Effective June 16, 2006

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NUNAVUT IMALIRIYIN KATIMAYINGI
NUNAVUT WATER BOARD
OFFICE DES EAUX DU NUNAVUT

WATER LICENCE
APPLICATION FORM

Application for: (check one)

☐ **New** ☒ **Renewal** ☒ **Amendment** ☐ **Assignment** ☐ **Cancellation**

LICENCE NO:
(for NWB use only)

1. NAME AND MAILING ADDRESS OF APPLICANT/LICENSEE

SABINA SILVER CORPORATION
601 Squier St.
Thunder Bay, Ontario
P7B 4A7
Tel: (807) 345-8278
Fax: (807) 343-0232

Phone: (604) 998-4175
Fax: (604) 998-1051
e-mail: sburgess@sabinasilver.com

2. ADDRESS OF CORPORATE OFFICE IN CANADA (if applicable)

SABINA SILVER CORPORATION
930 West 1st Street, Suite 202
North Vancouver, BC
V7P 3N4

Phone: (604) 998-4175
Fax: 604) 998-1051
e-mail: pmanojlovic@sabinasilver.com

3. LOCATION OF UNDERTAKING (describe and attach a topographical map, indicating the main components of the Undertaking)

The Hackett River Project area is located approximately 104 km S of the community of Bathurst Inlet, Kitikmeot Region, Nunavut. The proposed exploration and drilling program will be confined to Mineral Leases numbered: 2789, 2893, 2895, 2958, 2964, 3000 and 3018 and the Wishbone Trend. The amendment request, in part, is to use water for drilling activities on the Wishbone Trend and Del Lake claims which include Wishbone, Mahna Mahna, Lovechild, Malley, Del claim groups. Potential drill targets have been identified, however, locations have not been finalized. We anticipate the posisbility of driling targets in the southern part of the Mahna Mahna claim group (northwest of Hackett camp) and the mineral leases and northern part of the Wishbone claims (southeast of Hackett camp). This area lies within the following map coordinates:

MAX Lat 66 Deg 10' MIN Lat 65 Deg 10'
MAX Long 108 Deg 45' MIN Long 106 Deg 45'
NTS map sheet #76G/03, 04, 05, 06, 07, 08, 12, 13, #76F/08, 09, 15, 16,

The existing camp is located on the following map and has the coordinates:
Latitude: (65°55' " N) Longitude: (108°22' " W)
NTS Map Sheet No. 76F/16 Scale: 1:50000

Map: Location of Sabina's Hackett River Project

Photo: Existing Hackett River Camp

4. DESCRIPTION OF UNDERTAKING (attach plans and drawings)

Sabina sees an opportunity to continue exploration activities in the Hackett River area and is requesting renewal of the Hackett River water licence. Water use is principally from Camp Lake to supply water to the existing camp (showers, kitchen, laundry and rock saw) and from local sources to supply drill rig operations. Water stored would be in surge tanks located at each drill and in camp. This application is also requesting amendments to include an increase in allowable daily volume of water (from 198 m3 to 220 m3) to support increased camp size (to a max of 75) and increased number of drill rigs (from 3 up to 5).

The exploration work over the next five years may include:

1. Seasonal operation of the existing camp (on Surface Lease 76F 16-1-4) located at 65° 55'N, 108° 22'W. In general, camp would open in March of each year and close by end of October.
2. Transport of fuel and drilling supplies to and from the camp and associated storage and handling.
3. Ground and aerial geophysical surveys and geologic mapping.
4. Diamond drill testing of the geophysical targets and step-out drilling on the known deposits.
5. Transport of drilled core to camp for geological logging, sampling and storage.
6. Transport of personnel to and from the exiting camp and drill sites with a helicopter.
7. Fixed wing planes will provide transport to and from the camp. This is typically using Twin Otter, however, on an as-needed basis larger planes such as DHC-5 Buffalo and CC-130 Hercules may be used.
7. Inspection and reclamation of drill sites upon drill hole completion.
8. Camp clean-up and progressive reclamation.

