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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI

**Water Licence Application
Supplementary Questionnaire
for Mine Development**

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SECTION 1 :

GENERAL

1. Applicant _____
(Company, corporation, owner)

(Postal address)

(Telephone number) _____
(Fax)

(E-Mail)

Corporate Address (if different from above):

(Corporate Office address)

(Telephone number) _____
(Fax)

(E-Mail)

Project Name _____

Location _____

Closest Community _____

Latitude/Longitude _____

Show the location of the project on a general location map (eg: 1:1,000,000)

2. Environmental Manager _____
(Name) _____
(Telephone No.)

or Project Manager _____
(Title)

3. Indicate the status of the mine or mill on the date of application. (Check the appropriate space.) Indicate schedule or time table of project activities.

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

4. If a change in the status of the mine or mill is expected, indicate the nature and anticipated date of such change.

5. Indicate the proposed schedule for the Mine/Mill operating schedule.

Hours per week	_____
Days per week	_____
Weeks per year	_____
Number of employees	_____
Number of Inuit employees	_____

6. How will the project effect the traditional uses on Inuit Owned Lands?

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

8. Has the proponent consulted Inuit Organization in the Area? If so, list them.

9. Has the proponent consulted surrounding communities on traditional water use areas? If so, list them. If not, why not?

10. Attach a detailed location map (1:50,000) drawn to scale showing all on site and off site facilities and activities. Show the relative locations of the (proposed) locations of the mine, mill, water treatment facilities, sewage and solid waste facilities, and tailings containment areas. The plan should include the water intake and pumphouse, fuel and chemical storage facilities, any existing or proposed concentrate, ore and waste rock storage piles, any existing and proposed drainage controls, piping distribution systems, gas, electric and water utility route locations, 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.

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

12. 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.

13. 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.

14. Will any work be done that penetrates regions of permafrost ?
Yes_____ No_____

15. If “YES”above, is the permafrost continuous or discontinuous ?

16. Were (or will) any old workings or water bodies (be) dewatered in order to conduct the exploration activity ?
Yes_____ No_____

17. 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. Also included should be the receiving water body and expected schedule of the dewatering.

18. Was (or will) the above discharge (be) treated chemically ?
Yes_____ No_____

19. If “YES” above, describe the applied treatment.

23. Provide a geological description of the ore minerals of the deposit.(If possible, include the percentage of metals.)
24. 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, Kinetic tests.)

SECTION 3:

THE MINE

25. Indicate the type of mining method to be used on the property:

Open Pit _____

Underground _____

Strip mining _____

Other mining activity_____

Explain:

26. Outline any possible operational changes and when that might occur. (Eg. Open pit to underground)

27. Describe the type(s) of explosives to be used in mining operations.

28. Indicate the number of shafts or other openings that are presently on the property. Signify whether or not the openings are presently in use. (Submit measurement in metres) Indicate if used seasonally.

29. Are any entrances to shafts, adits, etc. below ground water level.

30. Are permafrost conditions expected?

31. Indicate the expected life of the mine.

32. Indicate the present average rate of production from all ore sources on the property.

33. Indicate the expected maximum rate of production from all ore sources on the property.
34. Outline all water usage in the mine. Indicating the source and volume of water for each use.
35. Indicate the volume of natural ground water presently gaining access to the mine workings.
_____M³/day
36. Outline methods used (planned) underground to decrease minewater flow. (For example: recycling)
37. Indicate the average daily volume of water to be discharged from the mine during normal operations.
38. If a mill will be operating on the property in conjunction with mining, will all minewater (underground, open pit, etc.) be directed to the mill for reuse?

39. If not, indicate the proposed point and volume of discharge for the minewater.
40. What are the chemical and physical characteristics of the preceding minewater?
41. Are there any treatment plans for minewater and will any chemicals be used in such treatment? Explain.

SECTION 4:

THE MILL (PROCESSING PLANT)

42. Attach a copy of the (proposed) mill flow sheet., Indicate the points of addition of all the various reagents (chemicals) that are (or will be) used.
43. If milling is in progress on the property at the present time, indicate the rate of milling.
_____ not applicable (check) OR _____ tonnes/day
44. What is the present (or proposed) maximum capacity of the mill?
45. List the types and quantities of all reagent used in the mill process (in kg/tonne ore milled.)

46. Is the (proposed) milling circuit based on autogenous grinding?

Yes _____ No _____ Partially _____

47. Indicate the amount(s) of concentrate(s) produced in the mill.

48. Will fresh water undergo treatment prior to use in the mill process? Explain.

49. Indicate all uses of water in the mill. Include the quantity and source of the water for each use.

Use	Source	Volume m ³ /day

50. Indicate the total volume of water discharged from the mill.

51. Of the preceding volume, what quantity is (will be) recycled to other areas on the property (mine, mill, etc.)? Indicate location of use and quantity.

52. Based on yearly production, indicate the average quantity of tailings (Dry weight) discharged from the mill.
53. What is the average liquid-solid ratio of tailings leaving the mill?
By weight: _____ By volume: _____
 Liquid: Solid Liquid: Solid
54. If applicable, identify any chemical treatment applied to the liquid phase before being discharged to the tailings area. (Attach flow sheet if available.)
55. Based on present production or bench test results, describe the chemical and physical characteristics of liquid mill wastes directed to the tailings area.
56. Provide a geochemical description of the solid fraction of the tailings.
57. Identify the current source of power production.

