September 10, 2001
Project #: 0308-002-03

Nunavut Water Board
Box 119
Gjoa Haven, NT
X0E 1J0

Attention: Mr. Phillippe di Pizzo, Executive Director

Re: Hope Bay Joint Venture- Licence Conditions, ARD and Metal Leaching

Dear Sir:

BGC Engineering Inc. (BGC) was requested by the Nunavut Water Board (Board) to review the submissions by various interveners regarding the renewal of Water Licence No: **NWB1BOS9801**, for advanced exploration by Hope Bay Joint Venture (HBJV), in particular the issues relating to acid rock drainage (ARD) and metals leaching. The purpose of the review was to consolidate the submitted information and assessments into recommendations for conditions to be added to the new licence to address the concerns raised with respect to:

- any additional studies that may be required;
- water quality monitoring locations, parameters and frequency.

In preparing this review, BGC has summarized the data contained in the Board files, and which were transmitted to BGC. BGC has conducted no further independent studies or assessment of the ARD/metal leaching data in reaching the recommended licence conditions presented in this letter report.

BACKGROUND

HBJV is a joint venture between Miramar Hope Bay Ltd. and Hope Bay Gold Corporation Inc. (Licensees) which is actively exploring the Boston Gold Project, located at latitude 67°39' North and longitude 106°22' West, approximately 65 km south of Melville Sound and approximately 160 km southwest of Cambridge Bay. HBJV filed for the renewal of their water licence on February 6, 2000. The application is for " the renewal of the existing water licence which will enable the continued advanced exploration programs at Boston covering, prospecting, continued surface drilling, core splitting and logging on site, underground drilling/exploration and possible future development which may require handling of waste rock material and ore to be stored on surface or adjacent to existing waste/ore pads, domestic use and associated activities and possible additional environmental baseline data collection."

HBJV is seeking a five year licence term, with an expiry date of August, 2006.

This application was sent to the Nunavut Impact Review Board (NIRB) for screening and it was determined that the application could be processed without review. Notice of the application was posted in the News North and sent to local organizations of Cambridge Bay, Kugluktuk, Umingmaktuk and Bathurst Inlet. All parties and the public were given until March 14, 2001 to submit comments. Comments were received from the following parties: Environment Canada (EC), Department of Fisheries and Oceans (DFO), Nunavut Planning Commission (NPC), Nunavut Wildlife Management Board (NWMB), Hamlet of Cambridge Bay and the Kitikmeot Inuit Association (KIA). DIAND Yellowknife had forwarded their comments through NIRB.

On June 25, 2001, the Board informed all parties that the application would be processed by way of a written hearing. The deadline for the first round of written submissions was July 17, 2001, with replies by all parties to other parties' submissions by July 24, 2001. HBJV was given until July 31, 2001 to make a final submission to the Board. The Board has extended the validity of the License until a decision is made on this application for renewal.

DESCRIPTION OF GEOLOGY, MINERALOGY AND ROCK TYPES

Before summarizing the submissions regarding ARD and metal leaching presented by the interveners, it is worthwhile describing the mineralization and rock types associated with the Boston ore body, which will require management during the term of the License. The following information has been compiled from the data presented in the various submissions and referenced according to source.

The data presented by HBJV with their licence renewal application includes the following description:

"*A broad, continuous, north striking, shear-parallel zone of significant quartz-dolomite veining with associated pyrite mineralization defines the B-2 mineralized horizon. It has a length of approximately 900 m and a width of 25 to 50 m. Within the zone of alteration, the mineralization of economic interest consists of a series of narrow quartz veins and pods with sulphide contents of 2-5% and gold contents of approximately 10-30 g Au/t. Individual lenses of economic interest within the zone are 2 to 10 m wide, 30 to 50 m long and 30 to 150 m in height.*"

"*The host rock in the immediate vicinity of the mineralization is a large carbonate alteration zone, which is made up mainly of iron carbonates. It is 900 m long and 25 to 50 m wide. On the east side of the carbonate altered rocks there are meta-basalts. On the west side of the carbonate altered rocks there are meta-sedimentary rocks. Turbidites, ranging from massive greywackes to fine argillites, are the main sedimentary rocks. They are thought to be younger than and most likely derived from the underlying extrusive mafic volcanics. The greywackes occur as wide, homogeneous fine grained units. Only rarely are relict grains visible. Outside of the main shear zone, the greywackes are dark grey-brown and fairly easily recognizable. Within the deformed/altered zones, the greywackes are subject to the same sericite/dolomite alteration as are the mafic volcanics. Interlayered with the greywackes are fine grained, graphitic, pelitic,*

bedded argillites. Occasionally, bedding is well preserved and fining upwards can be observed in several sequences."

