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Nunavut Water Board
FEB 06 2001
Public Registry

Water Licence Application Supplementary Questionnaire for Advanced Exploration (Underground drilling, bulk sampling, etc.)

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HOPE BAY JOINT VENTURE

(MIRAMAR HOPE BAY LTD.&HOPE BAY GOLD CORP.INC.

RENEWAL OF WATER LICENCE

NWB1BOS9801

JANUARY 31, 2001

SECTION 1 :

GENERAL

1. Applicant **HOPE BAY JOINT VENTURE**
(MIRAMAR HOPE BAY LTD AND HOPE BAY GOLD COPR.)
(Company, corporation, owner)
311 WEST FIRST STREET
NORTH VANCOUVER, B.C.
V7M 1B6

(Postal address)

604-985-2572 **604-980-0731**
(Telephone number) (Fax)

hwilson@miramarmining.com
hugh_r_wilson@hotmail.com
terrbear@powersurfr.com
(E-Mail)

Corporate Address (If different from above)

(Corporate Office Address)

(Telephone number) (Fax)

(E-Mail)

Project Name: **HOPE BAY PROJECT**

Location: **BOSTON GOLD PROJECT**

Closest Community: **BATHURST INLET /UMINGMAKTOK**
Latitude/Longitude: **67 degrees 39 minutes N and 106 degrees 22 minutes W**
Show the location of the project on a general location map.

2.

Manager, Environmental Affairs:	**Hugh R. Wilson**	604-985-2572 /780-975-2550
Environmental Technician:	**David Mablick**	867-873-4351
Exploration Manager:	**Adrian Fleming**	303-810-9186
Project Manager:	**Edward Mahoney**	604-985-2571

3. Indicate the status of the exploration activity on the date of application.
(Check the appropriate space.)

A BETTER DEFINITION TO USE FOR STATUS OF OERATION AT BOSTON IS: ADVANCED EXPLORATION XXX

Design	_____
Under construction	_____
In operation	_____
Suspended	_____
Care and Maintenance	_____
Abandoned	_____

4. If a change in the status of the exploration activity is expected, indicate the nature and anticipated date of such change.

Programs at the Boston camp site and associated advanced exploration activities are seen to be similar to the activities that took place under the existing licence. Water use and camp waste disposal practices are seen to be the same scope as was carried out during the term of the existing licence.

5. Indicate the present (or purposed) schedule for the exploration activity.

Hours per week	154 hours
Days per week	7 days/ week
Weeks per year	30 weeks/year
Number of employees	50
Number of Inuit employees	10-14

6. Estimate the term (life) of the exploration activity.

ADVANCED EXPLORATION COULD BE EXPECTED UNTIL A PRODUCTION DECISION IS MADE. LICENCE TERM APPLIED FOR IS 5 YEARS WITH AN EXPIRY DATE OF JULY 31, 2006. (31-July / 2006)

7. How will the project effect the traditional uses on Inuit Owned Lands?
NO EFFECTS ANTICIPATED BEYOND THOSE ALREADY EXISTING.

8. Have the Elders been consulted on effects to the traditional use on Inuit Owned Land? If so, list them. If not, why not?

As this is a renewal application and the activities are seen to be the same or similar to those under the existing licence, consultation with the elders has not been undertaken, however; it is our opinion that all communities and subsequently, the elders are familiar with the operation and further consultation is not warranted at this time. Please see questions 9 and 10 below.

9. Has the proponent consulted Inuit Organizations in the area? If so, list them.

As part of our existing permit requirements, local Inuit Organizations are familiar with the Hope Bay Project and as such additional consultation is not expected. Organizations with whom the project has been discussed are: Kitikmeot Inuit Association; Kitikmeot Hunters and Trappers, Local HTA's (Bathurst Inlet and Umingmaktok); Community Lands and Resources Committees; Nunavut Wildlife personnel, NTI personnel, NIRB, NWB etc.

10. Has the proponent consulted surrounding communities on traditional water use areas? If so, list them. If not, why not?
Local communities were visited in 2000 during which time the current program was explained plus the expected activities in 2001. As this is a renewal application and there are no significant changes planned in the operation, this level of consultation is seen to be sufficient. Local community visits will be undertaken again in the summer of 2001, to update the local residents of our activities and future plans.

