License #: **2BE-GOO1015**

Inspector: **Eva Paul**

Inspection Date: **July 8, 2012**

CIDMS # **622417**

Client	SABINA GOLD & SILVER CORP.		
Mailing Address	930 W 1st Street, Suite 202 North Vancouver BC V7P 3N4		
Inspection site location	Goose Lake Camp		
Contact name	Matthew Pickard	Title	Director, Environment and Community Relations
Last inspection date	July 9, 2011	July 31, 2010	August 8, 2008
Region	Kitikmeot		

AANDC, Nunavut District Office
Box 100
Iqaluit, NU, X0A 0H0

February 28, 2013

Mathew Pickard, Director, Environment and Community Relations
SABINA GOLD & SILVER CORP.
930 W 1st Street, Suite 202
North Vancouver BC V7P 3N4
Email: mpickard@sabinagoldsilver.com

RE: Inspection of Water Licence 2BE-GOO1015, July 8 2012

The Goose Lake Camp, a part of the Back River Project, is located at Latitude 65°32'40"N and Longitude 106°25'35"W in the Kitikmeot Region of Nunavut. This project was assigned to Sabina Gold & Silver Corp. in 2009. Sabina holds a type 'B' water licence for camp operations and exploration activities. Three amendments have been issued for this 2010 licence

- Amendment 1 (October 18, 2010): allows for the establishment of 4 additional small seasonal camps and requires that monitoring stations be established at each of the remote camps.
- Amendment 2 (January 28, 2011): authorizes water usage to 297 m^3/day, of which 240 m^3 can be used for drilling.
- Amendment 3 (May 20, 2012): allows for the construction of an all-weather airstrip, a connector road between the airstrip and camp, and quarries; and reduces the licence boundaries associated with the project. This amendment sets discharge criteria for surface runoff during construction, and the requirement for monthly water quality testing downstream of water crossings, borrow pits and quarries throughout construction.

On July 8, 2012 a compliance inspection was carried out at the Goose Lake Camp. AANDC Inspectors Eva Paul and Andrew Keim were accompanied by Fred Penner, Superintendent of Operations, and site representative Tristan Merle. An Inspection Report Form was left on-site following the inspection and signed by Mr. Penner. This form outlined the following compliance issues to be addressed:

- Greywater system requires a grease trap and proper filtration.
- Hazardous waste to be segregated into a bermed and lined area until backhaul.
- Manifests from final waste receiver to be obtained.
- Fuel management plan required due to high fuel volumes and failure of existing berms (September 30).
- Barrel storage location is unsuitable due to soft ground.
- Better management of all barrel stands.
- Regular inspection of maintenance shops to ensure use of containment.
- Spill discovered at Umwelt fuel cache.
- Regular inspection of remote fuel caches.
- All refuelling to occur over drip trays.
- Remediation of thermokarst-affected drill holes.
- Drill cuttings contained in a sump or a mega-bag.
- Drill water to be taken only from water sources that will not be drawn down.
- Drill SOP's to be reviewed and drafts submitted to the Inspector by October 31.
- Progressive reclamation of drill sites to be reported to Inspector every 30 days.
- Stock of oil/drill grease to be stored in containment within 2 weeks.

Since the inspection, Sabina has provided numerous updates:

- Three updates on the reclamation of past drill sites (thermokarst occurrences and general reclamation of the Goose Main drilling).
- Spill documentation that could not be located during the inspection (Spill 12-056) was located and a report submitted to the Inspector.
- A report and photos were submitted with respect to the collection and containment of oil/grease.
- A spill report was filed for the spill found at the Umwelt fuel cache (12-283), and follow-up reports on the reclamation of the spill were provided to the Spill Line and the Inspector.
- On October 1, Sabina provided to the inspector a Hazardous Materials Management Plan which encompasses fuel management and other hazardous materials, as well as updates to the Spill Contingency Plan and the Abandonment and Reclamation Plan.
- On October 29, Sabina provided draft SOP's for drilling activities for review by the Inspector.

This report includes a detailed administrative review (of documents in AANDC possession and those found on the NWB FTP site), a review of all notes and photographs taken during the July inspection, and reflects those compliance issues which have been addressed and reported on since the inspection.

