

Mining Exploration/Development Questionnaire
to Accompany Water Licence Applications to
the Mackenzie Valley Land and Water Board



Mackenzie Valley Land and Water Board
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Regulating the use of land and waters and the deposit of waste, and enabling residents to participate in the management of resources to provide optimum benefit to the residents of the settlement areas and of the Mackenzie Valley and to all Canadians.

October 2003

Mining Exploration and Development Questionnaire

The purpose of this questionnaire is to solicit supplemental information from an Applicant to support his/her application for a water licence (or renewal). It is anticipated that the completion of this questionnaire will reduce delays arising from the Board's having to solicit additional information after an application has already been submitted. This information will also be useful during the pre-screening of your application, which must be undertaken prior to development and approval of a water licence to determine if the project needs to be referred to the Environmental Impact Review Board.

The Applicant should complete the questionnaire to the best of his/her ability, recognizing that some questions may not be relevant to the project under consideration. For questions that do not relate to his/her operation, the applicant is requested to indicate "N/A" (Not Applicable).

If any questions arise while completing the questionnaire, the Applicant may wish to contact the Mackenzie Valley Land and Water Board at (867) 669-0506.

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Please Print Or Type Your Responses.

NOTES:

If space is insufficient for any of the responses on this questionnaire, use the back of the sheet or an attachment.

A number of sections in the questionnaire solicit information on water quality and waste management which must be provided in accordance with specific policies and guidelines: the Board's *Water and Effluent Quality Management Policy*; the Board's *Guidelines for Developing a Waste Management Plan*; and INAC's *Guidelines for Spill Contingency Planning*. The Board's policies and guidelines are accessible at www.mvlwb.com or by calling the Board. INAC's *Guidelines for Spill Contingency Planning* are available at <http://www.ainc-inac.gc.ca/ai/scr/nt/pdf/SCP-EUD-eng.pdf>. Please provide separate plans and/or reports to address these information requirements as part of the completed application package. Reference the relevant title(s) of the plans and/or reports in the body of the questionnaire.

Section 1 -- General

Date: December 15, 2022

1.1 Applicant **Archer, Cathro & Associates (1981) Limited**
(on behalf of Lake Winn Resources Corp.) (867) 667-4415
(company, corporation, owner) *(telephone number)*

41 MacDonald Road, Whitehorse, YT Y1A 4R2
(postal address)

Project name: **LNPG Project**

Location: **105I/02, approximately 32 km NW of Tungsten**

Closest community: **Ross River, Yukon (190 km);**
Watson Lake, Yukon (230 km);
Wrigley, NWT (300 km);
Nahanni Butte, NWT (310 km)

Latitude/Longitude: 62°11'N, 125°54'W

1.2 Environmental Manager or Project Manager **Heather Burrell, Senior Geologist and Partner**
(name)
(867) 667-4415
(telephone no.)

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

Design Planning Phase

Under construction

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In operation _____

Suspended _____

Abandoned _____

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

Operations planned to commence in early July

- 1.5 Indicate the present (or proposed) schedule for the exploration activity.**

hours per day _____ **24**

days per week _____ **7**

weeks per year _____ **8**

number of employees _____ **15**

- 1.6 Estimate the term (life) of the exploration activity.**

_____ **5 years** (months/years)

- 1.7 Attach a detailed map drawn to scale showing the relative locations (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.**

- 1.8 If applicable, provide a brief history of property development that 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.**

The occurrence of lithium-bearing pegmatite dykes in the LNPG project area was first noted in 1961 by Canada Tungsten Mining Corporation Ltd. during a regional exploration program. Between 1977 and 2007 mapping, sampling, and prospecting was conducted by various operators. Six diamond drill holes were completed along ridges within the current property in 2007. No mining activities have occurred on the property.

- 1.9 Give a short description of the proposed or current freshwater intake facility, the type and operating capacity of the pumps used, and the intakes screen size**

Intake will be via a 4" hose placed in a naturally occurring depression within an appropriate watercourse. A screen will be placed on the intake end of the hose.

- 1.10 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**

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source from which fresh water will be drawn.

Water pumps will operate only at the capacity needed for drilling and is anticipated to be a maximum of approximately 80 m³ per day. Only water sources with sufficient supply will be used to supply drilling water. Where possible, drill fluids shall be recirculated to reduce pumping needs. In early summer, snow melt and perception events are expected to provide more than adequate run-off.