11. Attach a detailed ma; :awn to scale showing the relative loc. ons (or proposed locations) of the exploration activity, Sewage and solid waste facilities, and containment areas. The plan should include the water intake and pumphouse, fuel and chemical storage facilities. Ore and waste rock storage piles, piping distribution systems, and transportation access routes around the site. The map also should include elevation contours, water bodies and an indication of drainage patterns for the area.
See attached site plans.(Figures 1 and 2).

12. If applicable, provide a brief history of property development which took place before the present company gained control of the site. Include shafts, audits, mills (give rated capacity, etc.) waste dumps, chemical storage areas, tailings disposal areas and effluent discharge locations. Make references to the detailed map.

BHP, the previous owner, had carried out exploration work on the belt from 1992 to the time the Hope Bay Joint Venture(HBJV) became owners of the project area in late 1999. All current conditions, including the underground development, bulk sampling program, waste and ore stock piles camp layout and all other related infrastructure was inherited by the HBJV, and no significant additions to existing conditions are planned by the HBJV during this advanced exploration phase.

13. Give a short description of the proposed or current freshwater intake facility, the type and operating capacity of the pumps used, and the intake screen size.
Fresh water is obtained from Almaoktak Lake (Spider Lake) from an insulated shed placed on a floating dock. Through a License amendment received in 2000, all water that will be used at the site (either for underground drilling when applicable, and for camp purposes) is pumped from this one location. The pipeline is of steel construction and is insulated and heat traced, the capacity of the pump is such that water for domestic purposes is pumped "on demand" to a large holding tank located in the main generator building. The intake itself is screened as per code to protect fish.

14. At the rate of intended water usage for the exploration activity, explain water balance inputs and outputs in terms of estimated maximum draw down and recharge capability of the water source from fresh water will be drawn.

The total amount of water expected to be used related to this licence is minimal and impacts to draw down of Almaoktak Lake is seen to be insignificant as the lake itself is large and is fed continuously from the south which then feeds the Kogniak River. As mentioned in # 13 above, water requirements are based on the "demand" principle. This is to say that when water is required for domestic purposes, the pumps are turned on and the fresh water tank is filled. This is done on as required basis. When underground activities commence, the water requirements for the drills are pumped through the same pumping facility with a take off line to the underground. Flow meters are in place to provide useage for each area.

15. Will any work be done that penetrates regions of permafrost?
YES

16. If "YES" above, is the permafrost continuous or discontinuous
Continuous

17. Were (or will) any old workings or water bodies (be) dewatered in order to conduct the exploration activity ?
NO.

18. If "YES" above, indicate the name of the water body, the total volume of water to be discharged and the chemical characteristics of the water.

Water body (if unnamed give Latitude/Longitude)_____
Total volume _____ cubic metres
Receiving Watercourse _____
Dewatering flow rate into above _____ cubic metres / sec

Chemical characteristics of discharge:

T/Pb	_____mg/L	Total Ammonia	_____ mg/L
T/Cu	_____mg/L	Suspended solids	_____ mg/L
T/Al	_____mg/L	Specific conductivity	_____ uhmo/cm
T/HCN	_____mg/L	pH	_____
T/Hg	_____mg/L		
T/Zn	_____mg/L		
T/Cd	_____mg/L		
T/As	_____mg/L		
T/Ni	_____ mg/L		
T/Mn	_____ mg/L		

19. Was (or will) the above discharge (be) treated chemically ?
N/A

20. If "YES" above, describe the applied treatment.

21. Briefly describe what will be done with the camp sewage.
As this is a renewal, the existing licence approves the disposal of camp sewage and grey water through the exisitng "Rotating Biological Contactor" (RBC) which contains and treats all sewage and greywater wastes from the operation. Discharge from the RBC is approved under the existing licence and monitoring frequency and sampling points are specified in the existing licence. We propose that conditions related to this aspect of the new licence remain the same.

SECTION 2 :

GEOLOGY AND MINERALOGY

22. Briefly describe the physical nature of the mineralization, including known dimensions and approximate shape.

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 to 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.

