equipment for disposal, haulage equipment, env. mitigation measures for disposal activities
- circulate existing stability reports and CanZinco to review and revise their July '02 report
- standalone "Solid Waste Disposal Plan" (Appendix to Final Closure and Reclamation Plan?)

Pits/Dumps

- geology mapping of pit walls, rock in Twin Lakes Creek
- assess feasibility for complete reclamation/retrieval versus residual; geochem. characterization of surface residuals
- assess cover thickness (refer to Area 14 test case)

Town

- incorporate EBA analytical data with 2002 ESA

Roads

- assess presence and env. issues re. mineralized roadfill

Wind Blown Tailings

- incorporate historical air sampling data into 2002 ESA

CLOSING

This meeting summary was prepared by Eric Denholm of Gartner Lee Limited on behalf of CanZinco Ltd. and the other attendees. This summary was circulated to all attendees on August 21, 2002 for proofing and comment.