1.11 Will any work be done that penetrates regions of permafrost?

No, much of the area where exploration activities will occur is overlain by coarse talus which does not host permafrost.

1.12 If "Yes" above, is the permafrost continuous or discontinuous?

N/A

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

No

1.14 If "Yes" above, indicate the name of the waterbody, the total volume of water to be discharged and the chemical characteristics of that water.

Water body _____

Total volume _____ m³

Receiving watercourse _____

Dewatering flow rate into above _____ m³/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/Zn	_____ mg/L	Oil and grease	_____ mg/L
	T/Cd	_____	mg/L
	T/As	_____	mg/L
	T/Ni	_____	mg/L
	T/Mn	_____	mg/L

1.15 Was (or will) the above discharge (be) treated chemically?

Yes _____

No _____

1.16 If “Yes” above, describe the applied treatment.

N/A

1.17 Briefly describe what will be done with the camp sewage.

All sewage shall be contained in pits, dug to depth of at least 1.5 m and at least 100 m from any highwater mark on watercourses. A wood framed outhouse shall be placed over the pits such that no open excavations are exposed. All outhouses shall be located a minimum of 50 m downhill from camp.

Section 2 -- Geology and Mineralogy

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

Mineralization occurs in coarse grained albite-spodumene-orthoclase-feldspar-quartz pegmatite dykes. Dykes strike northwesterly and dip steeply. Individual dykes are typically 1 to 2 m wide and have been traced on surface for up to 5 km. Vertical exposures of up to 400 m have been observed.

Dykes occur in swarms up ranging from 40 to 500 m wide comprising up to 25 individual dykes. To date, exploration has focused on four separate swarms.

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

The Property is predominately underlain by Upper Proterozoic to Lower Cambrian Hyland Group strata – a thick sequence of clastic and lesser carbonate rocks relating to the breakup of the Supercontinent Rodinia. In the Property area, Hyland Group is subdivided into two major units, the lower Yusezyu Formation and the overlying Narchilla Formation. The Yusezyu Formation comprises a thick sequence of brown shale, sandstone, grit and subordinate calcareous rocks, while the Narchilla Formation consists of maroon, green and grey-green, thinly bedded mudstone and shale, with lesser sandstone beds and rare silty limestone layers.

Contacts between the dykes and wall rocks are most often sharp, but can be irregular, depending upon the host rock composition. The dykes are separated by sedimentary wallrocks including quartz sandstone, limestone and shale, which do not contain significant amounts of any elements of interest.

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

The pegmatites have an overall predominance of lithophile elements and are strongly enriched in lithium, tantalum, tin and fluorine and weakly enriched in phosphorus, cesium, manganese, beryllium and niobium. Grades of up to 2% Li₂O and 500g/t Ta₂O₅ have been reported for individual dykes.

2.4 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 (i.e. static, kinetic tests).

Whole rock litho geochemistry and multi element geochemical analysis is standard on samples collected on the property. No testing has been done for relative acid generation and contaminant

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leaching potential. Given the nature of the mineralization and host rocks, acid generation is not anticipated.

2.5 Estimate the percentage of sulphides in the mineralization:

pyrite	_____	0%
pyrrhotite	_____	0%
pyrite/pyrrhotite mixture	_____	0%
arsenopyrite	_____	0%

Section 3 -- Exploration Operation

3.1 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 _____
- e) Conventional underground _____
- f) Strip mining activity _____
- g) Other exploration activity (please explain) Diamond drilling and channel sampling

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

_____ 10 **kg**
_____ 200 **number of samples**

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

Bulk sampling will not be conducted. Up to 200, individual 10 kg samples will selected from diamond drill core and channel samples collected on cliff faces.

3.3 Indicate the *present or proposed average* rate of exploratory production from all mineralised sources on the property:

_____ 100 **kg ore/day**

3.4 Outline the water usage (or proposed water usage) in the exploration activity, indicating the source and volume of water for each use.

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	Source	Use	Volume (m³/day)
1.	<u>Unnamed Stream (Cirque 3)</u>	<u>Drill Water</u>	<u>80</u>
2.	<u>Unnamed Stream (Cirque 4)</u>	<u>Drill Water (alternate source)</u>	<u>80*</u>
3.	<u>Unnamed Stream (Cirque 3)</u>	<u>Camp Water</u>	<u>20</u>

Note: sources 1 & 2 will not be used at the same time, 2 is an alternate. Total drill water needed is 80 m³.