Part A: Scope, Definitions and Enforcement

At the time of the inspection and of this writing, the Licensee holds a current Water Licence.

Part B: General Conditions

Annual reports have been submitted as required, and can be found on the NWB FTP site. Coordinates were given for water sources in the 2011 report, as well as camp and drill waste. Cuttings from the drills were deposited in the trench near Goose camp.

Part C: Conditions Applying to Water Use

The licensee has provided GPS locations water use in the annual report. No exceedences were noted. At the time of the inspection, camp water use was metered. Camp water usage logs were provided for June and the beginning of July. Drill water usage was provided to the Inspector after the inspection.

At the time of the inspection, draw-down was noted at the water source for drill 1563 and a new source was to be found immediately. No erosion or siltation was noted along the lake due to camp activities.

Part D: Conditions Applying to Waste Disposal

A lot of work has been done to segregate and organize wastes on-site. A waste sorting protocol was posted for guidance. Signage has been posted to help organize wastes, and waste barrels are marked. Bear-proof containers are being used outside the kitchen to segregate wastes. Colour-coded bags were used to differentiate kinds of waste, prior to being incinerated. Ash from the incinerator is packaged in barrels and moved to the staging area. Incinerator log was up-to-date and fully filled out. Some burned items were visible in ash barrels that should not be incinerated. Empty barrels are crushed, and piled on pallets in the staging area to be shipped out.

Authorization for open burning of acceptable materials has been obtained from the Board. A burn cage was present next to the waste sorting area, and a pile of scrap wood awaited burning.

At the time of the inspection, proof of final disposal of hazardous waste was requested. Subsequent discussions with KBL have revealed that KBL is licensed in the NWT to amalgamate hazardous waste for shipping to final receivers, and as such does not track where each company's waste goes. Receipt documents from KBL will be accepted until further notice.

At the time of the inspection, grey water discharge system included two open barrels with a plywood barrier as grease traps, and coco-matting spread along the flow path to trap particles. The coco-matting extended for around 100m, while the water flowed on for another 100m and created a shallow pond which stretched yet further. The full extent of it was not inspected. At the time of the inspection, Mr. Penner committed to implementing improvements to the grey water system.

Sabina notified the Inspector on September 4 of the intent to discharge compliant water from the Bulk Fuel Storage Facility (GOO-02) under Item 10 of this Part.

Part E: Conditions for Camps, Access Infrastructures and Operations

A winter inspection has not been conducted at this site to date, in order to assess winter activities such as lake and stream crossings, ice bridges, and any on-ice activities.

Amendment 3 of the licence allows for the construction of an all-weather airstrip, a connector road between the airstrip and camp, and quarries to support these activities; however, it also requires that plans and monitoring be submitted for these activities. Part E item 6 requires that a Quarry Development Plan be submitted within 60 days of licence issuance. Sabina notified the Board on June 14, 2012 that the quarry would not be accessed during the 2012 season, and that the plan would be submitted by October 31, 2012. Sabina now intends to submit the plan in February 2013.

On May 25, 2012, notice was given that Sabina would be proceeding with phase 1 of the airstrip construction. Pre-construction drawings were included in the amendment application in March of 2012. Please provide an update in the 2012 annual report on the construction activities which occurred and the current status of the airstrip construction. This activity was not inspected during the July 2012 inspection.

Parts F: Conditions Applying to Drilling and Trenching Operations

Several concerns with respect to drill practices on the Sabina properties were revealed during this inspection. Aerial photos of several drill holes showed large tracts dead vegetation, flows of water and drill cuttings, waste remaining on-site, and drill casings and anchors left in the holes. On-the-ground inspection showed that the dead vegetation is the result of salt burns caused by the pooling of saline drill water. Thermokarsts (landscape features caused by structural failure following the melting of ground ice), have also occured at several holes as a result of the drill water pooling under the drill. This mismanagement of drill water has lasting effects on the permafrost and the tundra and immediate changes to drill practices are required. Mr. Penner and Mr. Smith, who attended the inspection, are aware of these issues and were already acting to improve practices on-site.