Other activities planned for the camp (on Surface Lease 76F 16-1-4) over the next five years would include:

1. Renovation of the kitchen and camp dry building to accommodate approximately 45-55 on average and a maximum of 75 people.
2. Construction of additional sleeper tents and maintenance sheds
3. Construction of additional wooden core storage racks and core logging sheds.
4. Construction of additional fuel, material and supplies storage as needed

5. TYPE OF PRIMARY UNDERTAKING (A supplementary questionnaire **must** be submitted with the application for undertakings listed in **"bold"**)

- ☐ **Industrial**
- ☒ **Mining and Milling**(includes exploration/drilling)
- ☐ **Municipal** (includes camps/lodges)
- ☐ Power
- ☐ Agricultural
- ☐ **Conservation**
- ☐ Recreational
- ☐ **Miscellaneous** (describe below):

See Schedule II of *Northwest Territories Waters Regulations* for Description of Undertakings

6. WATER USE

- ☒ To obtain water
- ☐ To cross a watercourse
- ☐ To modify the bed or bank of a watercourse
- ☐ Flood control
- ☐ To divert a watercourse
- ☒ To alter the flow of , or store, water
- ☐ Other (describe):

7. QUANTITY OF WATER INVOLVED (cubic metres per day including both quantity to be used and quality to be returned to source)

Water use
- ☐ 100m^3/day or less
- ☒ Greater than 100m^3/day; if greater, indicate quantities to be used for each purpose (camp, drilling, etc.)

Each supply pump for each drill has a pumping capacity of up to 45.4 litre/min (12 gal/min) or 0.0453 m3/min. Five drills in operation simultaneously would use up to (0.0453 m3/min X 1,440 min/day X 5 drills) 326.2 m3 per day. However, on average approximately half of each day is spent not drilling (pulling core, drill moves, crew change, etc.). When the drill is advancing, water is supplied to the bit by a high-pressure water pump at a rate of up to 37.9 litre/min (10 gal/min) or 0.0379 m3/min. If the return flow of water from the bit is good (as is common) 80 to 90% of the return water is recycled for use back down the hole. The amount of water used downhole by 5 drills is estimated to be (20% X 0.0379 m3/min X 720 min/day X 5 drills) 27.3 m3 per day. Overflow from the surge tank would be returned to the environment as surface run-off and percolation through the soil. Return from the drill would be via a settling sump before the decanted water would join surface run-off and percolate through the moss and soil. In both cases the water would in time likely rejoin the same small drainage basin that it was pumped from.

See photo above for reference points for the Hackett River Project camp, on the south shore of "Camp Lake."

Assuming that personnel need approximately 250L of water daily, then the camp maximum needs would be 18.75m3 (0.25m3 X 75people) per day pumped from Camp Lake (local name). Water treatment facilities including water filtration and UV radiation were installed in 2008 for camp water supply. Grey-water generated from the kitchen, showers and laundry facilities would be collected in a 500 litre holding tank. On an as-needed basis the grey-water would be pumped to a suitable disposal sump location well back from Camp Lake and would be allowed to percolate though the moss and soil to rejoin groundwater. The ground water would in time most likely return to Camp Lake

Water would be stored at each drill and at the camp. At each drill a metal horse trough type surge tank (approximately 500 litre capacity) would be used. In camp water would be stored in 4 plastic tanks (of approximately 500 litre capacity) for domestic use and a plastic horse trough type tank (approximately 500 litre capacity) would be used to hold water for occasional use with the rock saw. The total amount of water stored at any one time would be approximately 3.0 m3.

An amendment is requested to increase the maximum daily amount of water use from 198m3 to a total of 250 m3 per day of which 20m3 would be used for camp supply and 230m3 would supply drilling activities.

Water returned to source

____ m^3/day

8. **WASTE** (for each type of waste describe: composition, quantity (cubic metres per day), methods of treatment and disposal, etc.)

☐ Sewage	☒ Waste oil
☒ Solid Waste	☒ Greywater
☐ Hazardous	☒ Sludges
☒ Bulky Items/Scrap Metal	☐ Other describe):

No sewage system will be installed in the camp as no water is needed for the Pacto toilets.

The disposal method for burnable solid waste such as paper, cardboard, plastic, wood, burlap cloth, fuel or oil soaked absorbent material, semi-solid waste from Pacto toilets and food preparation waste would be by burning in an incinerator. It is estimated that on average approximately 5 garbage bags (121 litre capacity) of such burnable waste would be generated each day. Any remaining ashes and unburned residue would be flown out for disposal at the Yellowknife landfill site.