"*Gold mineralization is mainly associated with pyrite and usually occurs at the margins of quartz-dolomite veins in pyrite-mineralized wallrock. The pyrite typically forms in cubes and semi-massive blebs less than 1 mm to 10 mm in size, concentrated in bands along foliation planes of the wallrock as a halo around the quartz-dolomite veins. The pyrite halo is generally less than 15 cm in width, with progressively finer-grained pyrite bands radiating concentrically outwards from the vein. The large amount of iron carbonate present in the rock makes it a net acid consumer, in spite of the presence of pyrite. Gold in the veins is present in contents averaging between 10 and 30 g Au/t.*"

Based on the above description, the ore zone (B2, B3) is associated with alteration, quartz-dolomite veining and pyrite mineralization. The host rocks, which will comprise most of the waste rock during development consist of basalts, mafic volcanics and metasediments, with varying amounts of carbonate alteration, made up mainly of iron carbonates (siderite, ankerite).

ARD STUDIES AND CHARACTERIZATION

ARD characterization of the waste rock at the Boston property was carried out in 1999 by Rescan for BHP, who were the property owners at the time. HBJV forwarded this report to the Board as part of their licence renewal application on May 30, 2001. A letter report entitled "Review of Past ARD Characterization at the Boston Property", prepared by Knight Piesold (KP), was also included.

Rescan conducted static and kinetic test work on selected rock types from the Boston property. Twelve rock types were selected for static testing, which included:

- Basalt- unaltered
- Basalt- weakly altered
- Basalt-moderately altered
- Basalt- strongly altered
- Zone B2- alteration halo
- Zone B2- mineralized zone
- Zone B3- alteration halo
- Zone B3- mineralized zone
- Gabbro- unaltered
- Quartz/carbonate dyke
- Metasediments- unaltered
- Metasediments- strongly altered

The above lithologies may all be closely associated with the ore horizon, and the ARD studies do not seem to clearly distinguish rock samples considered to be "ore" from those considered to be "waste". During the 1996-1997 exploration program conducted by BHP, a total of 136,000 tonnes of ore and development rock was brought to the surface from the decline (KP, 2001). The ARD characterization data presented in the 1998 BHP report represents data from 283 random grab samples of decline material. Each sample was taken to be representative of a round of material removed from the decline and may include several different rock types. Static testing was done on this material to identify the non-acid generating components, which were then used as construction material. The potentially acid generating materials were stored in stockpiles constructed upon pads composed of non-acid generating waste rock from the decline.

The majority of the material was found to have low acid-generating potential due to the preponderance of neutralizing minerals, mainly carbonates, relative to sulphide minerals. The B2 mineralized zone material was found to have a net acid generating potential.

Kinetic testing was carried out on samples from the altered basalt, B2 mineralized zone and B3 alteration halo rock units because of their potential for surface storage and/or use as a construction material.

The results of the kinetic testing indicated that while the altered basalt and B3 alteration halo rock units are unlikely to generate net acidity in the long term, the B2 mineralized zone will likely generate net acidity. Furthermore, potential metal leaching from all three samples is a concern, particularly for arsenic, copper and nickel. Based on this test work, Rescan recommended:

- Due to the potential for arsenic leaching, altered basalt material should not be used for construction purposes without further mineralogical analysis.
- Existing piles of decline material located close to the Boston exploration camp should be covered to minimize infiltration and a diversion/collection system should be installed to prevent drainage from entering receiving waters.
- Any altered basalt, B2 mineralized zone or B3 alteration halo material that is exposed during future development should be isolated to keep drainage from entering receiving waters.
- On-site kinetic testing of materials that will be stored on the surface or used for construction should be initiated as soon as possible. Opportunistic sampling of seepage from existing and identified piles of decline material should occur whenever seeps are observed, to verify the results obtained from laboratory kinetic testing.

Knight Piesold reviewed the above work as well as a previous report that dealt with ARD prepared by BHP in 1998. KP concurred that neutral metal leaching of arsenic, copper and/or nickel may be an issue at the Boston Property, however the body of evidence was too small and could not be relied upon at this stage to draw final conclusions. KP further indicated that some of the data is contradictory and cannot be explained by the current knowledge of ARD potential at this site, suggesting that additional data on neutral metal leaching potential needs to be collected once further underground development work commences at the Boston Property.