As per item 2 of this Part, the licensee is required to dispose of all drill waste in a **properly constructed sump** or **appropriate natural depression**. At the time of the inspection, Sabina was using a poly-drill system to recycle water, and had chosen to collect drill cuttings into mega-bags and allow the water to settle out. The cuttings are then transported to the trench for disposal. The cuttings were not contained at the beginning of the process for the particular hole we inspected, however; drill water and cuttings could be seen pooled near the drill and flowing out on the tundra from the drill. Dead/burned vegetation was also noted at the site.

It was not noted at the time of the inspection, but photos of the drill site layout show the mega-bag set up uphill from the drill, and not in a depression that would serve as a sump. As such, the water draining out of the cuttings still would seep over the tundra and result in the burns described above. Attention must be paid to appropriate drill site setup. In this case, the sump must accommodate the drill water (and cuttings, if the mega-bag system is not used) for as long as the drill remains on that hole. Alternatively, the discharge must be moved if the sump is not large enough. Drill cuttings flowing on the tundra will not be tolerated. Some vegetation die-off is to be

expected if the drills are in place for long periods. However, the extent of the vegetation damage seen during this inspection is far beyond what can reasonably be expected.

The implementation of the poly-drill will reduce the amount of saline water that is released. Use of the mega-bags to transport cuttings to the trench will limit the waste to be managed at drill sites. However, it was not discussed whether these procedures would also be used during winter drilling. Management of drill water is tantamount in the winter, as it can easily pool under the drill, unseen beneath the snow. Active and deliberate management of the water away from the drill hole and to an appropriate sump is imperative to prevent the recurrence of thermokarst formation.

In the Inspection Form, Sabina was requested to review their drilling SOP's in order to improve on the issues that were noted. Drafts were submitted to the Inspector in October, and further revision was requested to address drill return water in greater depth.

An inventory of past drill holes and immediate remediation of the thermokarsts was required as a product of the inspection. Three updates were submitted to the Inspector through the fall regarding the remediation of these drill sites. 24 Incidences of thermokarst formation were identified, and eight were backfilled in the 2012 season. The remainder of the identified sites are to be addressed in 2013 and a report submitted to the Inspector at the end of the season. Holes that were filled in 2012 should be inspected for further slumping.

Item 7 of this part requires the submission and approval of a Trenching Plan. Although no approved plan was found on the NWB FTP site or AANDC server, reclamation of trenches has been included in the Abandonment and Restoration Plan.

Part G: Conditions Applying to Modifications

Modifications to the greywater disposal system are consistent with the terms of this licence. Please provide documentation of modifications to the Board as per item 2 of this Part.

Part H: Conditions Applying to Spill Contingency Planning

Regular updates to the Spill Contingency Plan have been filed with the Board according to the licence and amendments.

At the time of the inspection, some collapsed or incomplete insta-berms were noted containing drummed fuel. Due to the soft and unstable ground, stacks of barrels were noted leaning over the edges of the berm. It was made clear during the inspection that Goose Lake employees spent a lot of time stacking and re-stacking barreled fuel that is brought in during the winter; the stacks shift as the ground thaws, with risk of toppling. As was noted in the inspection form left on-site: if the barreled fuel was kept on hard, well-drained ground, employees could spend their time attending to other matters around site. An effort should be made to find such a location.

The liner under the green bulk fuel storage tanks was torn at the corner. Any liner that is exposed is at greater risk of becoming damaged. Any wood or other materials brought into the berm should be thoroughly checked for nails or other puncture risks to the liner. Exposed or damaged liners should be assessed for need of replacement.

Due to the issues noted on-site, a fuel management plan was requested in addition to the Spill Contingency Plan. A draft Hazardous Materials Management Plan has been submitted to the Inspector and a final copy is expected with the Annual Report.

Hazardous waste should be kept in sealed containers and within secondary containment. Some oils and chemicals were noted with no secondary containment. ENPAC barrel stands, while a good form of secondary containment, were open to collect water. Regular site inspections will reduce the occurrence of these smaller risks.

Most equipment and chemicals at the drill site were kept in containment, however, the effectiveness of the containment was doubtful. The tray was piled such that pails hung over the edges, and pails stacked in a soft-sided berm had toppled out of the berm. Regular inspections by Sabina at the drill sites is expected. If tidy tanks are to be refilled at the drill sites, all fuel transfers are to occur over a drip tray. The water pump setup, while well back from the water, should also be on a tray to catch any spillage from the lines.