23. Briefly describe the host rock in the general vicinity of the mineralization (from the surface to the mineralized zone.)

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 greywaches 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 greywaches occur as wide, homogeneous fine grained units. Only rarely are relict grains visible. Outside of the main shear zone, the greywaches are dark grey-brown and fairly easily recognizable. Within the deformed/altered zones, the greywaches are subject to the same sericite/dolomite alteration as are the mafic volcanics.

Inter-layered with the greywaches are fine-grained, graphitic, pelitic, bedded argillites. Occasionally, bedding is well preserved and fining upwards can be observed in several sequences.

24. Provide a geological description of the mineralized zone. (If possible, include the percentage of metals.)

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 the 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.

25. Describe the geochemical tests which have been (or will be) performed on the ore, host rock, and waste rock to determine their relative acid generation and contaminant leaching potential. Outline methods used (or to be used) and provide test results in an attached report (ie. static tests, kinetic tests.)

Considerable test work was carried out by the previous owners on the various rock types. We understand results have been provided to the Board and are on file. The HBJV will undertake additional ARD test work as required. For example, ARD testing is underway on various rock types collected during the summer of 2000 at potential quarry sites along the proposed road route from Roberts Bay to the Boston site.

26. Estimate the percentage of sulphide in the mineralization:

pyrite	2-5 %
pyrrhotite	0 _____
pyrite / pyrrhotite mixture	0_____
arsenopyrite	0_____

SECTION 3 :

EXPLORATION OPERATION

27. Check off the type (or proposed type) of exploration operation that will be used on the property and briefly describe the method in more detail.

a)	Reverse circulation to obtain bulk sample		_____
b)	Trenching		_____
c)	Conventional open pit		_____
d)	Decline		XX_____
e)	Conventional underground		_____
f)	Strip mining activity		_____
g)	Other Exploration activity	(please explain)	SS_____

The existing underground development will be extended in order to provide a location from which underground diamond drilling can properly test the ore body at depth, and perhaps also along strike from where it is currently well defined.

Surface diamond drilling will also be done to test new areas of mineralization similar to what has already been discovered on the property.

28. Indicate the size and number of samples that will be obtained.

N/A tonnes
Up to 2000 number of samples, *each sample is anticipated to weigh 1 Kg.*

Please note if smaller samples are to be taken from different areas (note location) to form one large bulk sample.

29. Indicate the present or proposed average rate of exploratory production from all mineralized sources on the property:

25-50 Kgs ~~tonnes~~ ore / day

30. Outline the water usage (or proposed water usage) in the exploration activity, indicate the source and volume of water for each use.
MINIMAL USE, WILL BE METERED, BUT ESTIMATED USEAGE UNAVAILABLE.

	Source	**Use**	**Volume (m^3 / day)**
1.	_____	_____	_____
2.	_____	_____	_____

31. If applicable, indica ›r estimate the volume of natural grou. water presently gaining access to the mine workings.

*NONE*_____ m^3 / day,
The mine is dry, no ground water movement as we are in an area of continuous permafrost.

32. If applicable, outline methods used underground or on surface to decrease mine water flow. (For example: recycling)

All water in the underground mine is recycled. As much water as practically possible is recycled at the diamond drills on surface as well.

33. List the brand names and constituents of the drill additives to be used.

Calcium Chloride will be the main additive. This prevents the drills from freezing in the holes.

SECTION 4 : NOT APPLICABLE

THE MILL OR PROCESSING PLANT

34. Is there (or will there be) a portable mill processing plant be operating on the property in conjunction with the exploration activity ?

_____ Yes _____ No

35. If "yes" indicate the proposed point of discharge for the mill or process plant water and the volume of the discharge.

Point of discharge _____

Volume of discharge _____ m^3 / day

36. Attach a copy of the portable mill or processing plant flow sheet. Indicate the points of addition of all the various reagents (chemicals) that are (or will be) used.

37. Indicate the proposed rate of milling.

_____ not applicable (check) or _____ tonnes / day

38. List the types and quantities of all reagents used in the mill or processing plant (in kg/tonne ore milled.)

Reagent:_____Amount in kg/tonne ore milled:_____

39. If applicable, is the (proposed) milling circuit based on autogenous grinding ?

Yes _____ No _____ Partially _____

40. Based on present production or bench test results, describe the chemical and physical characteristics of liquid mill or processing plant wastes directed to the tailing deposition area.