KP also pointed out in their review that the material mined to-date had been placed on the surface in a manner appropriate to facilitate monitoring and control of any ARD that may occur over the short term while future mine plans develop. Material with uncertain acid generating potential has been placed on top of a layer of waste rock with known high buffering capacity. The potential season over which contaminants can be transported out of the stockpiles is restricted to those months when temperatures are above freezing. Consequently monitoring of runoff from the stockpiled material can be focussed on the spring thaw and during the short summer season.

KP recommended that protocols be established to monitor for indications of ARD and/or metal leaching associated with the material currently stored within the stockpile area. However, placing a cover over the existing piles of decline material stored in the lay down area, as recommended in the 1999 Rescan report, was not deemed necessary, unless these materials were determined to be an active source of contaminant release. KP considers the existing level of ARD characterization data to be adequate to plan closure for this site, if no further development were to take place. A potential closure option is to return the stockpiled material to the decline, from where it came, thereby minimizing further oxidation of the contained sulphide minerals. Alternatively, if mine development does proceed, the stockpiled material will be processed through the milling circuit.

KIA, as part of their review of the HBJV data, retained Ferguson Simek Clark Engineers (FSC) to assist in the interpretation of the data. FSC in turn used Lorax Environmental Services Ltd.(Lorax) to provide expert ARD advice. In June, 2001, FSC staff visited the Boston site and conducted a limited field sampling program of both rock and water at the site to provide additional information about ARD and metal leaching potential. The field sampling involved collection of three ARD samples from the ore pile and another ten in the run-off area to the east of the ore pile. Three surface water samples were taken from ponded water in the vicinity of the camp and ore piles.

FSC and Lorax prepared a review of the 1999 Rescan report and point out areas where they disagree on the interpretation. With respect to ARD, FSC/Lorax have the view that Rescan has overestimated the acid generating potential of the property, but agree that pH neutral leaching of arsenic, nickel and possibly other heavy metals remain an important concern. The three ore pile samples collected by FSC contained somewhat lower neutralization potential (NP) values and had a higher total sulphur content than the material sampled by BHP geologists and Rescan. KIA samples appear to be more diluted with quartz vein material associated with the ore. All of the ore pile rock samples had paste pH > 7.5 which suggests the material is not currently acid generating. Soil samples from the area down slope of the waste rock/ore storage had low net neutralization ratios and low sulphur contents. All but one of the soil samples had paste pH <6, however KIA suspected that this may be a result of test procedure and/or not necessarily related to exploration activities. Arsenic leaching from the waste rock was indicated in the water test results. The presence of standing water appeared to exacerbate the leaching of arsenic and nickel, both of which exceeded the CCME Water Quality Guidelines for the Protection of Aquatic Life.

KIA recommended the following activities be carried out with respect to the concerns about ARD/metal leaching:

- geochemical leaching characteristics of any new waste rock and eventually of mine tailings should be determined to facilitate the design of management facilities;
- determine the presence, distribution and form of arsenic in the critical geologic units that will be mined;
- ongoing determination of ARD and metal leaching potential for new areas of the mine as they are developed;
- maintain an inventory of which materials are placed in which location on the surface;
- establish monitoring stations to assess the quality of water discharged from the stockpiles, tailings and other altered surfaces including the roads and campsites in addition to any sampling in Spyder Lake.
- the SNP should be reviewed and modified as required to monitor metal leaching from the ore and waste rock piles;

SUBMISSIONS RECEIVED

The following submissions were received by the Board, which relate to the concerns regarding ARD and metal leaching.

HBJV:

Letter dated July 30, 2001 to Board, **Re: Application for Renewal of Water Licence No: NWB1BOS9801, Advanced Exploration- Hope Bay Joint Venture (HBJV)- Final Submission**. In this submission, HBJV provides their final position with regard to the setting of terms and conditions in the renewed water license. With regard to ARD and metal leachate from the ore and waste rock piles, HBJV have stated the following:

Part G: Conditions Applying to Studies

"*HBJV acknowledges that additional waste characterization work will be required as exploration and development proceeds. The HBJV has previously committed to conducting such work as part of its future exploration activity associated with this project. The multi-party review, conducted as part of this license renewal process, has been positive as it helps the HBJV team identify the issues that need to be addressed in future work. Additional waste characterization work will be a key requirement of the terms of reference for future environmental assessment of this project if the project proceeds to the development phase, however; in our opinion it is not necessary to entrench waste characterization studies as a license condition at this stage."*

