Environment Canada **Environnement Canada**

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RE: NWB 3BE-HAK0709 / NIRB 04EN012, 06EN033, & 08EA084 – Renewal – Sabina Silver Corp. – Hackett River Project

The following specialist advice has been provided pursuant to Environment Canada's mandated responsibilities arising from *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

After reviewing the project proposal and supporting documents, Environment Canada (EC) is of the opinion that the proposed project does not significantly modify the original project proposal and is of a type where the potential adverse effects are highly predictable and mitigable with known technology.

Summary
Sabina Silver Corp. is proposing to renew their water license (3BE-HAK0709) in order to continue their mineral exploration program near the Hackett River, approximately 104 km south of the community of Bathurst Inlet, NU. The application is also requesting amendments to include an increased allowable daily volume of water (from 198 m^3 to 250 m^3) to support an increased camp size (from a max of 40 to 75) and an increased number of drill rigs (from 3 up to 5). The exploration work will involve ground and aerial geophysical surveys, geologic mapping, sampling and drilling. Staff will be based out of the established Hackett River camp (latitude $65^0$55'N, longitude $108^0$22'W).

Environment Canada recommends that the following conditions be applied throughout all stages of the project:

1. The proponent shall not deposit, nor permit the deposit of any fuel, chemicals, wastes, drill cuttings or sediment 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 other deleterious substance that results from the deposit of the deleterious substance, may enter any such water, is prohibited.

2. For any "on-ice" drilling, return water released must be non-toxic, and not result in an increase in total suspended solids in the immediate receiving waters above the Canadian Council of Ministers for the Environment Guidelines for the Protection of Freshwater Aquatic Life (i.e. 10mg/L for lakes with background levels under 100 mg/L, or 10% for those above 100mg/L).

3. Drilling additives or muds shall not be used in connection with holes drilled through lake ice unless they are re-circulated or contained such that they do not enter the water, or are demonstrated to be non-toxic.

4. The proponent shall not store materials on the surface ice of lakes or streams, except that which is for immediate use.

5. Land based drilling should occur a sufficient distance from the high water mark of any water body, to ensure that no deleterious substances enter any water bodies. Drilling wastes from land based drilling shall be disposed of in a sump, such that the contents do not enter any water body.

6. Environment Canada would like to inform the proponent that the *Canadian Environmental Protection Act* has listed CaCl as a toxic substance. If CaCl is to be used as a drill additive during land based drilling, the proponent shall ensure that sumps containing CaCl are properly constructed and located in such a manner as to ensure that the contents will not enter any water body.

7. If an artesian flow is encountered, the drill hole shall be immediately plugged and permanently sealed upon project termination.

8. The proponent should follow and comply with Canada Wide Standards for Dixons and Furans, and the Canada Wide Standards for Mercury emissions with respect to burning or incineration.

9. The proponent is proposing to dispose of sewage by incineration. Sewage 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. Any emissions from sewage sludge incineration must be reported to the National Pollutant Release Inventory (NPRI), under the authority of the Canadian Environmental Protection Act, 1999 (CEPA 1999). http://www.ec.gc.ca/npri

   Sewage should not be burned in batch incinerators that are typically used in the north. Sewage should only be burned in incineration equipment designed for this type of waste. If the proponent decides to pursue sewage 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.

10. 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. This information should be incorporated into an incineration management plan for the Hackett River camp. EC would like the opportunity to review this plan prior to implementation.

11. A copy of the spill plan should be kept at all fuel caches indicated in the Spill Contingency Plan.

12. Environment Canada recommends the use of sumps for the disposal of drilling cuttings and sludges, camp greywater and sewage. All sumps shall be located above the high water mark of any water body and in such a manner as to prevent the contents from entering any water body frequented by fish. Further, all sumps shall be backfilled upon completion of the field season and contoured so as to match the surrounding landscape.

13. Section 6 (a) of the *Migratory Birds Regulations* states that no one shall disturb or destroy the nests or eggs of migratory birds. Therefore, Environment Canada recommends that all activities in which there is a risk of disturbing or destroying nests or eggs be conducted outside the migratory bird breeding season, which extends from approximately May 15 to July 31. These dates are approximate, and if nests containing eggs or young are encountered outside of these dates the proponent should avoid the area until nesting is complete (i.e., the young have left the vicinity of the nest).

    For activities permitted to occur during the breeding season, Environment Canada recommends that the proponent confirm there are no active nests (i.e., nests containing eggs or young) in the vicinity of their operations before activities commence. If active nests of migratory birds are discovered, the proponent should halt all activities in the nesting area until nesting is completed (i.e., the young have left the vicinity of the nest).

14. 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.

15. 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.

16. In order to reduce aircraft disturbance to migratory birds, Environment Canada recommends the following:
    - Fly at times when few birds are present (e.g., early spring, late fall, winter)
    - If flights 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 areas) 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 these recommendations and areas known to have birds.

17. 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 potentially within project area [1]	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility [2]
Peregrine Falcon (*anatum-tundrius* complex[3])	Special Concern	Schedule 1 (*anatum*) Schedule 3 (*tundrius)*	Government of Nunavut
Short-eared Owl	Special Concern	Schedule 3	Government of Nunavut
Grizzly Bear	Special Concern	Pending	Government of Nunavut
Wolverine (Western Population)	Special Concern	Pending	Government of Nunavut

[1] The Department of Fisheries and Oceans has responsibility for aquatic species.

[2] 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.

[3] The *anatum* subspecies of Peregrine Falcon is listed on Schedule 1 of SARA as threatened. The *anatum* and *tundruis* 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, attraction to operations, and destruction of habitat.

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 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.

18. All mitigation measures identified by the proponent, and the additional measures suggested herein, should be strictly adhered to in conducting project activities. This will require awareness on the part of the proponents' representatives (including contractors) conducting operations in the

field. Environment Canada 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.

19. Implementation of these measures may help to reduce or eliminate some effects of the project on migratory birds and Species at Risk, but will not necessarily ensure that the proponent remains in compliance with the *Migratory Birds Convention Act, Migratory Birds Regulations,* and the *Species at Risk Act.* The proponent must ensure they remain in compliance during all phases and in all undertakings related to the project.

Environmental Protection Operations (EPO) should be notified of changes in the proposed or permitted activities associated with this application. Please do not hesitate to contact me at (867) 669-4772 or by e-mail at jane.fitzgerald@ec.gc.ca with any questions or comments.

Yours truly,

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