T/Cu _____mg/L
T/Pb _____mg/L
T/Zn _____mg/L
T/Ag _____mg/L
T/Mn _____mg/L
T/Ni _____mg/L
T/Fe _____mg/L
T/Hg _____mg/L
T/As _____g/L
T/Cd _____mg/L
T/Cr _____mg/L
T/Al _____mg/L

Total Ammonia _____mg/L
Suspended solids _____mg/L
Specific conductivity _____uhmo/cm
pH _____
Alkalinity _____$CaCo_3$/L
Hardness _____mg/L
Total cyanide _____mg/L
Oil and Grease _____mg/L

41. Provide a geochemical description of the solid fraction of the tailings.

Cu _____mg/g
Pb _____mg/g
Zn _____mg/g
Ag _____mg/g
Mn _____mg/g
Cr _____mg/g
Cd _____mg/g

Al _____mg/g
Fe _____mg/g
Hg _____mg/g
Ni _____mg/g
As _____mg/g
CN_____mg/g

SECTION 5 :

THE CONTAINMENT AREAS

42. What is the (Proposed) method of disposal of the mine water, mill or process plant tailings (ie. sump, subaqueous, surface tailings pond, settling pond) ?

Any discharges would be minor amounts of water pumped from underground as a result of exploration drilling, which would have elevated levels of salt content. The water would be disposed of into existing and approved disposal areas as allowed for in the existing licence. We respectfully request that the terms and conditions in the existing licence carry over to the renewed licence. As there is no major containment areas on site it is our opinion that questions 43 through 51 are not applicable to this renewal application and has thus been answered with a N/A (Not applicable).

43. Attach detailed scale plan drawings of the proposed (or present) containment area. The drawings must include the following:
N/A

a) details of pond size and elevation;
b) details of all retaining structures (length, width, height, materials of construction, etc.);
c) details of the drainage basin;
d) details of all decant, siphon mechanisms etc., including water treatment plant facilities;
e) details with regard to the direction and route followed by the flow of wastes and / or waste water from the area; and
f) indicate of the distance to nearby major watercourses.

44. Justify your choice of location for the containment area design by rationalising rejection of other options. Consider the following criteria in your comparisons: subsurface strata permeability, abandonment, recycling/reclaiming waters, and assessment of runoff into basins. Attach a brief summation.

N/A

45. The <u>average</u> depth of the <u>existing or proposed</u> containment area is <u>dependent on the volume of water encountered</u> metres.

N/A

46. Indicate the total cap ty for the existing or proposed contain. nt area by using water balance and stage volume calculations and curves. (Attach a description of inputs and outputs along with volume calculations.)

N/A

47. Has any evaporation and/or precipitation data been collected at the site ? _____ if so, please include the data.
N/A

48. Will the present or proposed containment area contain the entire production from the mill or processing plant complex for the life of the project ?

N/A

49. Will the proposed tailings deposition area engulf or otherwise disturb any existing watercourse?
N/A

50. If "Yes", attach all pertinent details (Name of watercourse, present average flow, direction of flow, proposed diversions, etc.)

N/A

51. Describe the proposed or present operation, maintenance and monitoring of the containment area.

N/A

SECTION 6 :

WATER TREATMENT

52. If applicable, will the minewater, mill or process plant water be chemically treated before being discharged to the containment area ? If so, explain the treatment process (Attach flow sheet if available.

N/A

53. Will (treated) effluent be discharged directly to a natural water body or will polishing or settling ponds be employed ? Describe location, control structures, and process of water retention and transfer. Attach any relevant design drawings.

NO: *The only treated discharge will be from the RBC and the discharge travels over the tundra a distance greater than 400 m prior to entering any water body (Almaoktak Lake). Analytical results from required SNP sampling locations have shown no impacts on receiving waters.*

54. Name the first major watercourse the discharge flow enters after it leaves the area of company operations.

See Item 53.

