November 4, 2008

Mr. Dennis Gourde, P.Eng.
General Manager
Agnico – Eagle Meadowbank Division
Baker Lake Office

Email: denis.gourde@agnico-eagle.com

Dear Mr. Gourde,

Re: Meadowbank Dike Review Board (MDRB)
Trip Report – Dr. Andrew M Robertson – October 31, 2008

1.0 Trip Objectives and Schedule

This letter provides a brief report describing the activities and key observations during a visit to the Agnico – Eagle Mines Limited (AEM) Meadowbank mine site by the writer over the period October 30 to November 1, 2008.

As the third member of the Meadowbank Dike Review Board, the writer was unable to attend first MDRB site inspection and first review meeting from the 17th to 19th September, 2008. Following this first review meeting the MDRB issued MDRB Report No 1. The writer reviewed the reports and design documentation provided to the MDRB prior to this first meeting as well as MDRB Report No 1.

This trip was arranged to allow the writer to inspect site conditions and construction progress as well as to receive a briefing on material presented to the MDRB during Meeting No 1 from Mr. Gaston Blanchette of AEM. The trip agenda was as follows:

October 30: Travel from Winnipeg to Baker Lake.

October 31: Travel from Baker Lake to mine site. During the morning Mr Gaston Blanchette presented a review of the overall project dike requirements, investigations, designs and design changes, and construction progress. In the afternoon the East Dike was inspected (Photo 1) including the grouting installations and partially excavated trial grout area (Photos 2 to 4 and 7), and returned to Baker Lake. In the evening Gaston Blanchette completed the review presentation of the materials submitted for MDRB review during Meeting No 1.

November 1: Travel from Baker Lake to Winnipeg

2.0 Site Inspection

East dyke earthfill and slurry cut-off wall had been completed (Photo 7) together with installation of every second primary 'grouted in casing' in preparation for cut-off wall toe grouting. The grouting crew was off site waiting on a decision on which of two grouting procedures to implement.

A grouting test had been completed where both the 'grouted in casing' (GIC) and "tube-a-manchette" (TAM) methods had been applied at a location where excavation of the grout bulbs for inspection was possible. At the time of the visit the grout bulb for one of the GIC trials was being excavated (Photo's 2 to 4). The TAM trial for which the white grout casing is seen in Photo 7 had not been excavated.

A sample of the grouted crush was inspected closely (Photo's 5 and 6).

3.0 Observations

Observations relating to two topics are of immediate concern.

3.1 Grouting of the cut-off wall toe.

The grouting trial excavation indicated the presence of loose ungrouted 'crush' fill at the base of the cutoff wall fill material. This is apparent in the deeper 'hole' excavation seen in Photo 3. The grout bulb achieved by the GIC grouting trial clearly indicates the presence of open matrix crush prior to grouting. Reliable grouting of the toe of the cutoff wall is a necessity to prevent rapid seepage through such crush fill. Grouting of the rock below the upper surface could not be inspected.

The grouted bulb produced by cement grout intrusion from the GIC trial showed effective penetration of grout into the crush but for a limited distance (about 35 cm for the bulb seen in Photo 3. The conventional cement grout penetrates the crush well (see Photos 5 and 6) and the cement particle size does not appear to be a constraining factor.. It seems unlikely that the use of microfine cement will increase the radius of penetration significantly.

Some of the grout – particularly at the limits of the grout bulb – was very weak and some appeared not to have 'set' after 8 days. The unset grout would be readily erodible. The cold ground temperatures may be extending the set time the need for an accelerator should be considered, particularly if early dewatering is required.

The writer saw only the initial exposure of the first GIC bulb and the excavation of the remainder of the GIC and TAM trial is proceeding under the direct supervision of Gaston Blanchette. A more complete picture will be provided on completion.

Should the TAM not result in a considerably improved grout seal, and the GIC method is selected, it is appears likely that a very close spacing of grout holes will be required to reliably and continuously grout the cut-off wall toe.