Surveillance Network Program

A. Sampling Locations, Sampling Requirements and Analysis Requirements

"*This table should be revised to reflect the amendments approved in 2000. The addition of an SNP station below the waste/ore storage pad should be added to Schedule 1."*

Response to interventions regarding ARD and metal leachate from ore and waste rock piles

HBJV has provided the following response to address the interventions from DIAND and KIA:

- "*... we agree with the concept of modifying the SNP program to monitor the potential leachates from the area. As a point of clarity "ore and waste rock piles" is better defined as "ore stockpiles, which are placed on a waste rock pad".*
- "*The HBJV believes that the DIAND submission* (see **DIAND** summary below) *overstates the potential for acid generation associated with the ore stockpiles that have been placed on the waste rock pad at the site. The database of waste characterization work carried out on these materials is comprehensive and confirms that there is a low probability of acid generation associated with the majority of the rock types found at the Boston site. The work commissioned by KIA supports this observation.*"
- "*It is acknowledged by the HBJV... that there is evidence of neutral metal leaching from some of the ore/waste rock piles currently stored at the project site. Due in part to good management practices, the potential for this contamination to enter adjoining water bodies is restricted by local conditions such as topography, climate and minimal runoff from the stockpile area. ...HBJV recognizes that additional monitoring is justified to quantify the extent of metal leaching and to ensure that these runoff waters are not impacting the adjacent water bodies. To respond to this concern, the HBJV is willing to modify the Surveillance Network Program (SNP) to incorporate these objectives. The HBJV asks the Board to give us the time necessary to review the site topography and hydrologic conditions to propose an appropriate SNP modification to achieve this objective. Conversely, if the Board undertakes to adjust the current SNP program, the HBJV respectfully requests that it have the opportunity to provide comments prior to finalizing the requirements in the renewed licence. ... any revised SNP program should state that sampling at the new station be "carried out during periods of flow and when the camp is operational.*" "*The parameters for the analysis should be the same as those stated for SNP station 1652-2. If metal leaching is in fact occurring, the HBJV is prepared to develop appropriate management plans to ensure minimal impacts to adjacent water bodies.*"

With regard to the ARD reports prepared for the KIA by Ferguson, Simek, Clark (FSC) and Lorax Environmental Services (Lorax), the HBJV provided the following points of clarification:

- "*The noted variation in sulphur content and neutralization potential between the three samples tested by FSC and the average of the samples tested by Rescan is likely due to the fact that the material sampled by FSC represents only a small portion of the samples tested by Rescan. Waste material from the development decline that was identified as being non-acid generating was reportedly used to construct the base of the lay down pad and other site roads. Material that was identified as being potentially acid generating or of uncertain acid generation potential was placed on the lay down area. Consequently the material sampled by FSC represents only that material that was not used in construction and is likely to be higher in sulphide mineral content and lower in neutralizing potential.*"

- "*Some of the soil samples collected by FSC were taken some distance from the ore stockpile/waste rock pad and as such these sample areas may have been previously impacted by diamond drill activity. The HBJV would advise the Board to use caution when evaluating the FSC and Lorax soil sampling information due to the fact that the potential impacts measured may be related to previous management practices at the site and are unrelated to the waste rock stockpiles.*"
- "*... most of the FSC water samples were taken from ponded water adjacent to the stockpiles,... ...are these elevated* (arsenic and nickel) *levels* (due to) *accumulation over several years within these ponds or are they elevated due to ongoing leaching... or... represent an initial flush of metals from these stockpiles. ...the HBJV would advise the Board to use caution when evaluating the FSC and Lorax information on this issue.*"

In their final comments, HBJV acknowledges that there are indications of neutral metal leaching of arsenic, nickel and copper associated with some rock types and that additional waste characterization work will be required, but disagrees with implementing some of the recommendations to address the issues of potential ARD made in the Rescan report and suggested by DIAND. "*HBJV disagrees with this suggestion. It should be noted that Rescan did not investigate the practicality or viability of their recommendations before putting out their report (i.e. no work was done to identify how the piles were to be covered or where drainage ditches could be placed), therefore, until such time as more definitive information is available, perceived issues can be addressed in a revised SNP program.*"

Brodie Consulting Ltd.

After a site inspection in July 2000, John Brodie, P.Eng. reported observing numerous rock fragments in essentially every ore stockpile contained sulphide mineralization, many in excess of several percent. In response, HBJV forwarded the Rescan and KP reports to Brodie, who provided the following points 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.
- There is a risk of impact to receiving waters associated with metal leaching from the stockpiled ore.
- The KP 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 runoff from the ore stockpile should be established.

