

Preliminary Technical Review

Completed by: Joe Murdock

Date: October 17, 2005

Licence: NWB1JER0410 Part D, Item 16

C1 Diversion

PART D: CONDITIONS APPLYING TO CONSTRUCTION

16. The Licensee shall, at least sixty (60) days prior to the construction of the C1 Diversion, submit to the Board for approval the final detailed design plan stamped by a Geotechnical Engineer and/or Engineering Geologist. This report shall be developed in accordance with Schedule D, Item 16.

Document Dated August 30 2005; Received by NWB August 30, 2005

Schedule D - Conditions Applying to Contingency Planning

16. The detailed design report for the construction of the Stream C1 diversion and associated dam structure referred to in Part D, Item 16 of the Licence, shall include but not necessarily be limited to the following

a. Detailed implementation schedule for construction;

As indicated on Page 3 of the report the proponent is to submit to DFO and the NWB final detailed drawings 60 days prior to the construction of the C1 Diversion yet, as of Section 6.1 on page 11, the construction of Reach A and the installation of the Carat lake Road culvert is to be completed in August-September 2005. Also the construction of the C1 Diversion Structure is to take place in October-November 2005 once water flows have ceased and the ground is adequately frozen. Submission was received by the NWB on August 30th, 2005 with the report sent out to parties (DFO and others) on September 22nd, 2005. Thus to satisfy the NWB and DFO requirements construction is to not take place before November 1st 2005 (NWB) and November 22nd, 2005 (DFO). Can the proponent please indicate if construction took place? If not can the proponent please make the necessary revisions to scheduling that represent dates in which the construction is to take place?

In Section 5.3 on page 10 the proponent states that EBA has considered "**construction timing**, site preparation, material types, and berm configurations" to reduce the potential for water loss to the open pit and down gradient of the C1 Diversion. Can the proponent please elaborate further on how this will take place? Also can the proponent please discuss what refinements will have to be made to the considerations made if construction is to not take place Sept-Nov 2005.

b. Design criteria and parameters;

As per the DFO requirements listed on Page 3 there are DFO provisions listed indicating the need for 940 m² of fish habitat and a 470 m long diversion. Now the 470 m provision can be inferred through the listed chainage but there has been no indication that the 940 m² fish habitat has been met. Could the proponent please list the approximate quantity of fish habitat anticipated with

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this design?

As per the DFO requirements on Page 4 there are DFO provisions listed indicating the need for at least 10 meanders with a 6m radius and 10 riffles incorporated into the channel design. There has been an indication that a 6 m radius is to be used (Page 11) but no mention of the number of meanders incorporated. The reviewer can infer the number of meanders and riffles but could the proponent please state the number anticipated through the proposed design?

- c. The report shall discuss options adjusting the design of the two channel diversion energy dissipation pools to become a narrow, longer pool configuration and why this is to be considered or not;**

An argument has not been clearly outlined within the report identifying the needs of the above question. Can the proponent please provide detailed discussion to satisfy this provision?

- e. Measure to be employed to control sediment;**

Page 13 of the report indicates that silt curtains will be installed along Reaches A, B, and C. Could the proponent please provide further specification to where the silt curtains will be installed relative to the channel location. It has been stated that silt curtains will be installed every 50 m or so and near the culvert outlet. The reviewer requests further delineation.

- f. Stabilization along the banks of the channel considers the use of vegetation;**

"Vegetation to reduce erosion along the banks for the channel in Reach C" was stated as an objective of the report. There has been mention that vegetation cover is present in Section 3.4 of the report. Also in Section 5.1 Guiding Criteria the use of vegetation to reduce erosion along the banks of the channel in Reach C is set as a design criterion yet little mention on what and how this will be accomplished. In Section 6.2 the proponent states that "Detailed fieldwork will utilize the natural vegetation base in the Reach C where possible" yet does not provide sufficient detail. The proponent is encouraged to provide a full detailed discussion into how this provision will be satisfied.

- h. Monitoring proposed during construction;**

On page 10 of the report there is mention that pit side embankment of the C1 Diversion will be used as a running surface for heavy equipment. Can the proponent please discuss what measures are in place to ensure that deleterious substances do not enter the diversion channel located in close proximity to the embankments?

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General Comments

In Section 3.3 Diversion Channel Reach B on Page 5 it lists a chainage of 0+227 as the start of Reach B yet the chainage listed within the rest of the report and design drawings states 0+277.

In Section 3.5 (Page 6) there is reference to Photograph 14. There is no such photograph included in the report.

In Section 5.3 on Page 10 there is mention of "**Select fill** construction can reduce permafrost degradation". Can the proponent please elaborate on what specifications will be placed on the "select fill" to be used in the design? It is understood that the proponent is to use materials of low permeability when frozen but further elaboration would be appreciated.

"On going monitoring and maintenance will be integral to the success of the design" has been stated on Page 11 with respect to the reproduction of a low flow regime on terrain with possible ice-rich permafrost. Can the proponent please elaborate and provide full details on how this will be completed?

Could the proponent please provide further detail to the comment "Placement of the lifts of sand and gravel fill at the base of the berms should be placed and compacted to about 1 m above existing ground" stated on Page 12? How will this be accomplished? What other provisions are in place with respect to the referenced comment?

RECOMMENDATION:

To pass along comments to Tahera to respond along with intervener comments.

Regulatory Timeline		
Documents Date:	August 30 2005	
Document Received:	August 30, 2005	
Preliminary Tech Review Completed:	October 17, 2005	Joe Murdock
Distribution Date:		
Comment Deadline:		
Approval Drafted:		