It is understood that time requirements for application of the TAM method would result in delayed dewatering. Similar delays would result if large numbers of closely spaced GIC grout holes have to be formed.

It is prudent to develop a clear and reliable understanding of the grouting effectiveness of the alternative methods if a secure sealing of the toe of the cut-off wall is to be achieved in the most efficient and expeditious manner. Additional trials and testing may be warranted.

3.2 Dewatering requirements

The MDRB noted in Report 1, the potential that dewatering behind East Dike may be constrained by water quality limits on discharge. If this were to happen then the footprint of Central Dike would not be exposed in a timely manner to allow Central Dike foundation preparation and construction to proceed 'in the dry'. In this eventuality AEM are proposing to place tailings during initial years of production into Portage Attenuation Pond upstream of Stormwater dike.

The writer observes that it is difficult to achieve water quality in a pond during active dewatering. The continuous erosion of sediments from the expanding beach areas into the active pond, while it is being dewatered, results in low settling efficiency. It is usual to provide an intermediate sedimentation pond into which the water to be discharged is first pumped. The residence time in the pond should be sufficient to allow water to clarify (with or without a flocculent). Once the discharge water quality is achieved, water is decanted from the sedimentation pond at a rate which avoids exposure of sediment covered beaches.

Consideration may be given to the development of a sediment pond, as part of the dewatering system.

4.0 Closure

The writer would like to thank AEM personnel for the efficient manner in which they made arrangements for the travel and site visit and Gaston Blanchette for the considerable effort he went to effectively brief the writer and guide the site visit.

I would welcome the opportunity of answering any questions you maay have regarding this brief site visit report.

Yours truly,

Dr. Andrew M Robertson P.Eng.

