

Environmental Protection Operations  
Qimugjuk Building 969 P.O. Box 1870  
Iqaluit, NU X0A 0H0  
Tel: (867) 975-4631  
Fax: (867) 975-4645

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EC File: 4703 001 106  
NWB File: 2BE-GOO1015

Richard Dwyer  
Manager of Licensing  
Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, NU X0B 0J0

Via email: [licensingadmin@nunavutwaterboard.org](mailto:licensingadmin@nunavutwaterboard.org)

**RE: 2BE-GOO1015 Amendment 2 Application**

Environment Canada (EC) has reviewed the information submitted with the above-mentioned amendment application to the Nunavut Water Board (NWB). The following specialist advice has been provided pursuant to the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Sabina Gold & Silver Corp. (Sabina) has submitted an application to the NWB to amend water license 2BE-GOO1015 to allow for the increase of the volume of daily water use from 155 m<sup>3</sup>/day to up to 297 m<sup>3</sup>/day. This increase will support increased exploration activities, increased camp facilities, and other components such as water use and discharge to water. Under this water license amendment Sabina are also requesting the allowance of open burning of untreated wood products when such material is too large for the existing on-site incinerator or if there is a significant volume of such products which exceeds the capacity of the existing incinerator. This allowance of open burning would support on-going waste management and reclamation of the camp facilities.

Based on the information provided by the proponent, EC provides the following comments regarding this amendment application for the NWB's consideration:

**General**

- The proponent shall not deposit, nor permit the deposit of chemicals, sediment, wastes, or fuels associated with the project into any water body. According to the *Fisheries Act*, Section 36 (3), the deposition of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any deleterious substance that results from the deposit of the deleterious substance, may enter any such water, is prohibited.
- All mitigation measures identified by the proponent, and the additional measures suggested herein, should be strictly adhered to during project activities. This will require awareness on the part of the proponents' representatives (including contractors) during operations in the field. EC recommends that all field operations staff be made aware of the proponents' commitments to these mitigation measures and provided with appropriate advice/training on how to implement these measures.

- Land-based drilling should not occur within 30 m of the high water mark of any water body and the proponent should follow mitigation measures preventing the degradation of permafrost.
- All drilling effluent should be directed to a sump that is properly constructed and adequately sized to ensure there is no runoff and that water bodies downstream of drilling activities are not affected. All efforts shall be made to prevent drill mud, drill additives, return water and cuttings from migrating from the drill site.
- Environment Canada assessed inorganic chloride salts and concluded that these salts in high concentrations are harmful to the environment. As a result, the proponent should ensure that when using calcium chloride ( $\text{CaCl}_2$ ) for drilling purposes that return water is contained in a properly constructed sump and located in such a manner as to ensure that the contents do not migrate out from the sump. Please note that EC does not support the practice of relying on permafrost integrity to contain and isolate drilling wastes especially if they contain freeze depressants (e.g. salts).

### Open Burning

- Solid wastes that are conditionally suitable for open burning are paper products, paperboard packaging and untreated wood. Plywood, painted wood or other treated wood should not be disposed of in this manner. For reference, below are links, respectively, to the Nunavut Municipal Open Burning Policy and EC's guidance to open burning:  
<http://www.gov.nu.ca/env/Open%20burning.pdf>  
[http://www.ec.gc.ca/gdd-mw/684B44DD-5780-4F73-BC58-A97E31A19EDC/COM1170\\_Open\\_Burning\\_Brochure\\_e\\_v6\\_for%20web.pdf](http://www.ec.gc.ca/gdd-mw/684B44DD-5780-4F73-BC58-A97E31A19EDC/COM1170_Open_Burning_Brochure_e_v6_for%20web.pdf)
- EC recommends that all non-combustible associated structure waste (i.e., plastics, tar paper, floor coverings, shingles, insulation, wiring, and tents) be thoroughly removed prior to burning and that all residual waste from the burning (i.e. nails and coals) be thoroughly collected, removed from site, and disposed of at a suitable facility.

### Source Separation of Garbage

- Considering this amendment is requesting open burning of some materials to help manage the large volume of on-site waste, EC expects there may be greater demands on the proponent's on-site incinerator. Due to the nature of the high calorific waste planned for incineration (i.e., plastic, food scraps and human feces as noted on page 5 of the supplementary questionnaire for Amendment 2), EC recommends the proponent separate its garbage with diligence to ensure wastes are added to the incinerator in an appropriate ratio that promotes their efficient combustion.

Comments previously submitted on behalf of EC on 01 March 2010 regarding water license 2BE-GOO1015 would still apply to this project (see attached). If there are any changes in the proposed project, EC should be notified, as further review may be necessary. Please do not hesitate to contact the undersigned with any questions or comments with regards to the foregoing at (867) 975-4631 or by email at [Paula.C.Smith@ec.gc.ca](mailto:Paula.C.Smith@ec.gc.ca).