Major's and Sabina's laydown areas had a large stock of drill greases and additives. All of these should be in covered containment. Sabina had these moved into lined sea-containers following the inspection.

Spills on-file with the NT-NU Spill Line at the time of the inspection included: 09-414, 10-112, 12-056, 12-113 and 12-183. Spills 12-113 and 12-183 were inspected and approved for closure while on-site. Details of the other three spills were not available at the time of the inspection. The spill report for 12-056 was located following the inspection. A spill report was filed on (12-278) just prior to our arrival, for an historic spill at a drill site. Another spill was found during the inspection, when visiting the Umwelt fuel cache. A barrel had rolled out of the berm and leaked part of its contents. This was reported to the spill line (12-283). Subsequent reports on the remediation of this spill have been submitted to the Inspector. Please have the information on-hand for all remaining open spill files during the next summer inspection and ensure that follow-up reports are submitted to the Inspector.

Part I: Conditions Applying to Abandonment and Restoration or Temporary Closing

The reclamation of Trench 4 was reported in the 2011 Annual Report, but no photos for 2011 were submitted. This activity was not inspected in 2012, but will be in subsequent inspections.

Drill site reclamation work, and any other reclamation work conducted in 2012 is to be reported in the 2012 Annual Report.

Item 2 of this Part lists issues to be addressed in the AR Plan. Please ensure that these are incorporated into the next update to the AR Plan. For example, Table 4 references regulatory guidelines (CCME) of hydrocarbons in soils, not the discharge criteria outlined in the licence.

Part J: Conditions Applying to the Monitoring Program

As per item 2 of this part (Amendment 1), all water usage should be measured and recorded daily. As per item 9, all data required under this Part is to be included in the Annual Report. Please include the daily water usage in table form as an appendix.

Please provide the GPS location for any locations other than the trench where drill waste is deposited in the next annual report.

New conditions with respect to monitoring were added with Amendment 3 to the licence. As per item 10, monthly testing upstream and downstream of water crossings, seeps, and any flows originating from borrow pits or rock quarries related to construction are now required. The results of this testing are to be included in the Annual Report, as well as a summary of actions taken with respect to the implementation of the monitoring program.

General Comments:

Fuel storage and drill practices are the two principle issues of concern at this site. Improved practices are being drafted, and I look forward to seeing the benefits of their implementation. Sabina responded very quickly and positively to the need to remediate the problem drill sites, and I look forward to seeing the results of the remediation and the improved drilling practices at this project.

Non-Compliance:

Issues where there is/was a known or suspected violation of a requirement of the Water Licence or Act:

Part C (3). Usage of a shallow water source, resulting in draw-down.
Part D (3). Incineration of materials other than food, paper and untreated wood.
Part D (8). Greywater not confined to a discrete sump.
Part E (6). Failure to submit a Quarry Management Plan within 60 days of licence issuance.
Part F (2). Failure to contain drill waste and water in an appropriate sump resulting in impacts to the permafrost and tundra.
Part I (11). Failure to restore drill holes immediately upon completion of drilling.
Part J (1). Failure to record daily water usage.

Summary of Action Required:

- Provide documentation of modifications to the greywater system to the Board.
- Regular inspections of all fuel storage and secondary containment. Inspection records to be provided to the Inspector upon request.
- All fuel transfers are to occur over a drip tray or secondary containment.
- All lubricants, drill products, and salts that are not marked as non-toxic should remain in secondary containment at all times.
- A Quarry Management Plan is to be submitted by March 31, 2013.
- Complete the remediation of thermokarst-affected drill sites and submit a report to the Inspector in October 2013.
- GPS coordinates any locations where drill waste is deposited are to be included in the next annual report.

Failure to undertake the actions required as described in this inspection report, and to the satisfaction of the Inspector, may result in enforcement action(s) being undertaken pursuant to the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*.

Eva Paul
Inspector's Name

Inspector's Signature

Cc: Phyllis Beaulieu – Manager of Licensing, Nunavut Water Board
Fred Penner – Superintendent of Operations, Sabina Gold & Silver Corp.