PHOTOGRAPHS

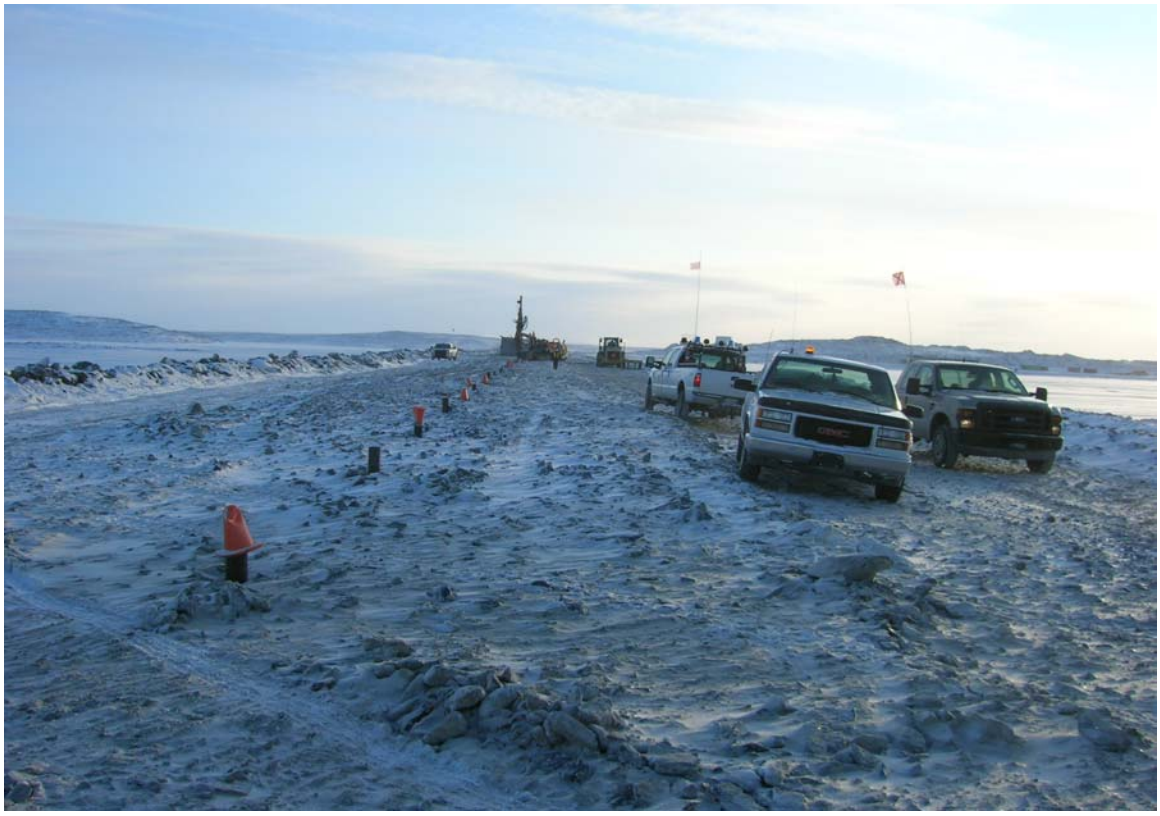

Photo 1 – East Dike crest with Primary holes grouted in casings protruding

Photo 2 – Excavated grouted in casings and grout bulb at slurry wall rock contact