DIAND

The DIAND submission contains several recommendations which are a combination of those made in the Rescan reports and others made by Peri Mehling, P.Eng. of Mehling Environmental Management Inc. (MEMI), an independent consultant that was contracted by DIAND for the purposes of this review. In general MEMI concurred with the Rescan recommendations. The main issues at the site are the lack of understanding of the ARD potential of the material stored on the surface and the evident metal leaching. DIAND recommended further analysis to ensure adequate knowledge is available to evaluate the conditions of this site and to develop effective monitoring and site management plans. Specific recommendations included in DIAND's written intervention were:

- the SNP be modified to include sites that will enable effective monitoring of the quality of runoff water;
- DIAND recommends that the Board require HBJV to follow up on suggestions contained in the Rescan report, which suggested that the orepiles/stockpiles be covered to minimize infiltration and that a collections/diversion system be installed to prevent drainage from entering receiving waters.
- with regard to water management and metal leaching, DIAND requested that the Board consider requesting studies that include, but not be limited to the following:
- Evaluation of the need for tighter containment of waste rock and ore stockpile runoff and leachate.
- Water extraction tests (Modified SWEP) should be conducted on uncrushed samples collected from the stockpiles which have been exposed for some period of time to indicate the presence/quantities of soluble metal products that are available for leaching from the rock surfaces.
- A water management plan should be completed and should include provisions to contain run off water from the waste rock piles and a plan for the placement of newly excavated materials such that runoff and leachate can be collected and monitored. Seepage monitoring should be conducted regularly.

With regard to ARD, metal leaching testing and analysis, DIAND requested:

- Further evaluation of the existing static test results on the basis of kinetic and on-site monitoring results.
- Further analyses to determine the effect of the iron carbonates and a determination of the carbonate forms attributable to calcites, dolomites and iron carbonates in the static test samples.
- Field and laboratory kinetic tests should be initiated on additional samples (construction materials, waste rock, etc.) Tests should be conducted on a variety of samples including basalts with varying amounts of alteration. NP, metal and sulphide contents should be included in these tests to determine which materials will generate acidity or metal leaching under neutral conditions. (Future static tests should include mineralogical assessments (Rescan, 1999) and laboratory corrections of neutralization potentials for siderite.)

With regard to waste rock characterization, DIAND requested:

- Re-evaluation of criteria for selection of suitable construction materials on the basis of current information (i.e. kinetic test results).
- Results of surface rinse extraction tests on uncrushed samples of material currently stored on surface, including representative ore, waste rock and underlying pad material.
- Sampling and analysis plan for newly excavated materials, which should include siderite corrections, the use of ICP data to evaluate potential iron carbonate content as a fraction of reported carbonate content and kinetic tests on a range of materials, particularly basalt with various amounts of alteration, neutralization potential, sulphide and metal content.

KIA

The KIA submission includes a review of the ARD documents prepared by Rescan and KP, which was done by FSC/Lorax. These have been summarized above in the section describing the ARD/metal leaching studies.

DFO

DFO recommended amending the SNP to include monitoring runoff water. Total Suspended Solids should continue to be monitored as part of this program. Furthermore, DFO requested the Board to consider requiring the HBJV to perform ARD testing of the existing ore stockpiles before expansion of the ore storage pad is permitted.

Environment Canada

EC recommended acid base accounting be done for the ore stockpile and that an SNP station be added which monitors runoff from the pile for pH and metals. Periodic testing of waste rock should also be ongoing.

Government of Nunavut

The Resident Geologist suggested that some mineralogical/petrographic studies may be useful in determining the exact sulphide minerals present and in identifying those most likely to contribute to significant ARD. A review of other projects with similar styles of mineralization was also suggested, such as the Campbell Red Lake Mine in NW Ontario.

RECOMMENDED LICENCE TERMS AND CONDITIONS

It appears that there is general consensus among the interveners and acknowledgement by HBJV that there is an overall lack of understanding of the ARD potential of the material stored on surface and that the stored rock is leaching metals under neutral conditions. The neutralization potential of the ore is decreased by the presence of iron carbonates and that a correction factor (as recommended by KIA) should be applied to the acid-base accounting results to provide a greater understanding of the actual neutralization potential.