Yours truly,



Paula C. Smith  
Environmental Assessment Coordinator

cc: Carey Ogilvie (Head, Environmental Assessment-North, EPO, EC, Yellowknife, NT)  
 Ron Bujold (Environmental Assessment Technician, EPO, EC, Yellowknife, NT)  
 Allison Dunn (Sr. Environmental Assessment Coordinator, EPO, EC, Iqaluit, NU)  
 Dave Fox (Air Issues Specialist, EPO, EC, Yellowknife, NT)



Environment Environnement  
Canada Canada

Environmental Protection Branch  
Qimugjuk Building 969  
P.O. Box 1870  
Iqaluit, NU X0A 0H0  
Tel: (867) 975-4631  
Fax: (867) 975-4645

March 1, 2010

Our file: 4703 001 106  
NIRB file: 2BE-GOO0510

Phyllis Beaulieu  
Manager of Licensing  
Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, NU X0B 1J0

via email: [licensing@nunavutwaterboard.org](mailto:licensing@nunavutwaterboard.org)

**RE: 2BE-GOO0510 - Goose Lake Renewal & Amendment of Water License "B"**

On behalf of Environment Canada (EC), I have reviewed the information submitted with the above-mentioned application. The following specialist advice has been provided pursuant to the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Sabina Gold & Silver Corporation filed an application for the renewal and amendment of their water license to the Nunavut Water Board for their Goose Lake Camp. The camp will be used as the base of operations for exploration drilling activities occurring on the Goose Lake, Boot Lake and Boulder Pond claim groups, the southern portion of the Wishbone Trend (the Malley, Lovechild and portions of the Wishbone claim groups) and the Del Lake claims. Drilling will occur in several of these areas although specific location have not yet been determined and are subject to further exploration drilling. The proponent has requested a license which allows a maximum daily use of 155 m<sup>3</sup> of freshwater per day. Approximately 10% (15 m<sup>3</sup>) of this water will be used for domestic purposes and 90% (140 m<sup>3</sup>) for drilling operations.

Based on the information presented at this time, EC has no real concerns with the re-issuance of this water license. Environment Canada provides the following additions to the proposed terms and conditions for the NWB's consideration:

**General**

- No disturbance of the stream bed or banks of any definable watercourse should be permitted.
- Suitable erosion control measures should be implemented at all stream/lake crossings.

**Waste Disposal**

- The application states that sewage will be incinerated. Sewage should not be burned in batch incinerators that are typically used in the north. Sewage sludge has high moisture content and low heat content that will increase operating costs dramatically and lead to poor incinerator performance. It is unlikely that the sewage will be completely combusted and could lead to the release of pathogens into the environment. The high moisture materials can leak from the incinerator hearth and

lead to equipment damage and present health hazards to workers. Sewage sludge should only be burned in incineration equipment designed for this type of waste. EC recommends that all human waste be packed out in barrels or other sealed containers. If Sabina Gold & Silver Corporation decides to pursue sewage sludge incineration, it should provide the Board with the design specifications of the incinerator and a letter from the manufacturer stating that this equipment is suitable for burning this type of waste.

- The application also states that garbage will be incinerated. Please note that EC has developed a Technical Document for Batch Waste Incineration, and is available at the following web link:

<http://www.ec.gc.ca/drgd-wrmd/default.asp?lang=En&n=82401EC7-1>

The technical document provides information on appropriate incineration technologies, best management and operational practices, monitoring and reporting.

#### **Fuel storage/Spill Contingency Plan**

- Drip pans, or other similar preventative measures, should be used when refueling equipment on site.