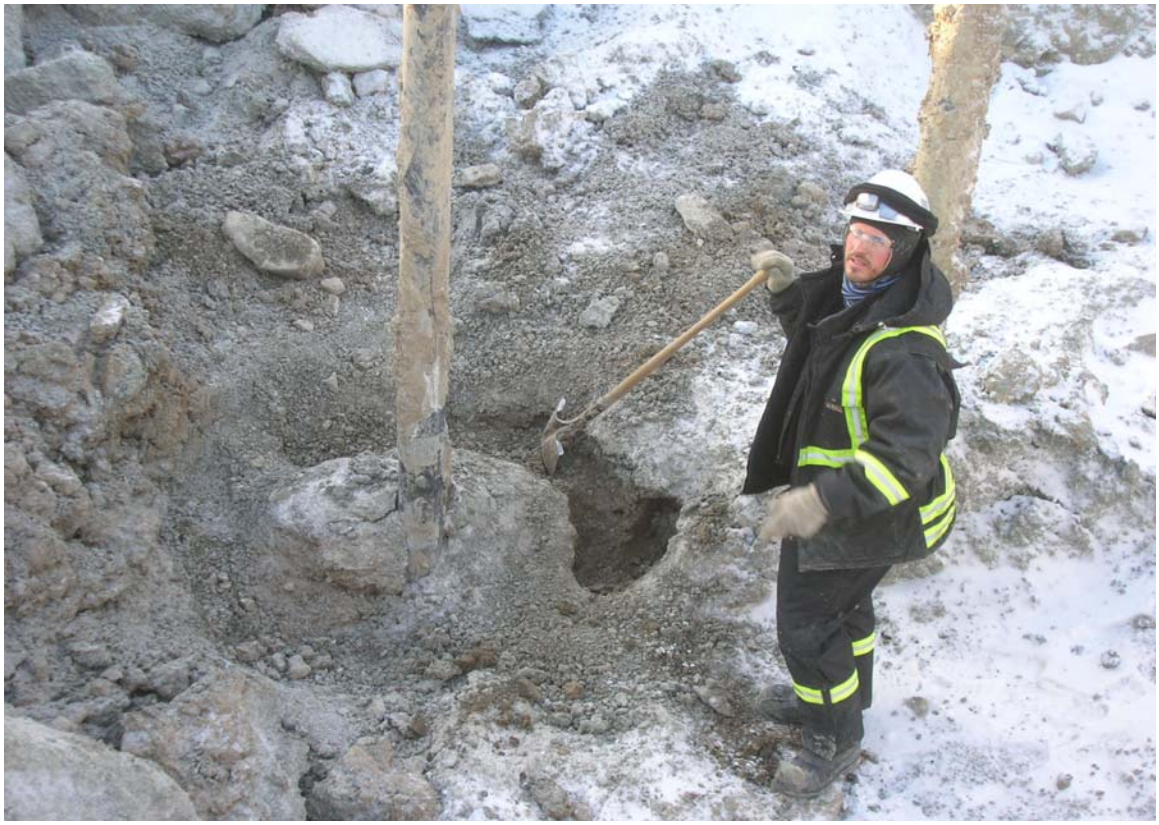

Photo 3 – Grout bulb with excavated ungrouted 'crush' fill adjacent

Photo 4 – Limited extent of grout bulb. Injection port sleeve at tip of spade.

Photo 5 – Sample of grouted crush

Photo 6 – Close-up of part of grouted crush sample

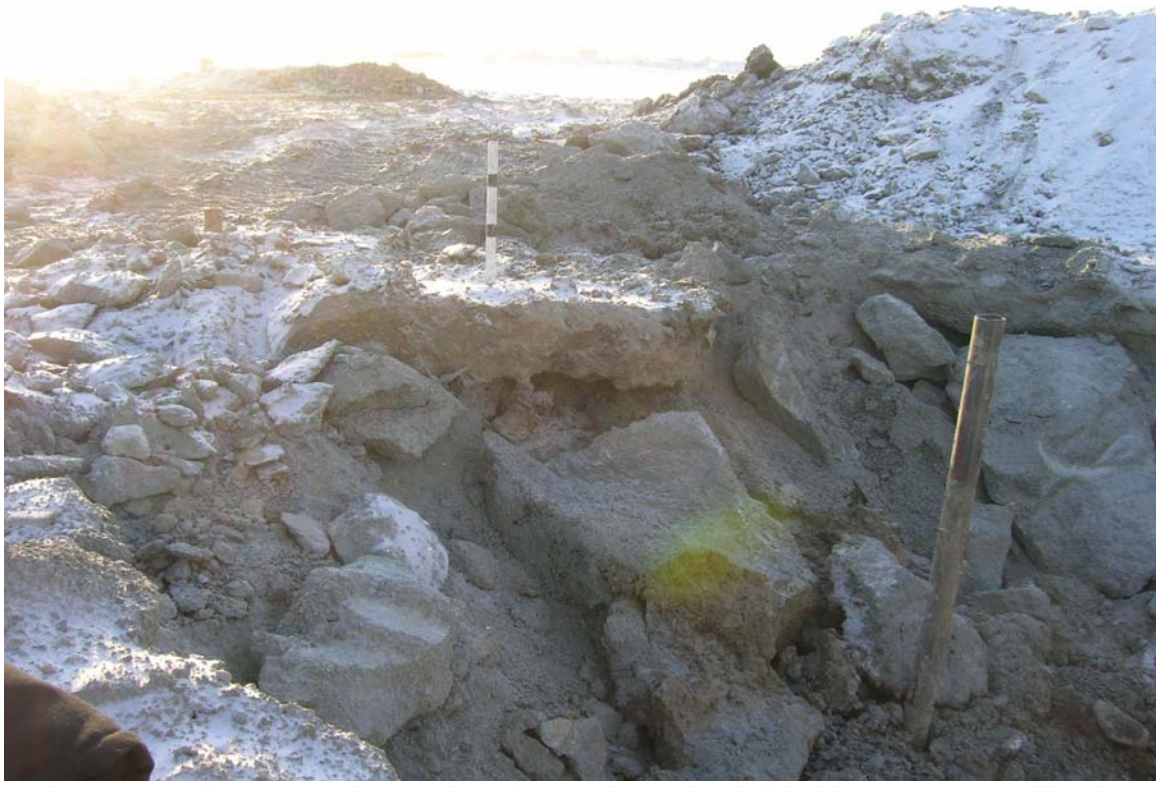

Photo 7 - “tube-a-manchette” (TAM) grouting tube (white) in test zone still to be excavated