58. At present, is the mill handling custom lots of ore from other properties (or will the mill be handling any in the future)?

59. If so, specify ore characteristics and describe any mill processes which will change as a result.

60. If tailings are being recovered in the mill or elsewhere for use as backfill etc.), indicate the quantity of solid tails (tonnes/day) recovered from the mill process.

61. Will exits be bermed to prevent spills from escaping the mill?

62. Will all sumps for process tanks have the required 110% holding capacity of the largest tank?

SECTION 5:

THE CONTAINMENT AREAS

63. Is the tailings containment area (being) designed for total containment?
64. Attach detailed scale plan drawings of the proposed (or present) tailings area. The drawings must include the following:
- a. details of pond size and elevation;
 - b. precise details of all retaining structures (length, width, height, materials of construction, etc.);
 - c. details of the drainage basin, and existing and proposed drainage modification;
 - d. details of all decant, siphon mechanisms etc., including water treatment plant facilities;
 - e. the plan for tailings deposition and final tailings configuration;
 - f. details with regard to the direction and route followed by the flow of wastes and/or waters from the ore; and
 - g. indication of the distance to nearby major watercourses.

Note: Individual detailed large scale drawings of any facility (dam, decant system, ditch, dike, water treatment plant, etc.) (to be) constructed must be attached. Specific details with regard to the methods of construction, materials (to be) used, etc., are required.

65. Explain your choice of location for the tailings pond design by rationalizing rejection of other options. Consider the following criteria in your comparisons; subsurface strata,

permeability, abandonment of tailings, recycling/reclaiming waters, and assessment of runoff into basins. Attach a brief summation.

66. The total area for the existing tailings basin in hectares and for any proposed tailings area is _____ Hectares.
67. The average depth of the tailings basin is _____ metres.
68. Indicate the total capacity for the existing tailings area by using water balance and stage volume calculation and curves. (Attach a description of inputs and outputs along with volume calculations.)
69. Indicate the total capacity for the proposed tailings area using water balance and stage volume calculation and curves. (Attach a description of inputs and outputs along with volume calculations.)
70. Will the present tailings area contain the entire production from the mine-mill complex for the life of the project?

76. If "YES", attach all pertinent details (name of watercourse, present average flow, direction of flow, proposed diversions, etc.).
77. If any natural watercourse will gain access to the proposed tailings area, What methods will be used to decrease the amount of runoff water entering the containment area? Indicate the volume of water which will enter the tailings area from the source(s) in question and attach all pertinent details of proposed diversions.
78. Indicate on the tailings area plan drawing all sources of seepage presently encountered in the vicinity of the tailing area, the volume of each seepage flow (m³/day), and the direction of each flow.
79. Are the seepage flows from the property presently being treated chemically? _____ If so, describe how.

80. If NOT, explain.

81. Please attach a conceptual abandonment and restoration plan for all tailings areas being developed. Describe the measures that have been (or will be) taken to contain and stabilize the tailings area(s) against leaching and seepage after operations on the property cease.

82. Describe the proposed or present operation, maintenance and monitoring of the tailings area.

SECTION 6:

WATER TREATMENT

83. Describe the methods of chemical treatment that are presently being used and/or will be used to control the quality of the tailings effluent . Attach engineering drawings where applicable and a process flow chart. If a pilot test has been conducted please attach description of methodology and results.

84. List the names of chemicals to be used in the water treatment process.
85. What is the proposed or present average rate of effluent treatment of the plant (if applicable)?
86. What is the proposed or present maximum effluent treatment capacity of the plant (if applicable)?
87. 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.
88. Name the first major watercourse the discharge flow enters after it leaves the area of company operations.

89. In terms of rate of effluent release and volume and flushing rate of the receiving watercourse, estimate the extent of the mixing zone within the receiving waters and where background levels of constituents for that watercourse will be attained.
90. Describe the present (proposed from pilot tests) chemical and physical characteristics of the tailings effluent (Decant).

SECTION 7:

ENVIRONMENTAL MONITORING PROGRAM

91. Have elders been consulted in the establishment of the monitoring program?
92. Has Traditional Knowledge of the area been considered?

100. Has this project ever undergone an initial environmental review, including previous owners.
101. Has any baseline data collection and evaluation been undertaken with respect to the various biophysical components of the environment potentially affected by the project (e.g. wildlife, soils, air quality), i.e. in addition to water related information requested in this questionnaire?
102. Describe any cumulative impacts the project may create?
103. Has any meteorological data been collected at or near the site? (E.g. precipitation, evaporation, snow, wind).
- a) If so, please include the data and attach copies of reports or site titles, authors and dates.
104. If no, are such studies being planned? Briefly describe the proposals.

105. Has authorization been obtained or sought from the department of fisheries and oceans for dewatering or using any water bodies for containment of waste?
106. Please attach an outline briefly describing any options or alternatives considered or reflected for the various mine components outlined in this questionnaire (e.g. mill site, water supply sources, location for ore and waste piles).
107. Has a socio-economic impact assessment or evaluation of this project been undertaken? (This would include a review of any public concerns, and water and cultural uses of the area, implication of land claims, compensation, local employment opportunities, etc.)
108. If yes, please describe the proposal briefly.

109. If no, is such a study being planned? Yes _____ (When) OR No _____

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

111. 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.

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