#### **Wildlife and Species at Risk**

- Section 6 (a) of the Migratory Birds Regulations states that no one shall disturb or destroy the nests or eggs of migratory birds. If active nests are encountered during project activities, the nesting area should be avoided until nesting is complete (i.e., the young have left the vicinity of the nest).
- Environment Canada recommends that food, domestic wastes, and petroleum-based chemicals (e.g., greases, gasoline, glycol-based antifreeze) be made inaccessible to wildlife at all times. Such items can attract predators of migratory birds such as foxes, ravens, gulls, and bears. Although these animals may initially be attracted to the novel food sources, they often will also eat eggs and young birds in the area. These predators can have significant negative effects on the local bird populations.
- Section 5.1 of the *Migratory Birds Convention Act* prohibits persons from depositing substances harmful to migratory birds in waters or areas frequented by migratory birds or in a place from which the substance may enter such waters or such an area.
- In order to reduce aircraft disturbance to migratory birds, EC recommends the following:
  - Fly at times when few birds are present (e.g., early spring, late fall, winter)
  - As flight times cannot be scheduled when few birds are present, plan flight paths that minimize flights over habitat likely to have birds and maintain a minimum flight altitude of 650 m (2100 feet).
  - Minimize flights during periods when birds are particularly sensitive to disturbance such as migration, nesting, and moulting.
  - Plan flight paths to avoid known concentrations of birds (e.g., bird colonies, moulting area) by a lateral distance of at least 1.5 km. If avoidance is not possible, maintain a minimum flight altitude of 1100 m (3500 feet) over areas where birds are known to concentrate.
  - Avoid the seaward side of seabird colonies and areas used by flocks of migrating waterfowl by 3 km.
  - Avoid excessive hovering or circling over areas likely to have birds.
  - Inform pilots of those recommendations and areas known to have birds.
- The following comments are pursuant to the Species at Risk Act (SARA), which came into full effect on June 1, 2004. Section 79 (2) of SARA, states that during an assessment of effects of a project, the adverse effects of the project on listed wildlife species and its critical habitat must be identified, that measures are taken to avoid or lessen those effects, and that the effects need to be monitored. This section applies to all species listed on Schedule 1 of SARA. However, as a matter of best practice,

Environment Canada suggests that species on other Schedules of SARA and under consideration for listing on SARA, including those designated as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), be considered during an environmental assessment in a similar manner.

Terrestrial Species at Risk <sup>1</sup>	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility <sup>2</sup>
Peregrine Falcon <sup>3</sup> ( <i>tundrius</i> subspecies)	Special Concern	Schedule 3	Government of Nunavut
Short-eared Owl	Special Concern	Schedule 3	Government of Nunavut
Barren-ground Caribou (Dolphin and Union population)	Special Concern	Pending	Government of Nunavut
Grizzly Bear	Special Concern	Pending	Government of Nunavut
Wolverine (Western population)	Special Concern	Pending	Government of Nunavut

<sup>1</sup> The Department of Fisheries and Oceans has responsibility for aquatic species.

<sup>2</sup> Environment Canada 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 the Territorial Government. Thus, for species within their responsibility, the Territorial Government is best suited to provide detailed advice and information on potential adverse effects, mitigation measures, and monitoring.

<sup>3</sup> The *anatum* subspecies of Peregrine Falcon is listed on Schedule 1 of SARA as threatened. The *anatum* and *tundrius* subspecies of Peregrine Falcon were reassessed by COSEWIC in 2007 and combined into one subpopulation complex. This subpopulation complex was listed by COSEWIC as Special Concern.

Impacts could be disturbance and attraction to operations.

Environment Canada recommends:

- Species at Risk that could be encountered or affected by the project should be identified and any potential adverse effects of the project to the species, its habitat, and/or its residence noted. All direct, indirect, and cumulative effects should be considered. Refer to species status reports and other information on the Species at Risk registry at [www.sararegistry.gc.ca](http://www.sararegistry.gc.ca) for information on specific species.
- If Species at Risk are encountered or affected, the primary mitigation measure should be avoidance. The proponent should avoid contact with or disturbance to each species, its habitat and/or its residence.
- Monitoring should be undertaken by the proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required. As a minimum, this monitoring should include recording the locations and dates of any observations of Species at Risk, behaviour or actions taken by the animals when project activities were encountered, and any actions taken by the proponent to avoid contact or disturbance to the species, its habitat, and/or its residence. This information should be submitted to the appropriate regulators and organizations with management responsibility for that species, as requested
- For species primarily managed by the Territorial Government, the Territorial Government should be consulted to identify other appropriate mitigation and/or monitoring measures to minimize effects to these species from the project.
- Mitigation and monitoring measures must be taken in a way that is consistent with applicable recovery strategies and action/management plans

Previous comments and recommendations submitted by J. Fitzgerald on February 16, 2009 and by D. Abernathy on March 24, 2006, relating to the Goose Lake Project would still apply (see attached). If there are any changes in the proposed project, EC should be notified, as further review may be necessary. Please do not hesitate to contact me with any questions or comments with regards to the foregoing at (867) 975-4631 or by email at Paula.C.Smith@ec.gc.ca

Yours truly,

***Original signed by***

Paula Smith  
Environmental Assessment Coordinator  
Environmental Assessment – North  
Environmental Protection Operations

Cc: Carey Ogilvie (Head, EA-North, EPO, Yellowknife, NT)  
Carrie Spavor, (Environmental Assessment Coordinator, Iqaluit, NU)  
Ron Bujold (Environmental Assessment Technician, EPO, Yellowknife, NT)