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Board

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PROJECT MEMORANDUM

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To: Nunavut Water Board Fax No.: (867) 360-6369
 Attention: Ms. Dionne Filiatrault, P.Eng., Senior CC: Carl (867) 975-4286
 Technical Advisor McLean
 From: Holger Hartmaier, P.Eng (Ext. 113) Date: August 27, 2003
 Subject: NWB1POL0311- Dock Plan and Section Drawings
 No. of Pages (including this page): 3 Pages Project No: 0308-001-05

With respect to the drawings for the dock decommissioning at Polaris, prepared by Westmar Consulting Engineers and submitted to the Nunavut Water Board (NWB) by Teck Cominco, as per the water licence requirements, I would like to offer the following comments:

Westmar Drawing No. 02-101, "Plan and Sections"

- The locations of the Canadian Hydrographic Service (CHS) benchmarks 1, 2 and 3 should be shown on the plan.
- It would appear that these benchmarks are located on structures that may be removed during decommissioning. Will these points still be in place during the dock decommissioning? If not, what survey control will be used to define the extent of the 17.5H:1V slope with respect to the Higher High Water Level (HHWL).
- Why was the conversion from Chart Datum (CD) to Plant Datum (PD) changed in May, 2003? Note that in Appendix C of the Westmar report contained in Vol. 2 of the Polaris Mine Decommissioning and Reclamation Plan (March 2001), the PD is 2.3 m above CD, based on measurements taken by Cominco surveyors on the same three CHS benchmarks, and the report further states that the present PD (in 2001) is 1.37 m above the original PD (pre- 1981).
- In Note 1, the elevation of Plant Datum above Chart Datum is calculated as the average difference between the elevations of the benchmarks in terms of CD and PD. The differences range from 1.774 m to 2.06 m, a range of 0.29 m. For a slope at 17.5H:1V, the final crest location may differ from the design location by as much as 5 m.
- It is critical that the final beach slopes conform to the actual LLWL and HHWL levels, despite any datum conversions.

030827NWB1POL-BGC Comments Dock Foreshore

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Westmar Drawing No. 02-102, "Sections" (1700N to 1350 N)

- Comments regarding the notes for Drawing 02-101 also apply to this drawing.
- Section 1400 N has been modified from the original section shown in the Westmar Report (2001), contained in Vol.2 of the Polaris Decommissioning and Reclamation Plan. (Westmar Drawing 00282-00-103, Sections Sheet 2, dated Oct.24, 2000). The original intent was to slope the beach at 17.5H :1V from the front face of the sheet piles to the HHWL. As shown in Drawing 02-102, there is a 10H :1V slope from the front face of the piles up to LLWL, then the slope flattens to 17.5H :1V above LLWL. It is not clear why this section was modified from the original plan.
- Section 1350 N also goes through the sheet pile cells, but shows a constant 17.5:1 slope.
- There are no notes indicating the precautions to be taken to avoid sedimentation (i.e. silt curtains and berms) during decommissioning.
- The need for removal of the freezing pipes is not indicated on any of the drawings, or sections where they may be found. Note that according to the joint NWB/INAC approval for the dock and marine foreshore issued July 4, 2003, Teck Cominco must establish a protocol for dealing with the removal and disposal of refrigerant contaminated materials, which must be submitted to NWB and INAC at least 60 days before commencement of excavation.

Westmar Drawing 02-103, "Sections"- (1300N-800N)

- Comments regarding the notes for Drawing 02-101 also apply to this drawing.
- Sections 800N and 900N are located on either end of the temporary dock, however there are no details showing the actual decommissioning of the temporary dock. The decommissioning plan called for cutting off the steel piles at "ground level". Teck Cominco should clarify the depth with respect to the LLWL. Preferably, the piles should be cut off at the LLWL level since going deeper will involve creating excessive sedimentation and disturbance to the marine environment.

General Comments

- No specifications were included with the drawings. The specifications should provide details on the decommissioning that are in accordance with the approved Decommissioning and Reclamation Plan and the NWB/INAC joint approval issued July 4, 2003, with particular reference to the DFO mitigation requirements to protect fish habitat.
- As part of the shoreline decommissioning and regrading, existing rip rap will be removed. The decommissioned beach is expected to have a median grain size of 10 mm, similar to the adjacent natural beaches. What will Teck Cominco be doing with the larger rip rap sized boulders in order to maintain the 10mm median grain size criterion?

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Closure

We trust that this memorandum meets with your requirements at this time. If you have any questions or require additional information, please do not hesitate to contact me.

Yours truly

Per BGC Engineering Inc.



Holger Hartmaier, M.Eng., P.Eng.
Senior Geotechnical Engineer