INDEPENDENT ENVIRONMENTAL MONITORING AGENCY
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January 31, 2007

Ms. Violet Camsell-Blondin
Chairperson
Wek'eezhi Land and Water Board
c/o Box 2130
Yellowknife NT X1A 2P6

Dear Ms. Camsell-Blondin

Re: BHP Billiton Geochemical Characterization and Metal Leaching Plan

The Agency is pleased to submit our comments on the Geochemical Characterization and Metal Leaching Plan submitted by the BHP Billiton (BHPB) on November 20, 2006 to your Board.

We have conducted a preliminary review of this report, and have no comment on the results reported other than the work is thorough and aids in interpreting the annual seepage reports. We should also state that the recommended changes to the rock geochemistry sampling program are reasonable and that we support them, now that we have good and consistent data on rock types.

We note from the new water licence requirements (see Part F 2(viii)) that BHPB is now required to carefully consider the linkages and management implications among the Geochemical Characterization and Metal Leaching Plan, Seepage Reports, Aquatic Effects Monitoring Program, and the Waste Rock and Ore Storage Management Plan. We look forward to a discussion of these linkages and management implications in relevant future submissions from BHPB.

The Agency offers a general summary of the draft Plan with some observations in the attached Appendix.

Sincerely,

Bill Ross
Chairperson

cc. Brent Murphy, BHP Billiton Diamonds Inc.
Society Members

Appendix to IEMA Comments on
Geochemical Characterization and Metal Leaching Plan

1. The report was submitted to the WLWB on November 20, 2006 as a requirement under Water Licence clause F.2a. The report is a thorough update on the sampling that has been done to characterize the geochemistry of the dominant four rock types and to explain what water quality problems associated with waste rock piles are likely to exist and how they will be managed in the long-term. There are no surprises from what we knew before:

   a) granite is the most abundant waste rock and is the most geochemically inert;

   b) schist (or metasediment) is common at Misery and Beartooth pipes and, while it has generated acidic water in the laboratory, it has to date shown no capacity in the field to do so;

   c) diabase is the least abundant rock type, has some elevated sulphide levels, but is not expected to have ARD generating potential;

   d) kimberlite, particularly mudstone inclusions, does have elevated sulphides, but also has substantial carbonates to neutralize any acidic water that might result from sulphide oxidation and is defined as "not potentially acid generating".

2. Seepage from the coarse kimberlite rejects (CKR) pile reveals that pH can reach 3.9 and that elevated levels of several metals (aluminum, copper, iron, silica, arsenic, chromium, lead) can result. The report notes that this seepage presently reports to the Long Lake Containment Facility (LLCF) and so 'has no direct impact on the receiving environment'. Post-closure implications of this are not discussed.

3. The report notes that the major factor controlling water chemistry in the LLCF is the underground connate water being discharged there, not the loadings from the tailings discharge.

4. New data on tailings pore water quality are provided. Notably, copper, molybdenum and cadmium appear to be concentrating in the pore water (which benefits LLCF discharge quality to Leslie Lake in the long-term).

5. The report references a 2006 study by Rollo and Jamieson which concluded that the high sulphate levels in the tailings water were not coming from sulphide oxidation, but from calcium sulphate minerals contained in mudstone inclusions in the kimberlite. There was little evidence of sulphide oxidation of the pyrite in the mudstones (source of both sulphate and sulphide), which supports SRK's theory that observed acidic drainage downstream from the CRK piles is not the result of sulphide oxidation.

6. The report notes that [1] there is on-going work to confirm SRK's hypothesis that the interaction of kimberlite wastes with tundra water is producing acidic drainage; and [2] that BHPB has constructed granite shells around the outer edge of the coarse rejects rock pile to ensure that the kimberlite remains in permanently frozen parts of the waste rock piles. If the kimberlite eventually freezes as BHPB assumes (thermistor data indicate that this is not yet happening) then this approach should render any acidic drainage issues inconsequential.

7. On the basis of the report's findings SRK recommends a few 'down-sizing' changes to existing sampling and survey work to characterize rock geochemistry:

   a) eliminate waste rock testing for developments that occur in host rocks to access kimberlite (e.g., underground access ramps);

   b) for open pits, scale frequency of sampling to 3 samples of each rock type per bench every 3 years; and,

   c) for waste kimberlite piles scale sampling frequency down to quarterly from monthly.

8. Finally, BHPB's cover letter to the report notes that several other relevant studies are being undertaken:

   a) a mineralogical study to identify the carbonate mineral in the kimberlite which is providing the neutralization potential (we have been asking for this since the beginning of the project);

   b) controlled field tests using barrels of waste rock to examine long-term physical and chemical weathering effects;

   c) a study to investigate the ion exchange mechanism for the pH depression observed in the iron-rich waters at Seep-019; and,

   d) further investigations of cell B pore water quality.