All large metal waste items such as used drill steel, broken or worn out mechanical parts and 45 gallon drums used for fuel transport would be flown back to Yellowknife for recycling or for disposal in the Yellowknife dump. Any bulky waste items would be cut up and burned in the incinerator or would be flown out for disposal at the Yellowknife landfill site. The quantity produced is estimated to be one Twin Otter plane load every week, most of which would be empty fuel drums. In an ongoing program, instituted in 2006, all aluminum pop cans, and all non-dairy plastic containers are bagged and send out to the recycling facilities in Yellowknife. Approximately 8-10 (121 L) bags are sent to Yellowknife each week.

No hazardous materials other than the fuels and acetylene and oxygen for gas welding are expected to be stored or used on the property.

Any waste motor oil, transmission fluid and other petroleum fluids would be transferred to plastic tubs or other sealable containers and either flown back to Yellowknife for recycling or disposal by the drilling contractor or incinerated in camp. It is estimated that in total approximately 150 litres of such waste petroleum fluids would be generated in the course of the exploration program.

Grey-water generated from the kitchen, showers and laundry facilities is collected in a 500 litre, plastic holding tank. All cleaning agents would be biodegradable and phosphate free. On an as-needed basis the grey-water would be pumped to a suitable disposal sump location well back from Camp Lake (local name) and would be allowed to percolate though the moss and soil to rejoin groundwater. It is estimated with camp expansion approximately 15 to 20 m3 per day of grey-water would be generated by the camp. In 2006, geotextile fences were constructed to contain any spillage or overflow from the greywater collection tank, the core cutting facitilty, and the camp dry buildings. The fences are approximately 60 – 90 cm high, with the bases buried in the soil, and they are arcuate in construction. Additional containment fences were built at the drills to contain any excess runoff from drilling water, cuttings or return water.

Drilling will result in the distribution of drill mud cuttings being deposited near the drill hole collar and in the sump. All drill hole additives are biodegradable. Where drilling occurs near, or on lakes, the drill return water (containing drill cuttings) will be pumped well back from the shore of the lake. Because drill cuttings are mechanically pulverized rock they are geologically similar to the locally present glacial till. It is expected that drill cuttings will, in time, be colonized by plants and lichen. The occasional use of salt at the drill site is expected to have minimal impact as any brine will be effectively diluted by water pumped to the drill site at a rate of approximately 12 gallons per minute. Salt is needed to prevent permafrost from freezing the hole closed when drilling is halted for a significant length of time. Permafrost is not present under deeper lakes that don't freeze to the bottom. If drilling is successful in intersecting sulfide mineralization the resulting drill cuttings will have high acid rock drainage potential. This is a naturally occurring state within the soils developed above existing zones of sulfide mineralization on the property. The relatively small quantities of sulfide rich drill cuttings left at the surface are expected to be admixed with other rock type drill cuttings hence slowing the rate of reaction and providing possible buffering capacity. The quantity of drill cuttings at each drill site depends on the length of the hole and is estimated to be up to 1 m3 for the deepest holes. At each drill site (except those drilled from ice) plans are to backfill the drill hole with any accumulated drill cuttings taking care not to disrupt the surrounding topsoil / organic layer. Any excess sludge or cuttings are allowed to dry, then collected and removed for disposal.

The rock saw is expected to produce approximately 1 to 2 m3 of sludge cleaned from the bottom of the settling container in the course of the season. The sludge will consist mostly of sulfides. The sludge will be cleaned from the settling container on an as needed basis, dried, placed in plastic sample bags and flown out to the Yellowknife dump for disposal.

9. OTHER PERSONS OR PROPERTIES AFFECTED BY THIS UNDERTAKING (give name, mailing address and location; attach if necessary)

Land Use Permit

DIAND	☒ Yes	☐ No	If no, date expected _____
Regional Inuit Association	☒ Yes	☐ No	If no, date expected _____
Commissioner	☐ Yes	☐ No	If no, date expected

10. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES (direct, indirect, cumulative impacts, etc.)

The proposed exploration program is expected to have minimal impact on the land, water flora and fauna and socio-economic areas.

The reuse of the existing camp and air strip is expected to cause minimal additional environmental impact to the land.