3.5 If applicable, indicate or estimate the volume of natural groundwater presently gaining access to the mine workings.

_____ N/A m³/day

3.6 If applicable, outline methods used underground or on surface to decrease minewater flow. (i.e., recycling)

There will be no minewater flow. Where possible, drill water will be recycled to reduce discharge.

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

Final drill additive brand choice shall be made by the drill contractor based on ground conditions and product availability. Drill additives will be used sparingly only as needed. Only biodegradable, non-hazardous products will be used. The following is a list of some products expected to be used:

Extreme Number One (Granular Drilling Mud Polymer)
 Extreme Super-G Gold (Liquid Drilling Fluid Polymer)
 Extreme Super-G Blue (Liquid Drilling Fluid Polymer)
 Extreme Linseed Lube

SECTION 4 -- THE MILL OR PROCESSING PLANT

4.1 Is there (or will there be) a portable mill or processing plant being operated on the property in conjunction with the exploration activity?

_____ Yes No _____ No

4.2 If "Yes", indicate the proposed point of discharge for the mill or process plant water and the volume of the discharge.

Point of discharge N/A _____

Volume of _____ m³/day

4.3 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.

4.4 Indicate the proposed rate of milling.

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N/A _____ not applicable (check) OR _____ tonnes/day

4.5 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
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

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

Yes _____ No **No** _____ Partially _____

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

T/Cu	_____	mg/L	Total ammonia	_____	mg/L
T/Pb	_____	mg/L	Suspended solids	_____	mg/L
T/Zn	_____	mg/L	Specific conductivity	_____	uhmo/cm
T/Ag	_____	mg/L	pH	_____	
T/Mn	_____	mg/L	Alkalinity	_____	CaCO ₃ /L
T/Ni	_____	mg/L	Hardness	_____	mg/L
T/Fe	_____	mg/L	Total cyanide	_____	mg/L
T/Hg	_____	mg/L	Oil and grease	_____	mg/L
T/As	_____	mg/L			
T/Cd	_____	mg/L			
T/Cr	_____	mg/L			
T/Al	_____	mg/L			

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

Cu	_____	mg/g	Al	_____	mg/g
Pb	_____	mg/g	Fe	_____	mg/g

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Zn	_____	mg/g	Hg	_____	mg/g
Ag	_____	mg/g	Ni	_____	mg/g
Mn	_____	mg/g	As	_____	mg/g
Cr	_____	mg/g	CN	_____	mg/g
Cd	_____	mg/g			

Section 5 -- The Containment Areas

5.1 What is the (proposed) method of disposal of the minewater, mill or process plant tailings (i.e., sump, subaqueous, surface tailings pond, settling pond)?

N/A, no minewater or tailings produced

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

- (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 waters from the area; and
- (f) Indications of the distance to nearby major watercourses;

5.3 Justify your choice of location for the containment area design by rationalizing 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.

5.4 The average depth of the *existing or proposed* containment area is _____ N/A m.

5.5 Indicate the total capacity for the *existing or proposed* containment area by using water balance and stage volume calculations and curves. (Attach a description of inputs and outputs along with volume calculations).

N/A

**5.6 Has any evaporation and/or precipitation data been collected at this site? _____ No _____
If so, please include the data.**

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5.7 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

5.8 Will the proposed tailings deposition area engulf or otherwise disturb any existing watercourse?

N/A

5.9 If "Yes", attach all pertinent details (name of watercourse, present average flow, direction of flow, proposed diversions, etc.

N/A

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

N/A

Section 6 -- Water Treatment

6.1 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

6.2 Will (treated) effluent be discharged directly to a natural waterbody 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 water will be discharged directly to a natural waterbody from drill sites or camp facilities. Sumps will be dug at each location to collect any discharge.

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

Creeks draining the property are tributaries of the Nahanni River, which ultimately connects with the Arctic Ocean via the Liard and Mackenzie rivers.

Section 7 -- Environmental Monitoring Program

7.1 Has any baseline data been collected for the main water bodies in the area prior to development?

No

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

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N/A

7.3 Provide an inventory of hazardous materials on the property and storage locations. (attach separate map)

Hazardous materials shall be stored in the Proposed fuel storage area (Figure 3) when not in use. Fuel needed for camp and drilling will be located where used. No more than 36 hours worth of fuel (2 drums) shall be stored at the drill at any given time.