SECTION 7 :

ENVIRONMENTAL MONITORING PROGRAM

55. Has Traditional Knowledge in the area been considered? If so, how? If not, why not?

YES: *Through two studies: 1) the West Kitikmeot Slave Study (WKSS) carried out by Natasha Thorpe under the direction of a committee based in Bay Chimo (Umingmaktok) and 2) the "NTK" (Naogaiyaotit Traditional Knowledge) funded by Industry through the KHTA / Kugluktuk Naogaiyaotit Association and currently being finalized.*

56. Has any baseline data been collected for the main water bodies in the area prior to development ***Yes:***

57. If "Yes", include all data gathered on the physical, biotic and chemical characteristics at each sampling location. Identify sampling locations on a map.

The previous owner, BHP, provided numerous reports to the various agencies, which should still be available. The information is extensive and we feel a duplication of effort and not cost effective to reproduce all these reports. Other rationale is that there is no change to the operation and all relevant water quality data is provided monthly as part of the existing licence through the SNP program.

58. Provide an inventory of hazardous materials on the property and storage locations.

No hazardous material stored on site.

59. Provide a conceptual abandonment and restoration plan for the site, detailing the costs to carry out the plan, and a proposal for a financial assurance which covers the costs to carry out the plan.
As nothing has changed at the operation, the existing abandonment and restoration plan that is currently on file is seen to be valid. It is expected however that this plan will be updated over the course of the next two years, as the project becomes better defined. It is the HBJV's position that current bonding levels plus the filing of Letters of Credit are more than adequate to cover reclamation costs, especially when one considers the significant cleanup activities completed during the 2000 program. Details of this cleanup were provided in our applications for renewal of our land use permits and as such should be available in your files. (reference KTL399C028;KTL399C029 and KTL300F002)

SECTION 8 :

ENVIRONMENTAL ASSESSMENT AND SCREENING

60. Has this project ever undergone an initial environmental review? If yes, by whom and when.

To our knowledge the project has not undergone an environmental evaluation. In recent applications for various Land use Permit renewals and Water Licence amendments, all the applications and supporting documentation have been reviewed by NIRB and screening decisions have been issued to the authorizing agency. To this date, all permit applications have received positive screening decisions and have been approved.

61. Has any baseline data collection and evaluation been undertaken with respect to the various biophysical components of the environment potentially affected by the project (eg. Wildlife, soils, air quality), ie. In addition to water treated information requested in this questionnaire ?

Yes **XX**___ No _____ Unknown _____

62. If "Yes" please attach copies of reports or cite titles, authors and dates.

There has been considerable baseline data collection work completed on the belt since BHPs initial activities in 1992. To date, there are numerous reports which have been prepared by various consultants. It is believed that these reports are on file in the Water Board office. It is the HBJV's opinion that the current database is more than sufficient to proceed to the review stage, once the project is better defined.

63. If no, are such studies being planned ? _____

Briefly describe the proposals.

N/A

64. Has authorization been obtained or sought from the Department of Fisheries and Oceans for dewatering or using any waterbodies for containment of waste?

NO: N/A

65. Has a socio-economic impact assessment or evaluation of this project been undertaken ? (this would include a review of any public concerns, land, water and cultural uses of the area, implications of land claims, compensation, local employment opportunities, etc.)

Yes ***XX*** No _____ Unknown _____

66. If "Yes" please describe the proposal briefly.

Socio-economic studies have been initiated by the HBJV and this initial phase included community demographics, education levels, public concerns etc. As the project is yet undefined, detailed socio-economic studies will commence at such time as the various project components have been finalized, a project description prepared and a feasibility study completed. Following this, we would continue our socio-economic study programs which will include the negotiation of and IIBA.

67. If "No" is such a study being planned ? Yes _____ No _____

N/A

68. Describe any cumul. e impacts the project may create?

None:
This is the only exploration activity in the area and as such cumulative impacts are not an issue.

69. Does the project alter the quantity or quality or flow of waters through Inuit Owned Lands?

NO

70. If yes, has the applicant entered into an agreement with the Designated Inuit Organization to pay compensation for any loss or damage that may be caused by the alteration.

N/A

71. If no compensation arrangement has been made, how will compensation be determined?

N/A