The total area estimated to be affected by the planned drill program is 4 hectares. Drilling will result in some compressed vegetation where wooden beams or supplies are placed on the ground. Drilling will also result in the distribution of some drill mud cuttings being deposited near the drill hole collar. All drill hole additives are biodegradable. Where drilling occurs on or near lakes, the return water containing drill mud will be pumped well back (>30m) from the shore of the lake. Because drill cuttings are mechanically pulverized rock they are geologically similar to the locally present glacial till. It is expected that drill cuttings will, in time, be colonized by plants and lichen. The occasional use of salt at the drill site is expected to have minimal impact as any brine will be effectively diluted by water pumped to the drill site at a rate of approximately 12 gallons per minute. Salt is needed to prevent permafrost from freezing the hole closed when drilling is halted for a significant length of time. Heated water is the preferred method of keeping the water from freezing when drilling in frozen ground.

Water impacts for drilling and camp use are expected to be minimal. Drilling requires the use of water from a lake or stream. Any water pumped from a lake or stream is usually discharged near the drill collar. Water intakes are screened to prevent juvenile fish from entering the pump. The pumped water, after being used for drilling, percolates through the moss and soil to rejoin groundwater present in the area. Grey water from the camp is expected to be pumped away from the camp to a location where is can percolate through the moss and soil before rejoining groundwater in the area (see photo on Page 8 of this document).

Possibly the largest impact on fauna will be due to noise caused by the use of a diesel generator at the camp as well as the periodic use of aircraft. The noise may cause large mammals to avoid the camp area; however, experience to date in camp operations indicates that the steady noise of the generator seemed to have no impact on large mammal behavior. Arctic ground squirrels most likely will be attracted to the camp area due to the presence of numerous sheltered hiding places. All garbage will be flown out of camp or will be burned on site so as not to attract wildlife. Plans are to complete the electric fence around the camp to reduce the chance of human – large mammal interaction. Hunting is prohibited. Firearms and domestic animals are not permitted, unless special permission has been granted by the project manager.

After each drill hole is completed any trash and litter is gathered up and transported back to camp for either burning or flying out to Yellowknife. Capped casing pipes are expected to be used to mark hole locations where significant mineralization was intersected. In holes where no significant mineralization was intersected, plans are to pull the casing and backfill the hole with drill cuttings and mark the hole with a wooden picket. Natural revegetation is expected to reclaim the drill sites. Any holes drilled through the ice are plugged with a fast-drying

cement and a rubber plug, once completed. The casings are then pulled. All ice holes have the casing removed.

Treatment of wastes would be as outlined in section 8 above. At the close of the field season tents and equipment would be stored or winterized for use the following year. All waste is removed from the camp at the end of each field season, and any supplies left on site are stored so as to minimize damage from winter storms, ice damage or damage from snow accumulations.

Socio-economic impacts of the proposed exploration program are expected to be similar to that as previous programs with seasonal employment earnings of $70,000 to $150,000 and up to 450 days of employment. Every effort is in place to maximize Inuit employment particularly residents from the closest communities of Bathurst Inlet, Umingmaktok and Cambridge Bay. These individuals are hired to help with exploration activities which may include core splitting, sample shipping, maintenance, equipment operation, environmental monitoring and reclamation).

NIRB Screening ☐ Yes ☒ No If no, date expected December 1, 2009

11. INUIT WATER RIGHTS

Will the project or activity substantially affect the quality, quantity, or flow of water flowing through Inuit Owned Lands and the rights of Inuit under Article 20 of the Nunavut Land Claims Agreement?

No, except for the unlikely event of a major fuel spill. Major fuel spills are unlikely as all fuel at Hackett is in 45 gallon drums which are stored within secondary containment berms and the Spill Contingecy Plan is updated on a regular basis.

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. If no compensation agreement has been made, how will compensation be determined? In the unlikely event of a major fuel spill any compensation would be determined by mutual negotiations

12. CONTRACTORS AND SUB-CONTRACTORS (name, address and functions)

Major Drilling Group International Inc. (provides diamond drilling services)
P.O. Box 1377
337 Old Airport Road
Yellowknife, NT
X1A 2P1
Phone: (867) 873 – 3358
Fax : (867) 873 – 6803

Northern Air Support Ltd. (provides helicopter support services)
6285 Airport Way
Kelowna, BC
V1V 1S1
Phone: (250) 765 - 0100
Fax: (250) 765 - 0077