Hazardous materials on site shall include:

- Diesel (15-25 205 L drums)
- Gasoline (2-10 20 L containers)
- Propane (2-8 100 lb cylinders)
- Jet-A (5-15 205 L drums)
- Motor Oil (10-20 L)

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Section 8 – Pre-screening

In addition to providing sufficient technical and related information for licencing to proceed, Applicants must provide adequate descriptive information to ensure that a pre-screening decision can be made prior to a project's proceeding for regulatory approvals. Our application and other project details, such as this questionnaire, will be sent out for review by local Aboriginal groups, as well as territorial and federal government agencies. Their comments (e.g., regarding the significance of project impacts) are considered before a decision is made to allow the project to proceed

8.1 Has this project ever undergone an initial environmental review, including previous owners?

Yes _____ By whom/when _____

No No _____ Unknown _____

8.2 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), in addition to water related information requested in this questionnaire?

Yes _____ No No Unknown _____

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

N/A

8.4 If "No", are such studies being planned? Briefly describe the proposals.

No, exploration activities will first be conducted to determine if sufficient mineralization is present to warrant more advanced exploration and concurrent environmental baseline data.

8.5 Has authorization been obtained or sought from the Department of Fisheries and Oceans for dewatering or using any water bodies for containment of waste?

No

8.6 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 _____ No No Unknown _____

8.7 If "Yes", please describe the proposal briefly.

N/A

8.8 If "No", is such a study being planned?

Yes _____ No No _____

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Section 9 – List of Attachments

	Reference to question #	Title	Number of pages
1.	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____

Appendix A

Table 1. Terrestrial Species at Risk in the Northwest Territories that may be encountered in the project area

Terrestrial Species at Risk¹	COSEWIC Designation	SARA Status	Government Organization with Primary Management Responsibility²	Recovery Strategy, Action Plan or Management Plan posted on the Species at Risk Public Registry
Common Nighthawk	Threatened	Schedule 1, Threatened	ECCC	Recovery Strategy – Final
Olive-sided Flycatcher	Threatened	Schedule 1, Threatened	ECCC	Recovery Strategy – Final
Caribou (Northern Mountain population)	Special Concern	Schedule 1, Special Concern	GNWT	Management Plan - Final
Barren-ground caribou	Threatened	Schedule 1, Special Concern	GNWT	Management Plan - Final
Wood Bison	Threatened	Schedule 1, Special Concern	GNWT	NWT recovery strategy
Rusty Blackbird	Special Concern	Schedule 1, Special Concern	GN, GNWT	Management Plan - Final
Short-eared Owl	Special Concern	Schedule 1, Special Concern	GN, GNWT	Management Plan - Proposed
Gypsy Cuckoo Bumble Bee	Endangered	No Status	GNWT	
Little Brown Myotis	Special Concern	Schedule 1, Endangered	GNWT	Recovery Strategy – Proposed
Northern Myotis	Special Concern	Schedule 1, Endangered	GNWT	NWT – Management Plan
Bank Swallow	Threatened	No Status	ECCC	
Barn Swallow	Threatened	No Status	ECCC	
Horned Grebe (Western population)	Special Concern	Schedule 1, Special Concern	ECCC	

Terrestrial Species at Risk¹	COSEWIC Designation	SARA Status	Government Organization with Primary Management Responsibility²	Recovery Strategy, Action Plan or Management Plan posted on the Species at Risk Public Registry
Red-necked Phalarope	Special Concern	No Status	ECCC	
Collared Pika	Special Concern	Schedule 1, Special Concern	GNWT	
Grizzly Bear (Western population)	Special Concern	No Status	GN, GNWT	
Transverse Lady Beetle	Special Concern	No Status	GN, GNWT	
Western Bumble Bee (mckayi subspecies)	Special Concern	No Status	GNWT	
Wolverine	Special Concern	No Status	GN, GNWT	

Notes:

¹ Fisheries and Oceans Canada has responsibility for aquatic species.

² Environment and Climate Change Canada (ECCC) has a national role to play in the conservation and recovery of Species at Risk in Canada, as well as responsibility for management of birds described in the *Migratory Birds Convention Act* (MBCA). Day-to-day management of terrestrial species not covered in the MBCA is the responsibility of Government of the Northwest Territories (GNWT). Populations that exist in National Parks are managed under the authority of the Parks Canada Agency.