May 14, 2001

Mr. Philippe di Pizzo, Executive Director
Nunavut Water Board
P.O. Box 119
Gjoa Haven, N.W.T. X0E 1J0

RE: HOPE BAY JOINT VENTURE
ARD POTENTIAL – ORE STOCKPILES

Dear Philippe,

After a site inspection of the Hope Bay Project in July 2000 I forwarded a letter (dated July 26, 2000) which expressed concern for the acid rock drainage potential of the ore stockpile material. At that time I reported that "During the site inspection, it was observed that numerous rock fragments on essentially every ore stockpile contained sulphide mineralization. Many of these rocks are visually estimated have a total sulphide content in excess of several percent."

The Hope Bay Joint Venture has recently forwarded two reports in response to the above; these are:

- Acid Rock Drainage Characterization Boston Property (Waste Rock) Final Report, by Rescan Environmental Services Ltd., Feb. 1999 for BHP World Minerals, and,
- Review of Past ARD Characterization at the Boston Property, by Knight Piesold Ltd., May 2001 for Hope Bay Joint Venture.

This letter presents a discussion on the above reports for consideration by the Nunavut Water Board.

The Rescan report states that, "the majority of this material had low acid generating potential, although some of the 1996 decline material was determined to have uncertain acid generating potential." Kinetic testing was conducted on three rock types; altered basalt, B2 mineralized

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zone and B3 alteration halo. Based on that testing, the altered basalt and the B3 alteration halo rocks are not expected to be net acid generating in the long-term. The B2 mineralized zone material will likely generate net acidity.

The Rescan report goes on to state "… potential for metal leaching from all three samples is a concern, particularly for arsenic, copper and nickel."(Section 6.1).

The Rescan report suggests that water quality parameters will not be exceeded where the seepage is diluted at a 1:1000 or greater. Reliance on dilution at these ratios is not an acceptable environmental control measure.

Several recommendations are included in the Rescan report including: conducting additional mineralogical testing, covering the stockpile of mineralized material, and installation of a diversion/collection system to prevent drainage from entering receiving waters.

At the time of the site inspection in 2000, the above recommendations for site water management had not been implemented.

The Knight Piesold report describes the pad of non-acid generating material which underlies the 22,000 tonnes of stockpiled ore to buffer any acid production which may occur in the near future. It is not clear if this pad would reduce or have any effect on the concentration of metals being leached from the overlying ore.

There is no SNP station for monitoring the drainage water quality associated with the stockpiles of ore material.

Based on review of the available information, the following points are presented for consideration by the Board:

- The risk of acid rock drainage or problematic metal leaching from the waste rock which was used for site construction purposes is low.
- There is little risk of acid rock drainage developing in the stockpiled ore in the short term, however, in the long term acidic conditions are expected to develop.
- The site security bond should reflect the need for relocation of the stockpiled ore back into the underground development in the event that the exploration activity does not yield a producing mine. The cost for this work may be in the order of $\$15/m^3$ (based on a 2 cubic yard scoop tram moving 8.95 m^3/hr operating at $135/hr) for a total cost of $330,000. Allowance of $50,000 for mobilization/demobilization of the scoop tram by Hercules aircraft should be included.
- There is a risk of impact to receiving waters associated with metal leaching from the stockpiled ore.
- The Knight Piesold review does not provide any further geochemical assessment which would allow relaxing the recommendations of the 1999 Rescan report. Therefore, those recommendations (covering the potentially leachable rock and seepage sampling) should be followed.
- At least one SNP station to monitor the runoff from the ore stockpile area should be established.

I trust that this letter addresses your requirements concerning the Boston Project. Please contact me if you have any questions.

Yours truly,
Brodie Consulting Ltd.

M. J. Brodie, P. Eng.