1984 Enterprises Inc. (provides first aid, camp staffing and WCB compliance support)
1000 – 355 Burrard Street
Vancouver, B.C.
V6C 2G8
Phone: (604) 736 – 8142
Fax: (604) 736 – 8119

Nunavut Expediting Services Ltd. (provides expediting services and logistical support)
Discovery Mining Services
P.O. Box 97
Cambridge Bay, NU
X0E 0C0
Phone: (867) 983 – 2544
Fax: (867) 983 - 2203

13. STUDIES UNDERTAKEN TO DATE (list and attach copies of studies, reports, research, etc.)

The following baseline studies have been collected for this project:
Department of Indian and Northern Affairs, Water Management Section, Bathurst Norsemines (Hackett River), Potential Mine Water Quality Survey Network, Report Series, 1974 By: D. Sutherland, J. McLaren

Northwest Territories Water Board, Department of Indian and Northern Development, Bathurst Norsemines Hackett River, Potential Mine Water Quality Survey Network, Report Series, 1975 By D.J. Sutherland

Geochemical Dispersion over Massive Sulphides within the Zone of Continuous Permafrost, Bathurst Norsemines, District of Mackenzie, N.W.T. by J. K. Millar, The University of British Columbia, December, 1978.

Prepared by Gartner Lee for Sabina Silver Resources:
- **Baseline Water Quality Monitoring Program at Hackett River Project, December 6, 2004**
- **2005 Baseline Water Quality Monitoring Program – Hackett River Project, October, 2005**
- **2006 Baseline Preliminary Options of the Road Route Options from Hackett River Camp to the BIPAR Road, November, 2006.**
- **2006 Baseline Water Quality Monitoring Program at Hackett River Project, November, 2006.**

Prepared by Rescan Environmental Services Inc. for Sabina Silver Corporation:
- **2007 Hydrology Baseline Report, Hackett River Project, January 2008**
- **2007 Aquatic Baseline Report, Hackett River Project, April 2008**
- **2007 Fish Habitat and Fish Community Baseline Report, Hackett River Project, June 2008**
- **2007 Wildlife Baseline Report, Hackett River Project, March 2008**
- **2007 Meteorology and Permafrost Baseline Report, Hackett River Project, March 2008**
- **Hackett River Project - Predicted Minesite-Drainage, Chemistry and Acid Rock Drainage - Phase 1, March 2008**
- **2007 Archaeology Baseline Report, Hackett River Project, April 2008**
- **2007 Soil Baseline Report, Hackett River Project, June 2008**
- **2007 Ecosystem Mapping and Vegetation Baseline Report, Hackett River Project, September 2008**
- **2008 Hydrology Baseline Report, Hackett River Project, October 2008**
- **2008 Freshwater Water Quality Baseline Report, Hackett River Project, January 2009**
- **2008 Wildlife Baseline Report, Hackett River Project, November 2008**
- **2008 Meteorology and Permafrost Baseline Report, Hackett River Project, December 2008**
- **Preliminary Wind Resource Analysis for the Hackett River Project, August 2008**
- **Historical and Traditional Knowledge in the Hackett River Study Area, January 2009**

14. THE FOLLOWING DOCUMENTS MUST BE INCLUDED WITH THE APPLICATION FOR THE REGULATORY PROCESS TO BEGIN

Supplementary Questionnaire (where applicable: see section 5) ☒ Yes ☐ No If no, date expected _____

Inuktitut and/or Inuinnaqtun/English Summary of Project ☒ Yes ☐ No If no, date expected _____

Application fee of $30.00 (Payee Receiver General for Canada) ☒ Yes ☐ No If no, date expected _____

Water Use fee of $30.00 (unless otherwise indicated in Section 9 of the *NWT Waters Regulations;* Payee Receiver General for Canada)
☒ Yes ☐ No If no, date expected _____

15. PROPOSED TIME SCHEDULE (unless otherwise indicated, the NWB will consider the application for a five (5) year term)

☐ one year or less (or) ☒ Multi Year

Start Date: January 1, 2010 Completion Date: December 31, 2015

Peter Manojlovic	Chief Geologist		
Name (Print)	**Title (Print)**	**Signature**	**Date**

For Nunavut Water Board office use only

APPLICATION FEE **Amount: $____** **Pay ID No.: ____**

WATER USE DEPOSIT **Amount: $____** **Pay ID No.: ____**