A key component of future licencing terms and conditions is to ensure that HBJV fully understands the long term ARD potential at the site to the extent required to develop effective monitoring and site management plans. The main objective of any future License conditions would be to ensure that the receiving waters are protected from metal leachate and ARD. HBJV must have suitable monitors located to detect metal leaching and an appropriate surface water management and contingency plans in place to contain and treat runoff water should metal leaching occur.

BGC concurs with HBJV that further ARD/metal leaching studies need not be included as a license condition because HBJV is actively studying the waste characterization aspects as part of their overall exploration and development activities on this project. This will be a key requirement for future environmental assessment of this project if it proceeds to the development phase. HBJV is aware of the issues that need to be addressed in future work, as presented in the above submissions. BGC recommends however that due to the potential for arsenic leaching, altered basalt material, or any other new rock material should not be used for construction purposes without further mineralogical analysis and leaching studies.

BGC recommends that the general concerns about ARD/metal leaching be addressed through a modification in the SNP and a requirement to prepare an ore and waste rock stockpile management plan which includes the establishment of protocols to monitor for indications of ARD and/or metal leaching associated with the material currently stored within the stockpile areas.

The revised SNP should be re-written to reflect the current ownership (as suggested by HBJV) and to include the following conditions:

- HBJV to prepare an updated SNP which incorporates data on site topography, hydrology, current and future waste rock/orepile storage pad locations and configurations and site drainage, ditching and runoff conditions which will be used to select the location or locations for additional SNP station(s) such that runoff and leachate can be collected and regularly monitored. At least one SNP station will be located below the waste/ore storage pad.
- The SNP station shall be sampled during periods of flow, and focus on the spring thaw and during the short summer season.
- Opportunistic sampling of seepage from existing and identified piles of waste rock/ore should be carried out whenever seeps are observed to verify the results from laboratory kinetic testing.
- In general the water samples should be tested in accordance with a protocol that can be related to the kinetic testing. The following parameters are suggested as a minimum:
    - pH
    - sulphate
    - total metals (particularly heavy metals of environmental concern, including arsenic, nickel, cobalt, copper, chromium, lead and zinc)
    - Total Suspended Solids
    - Total Ammonia

In general, the above parameters are equivalent to those currently required at SNP Station 1652-2. BGC does not agree with the HBJV request to carry out SNP sampling only when the camp is operational. Sampling must be carried out during periods of flow. The frequency of sampling shall be adjusted to suit the need to carry out opportunistic sampling during the short period of flow. The above protocol should be carried out at least once during the initial spring thaw to capture the flushing of metals from the stockpiles. Subsequent sampling intervals can be adjusted to meet the requirements of the SNP.

Further to the above requirements, BGC recommends that the Board include an additional condition in the License, perhaps under Part E: Conditions Applying to the Undertaking, requiring HBJV submit a water and ore/waste rock management plan that addresses the current lack of knowledge on the ARD and metal leaching potential of the materials at the site.

HBJV should prepare, (within 60-120 days of issuance of the License ??) as-built plans and drawings showing the existing and proposed method of controlling infiltration and runoff from the waste rock/ore stockpiles, including short-term and long-term contingency plans for treating or mitigating runoff that exceeds the minimum concentrations set by regulating authorities. The waste rock/ore management plan should include a re-evaluation of the criteria for the selection of site construction materials and the need for tighter containment of waste rock and ore stockpile runoff and leachate. Details should include provisions to prevent seepage from the stockpiles from entering the seasonal active zone within the pad foundation, where it may flow undetected.

Surface rinse extraction tests on uncrushed samples of materials currently stored on surface, including representative ore, waste rock and underlying pad material should be carried out. Any newly excavated materials should be regularly sampled and analyzed.

BGC advises the Board to review the closure bond currently assessed for this property to determine if sufficient funds have been allocated to cover the above plans and contingencies that will be associated with the renewed Licence. For instance, HBJV has indicated that the potentially acid generating materials stockpiled at the surface can be returned underground if the decision is made not to proceed with further development.

CLOSURE

We trust that this summary will meet with your requirements at this time. If you have any questions or require additional information, please do not hesitate to contact the undersigned.

This letter report was prepared by BGC Engineering Inc. (BGC) for the account of the Nunavut Water Board. The material in it reflects the judgement of BGC staff in light of the information available to BGC at the time of report preparation. Any use which a Third Party makes of this report, or any reliance on decisions to be based on it are the responsibility of such Third Parties. BGC accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.

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Thank you for allowing BGC to assist you in this review.

Yours truly,
BGC Engineering Inc.
per:

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

HHH/sf