

Executive Summary

SRK Consulting (U.S.), Inc. (SRK) was retained by Fairbanks Gold Mining, Inc. (FGMI) to perform an environmental audit of the Fort Knox and True North mines located in the Fairbanks North Star Borough, approximately 26 road miles northeast of Fairbanks, Alaska as shown on Figure 1. The Request for Proposal (RFP) for this audit was issued by FGMI on April 21, 2011, in coordination with the State of Alaska Department of Environmental Conservation (ADEC), State of Alaska Department of Natural Resources, Division of Mining, Land, and Water (ADNR), and the United States Army Corps of Engineers (USACE), referred to subsequently as “the agencies”.

The work associated with this environmental compliance and management systems audit was directed by Alaska Department of Natural Resources (ADNR), in conjunction with Alaska Department of Environmental Conservation (ADEC) and U.S. Army Corp of Engineers (USACE). FGMI was responsible for all financial obligations associated with the audit, in addition to soliciting proposals, hosting site visits, providing reports, answering technical questions, and participating with the agencies in the audit. The agencies and FGMI selected SRK to conduct the audit and prepare a report of the findings. The site visit for the audit was conducted at the Fort Knox and True North mine sites and in the offices of ADNR from August 8 to August 11, 2011.

The purpose of the audit is to determine if Fort Knox Mine’s environmental management systems and the regulatory controls in place provide reasonable assurances that the environmental objectives in the Plan of Operations and relevant permits and approvals are being met and that the systems and controls are functioning as intended. The audit results will be used by FGMI and the agencies to assist in updating, renewing, or issuing approvals and permits, in updating policies, environmental management plans and procedures, in determining compliance with permits and approvals, and in evaluating the adequacy of the financial assurance.

SRK’s role was not to solve issues but to bring them to light. The following sections present SRK’s conclusions assessing if these objectives were met. Recommendations are also presented to aid the agencies and FGMI in further attaining their environmental compliance objectives.

Conclusions

Fort Knox Mine

- FGMI is in substantial compliance with those environmental permits and authorizations reviewed as part of this audit and appears to be very diligent in their operations.
- Heap rinsing studies need to be completed to better assess the Closure Plan and reclamation cost estimate FGMI is currently developing a plan to address heap rinsing;
- FGMI need to complete tailings consolidation study to assess trafficability of heavy equipment on the TSF.
- State agencies and USACE need to come to an agreement for the closure requirements for the Fort Knox TSF.
- The Fort Knox tailings are exhibiting elevated levels of arsenic and antimony in MWMP testing.
- TSF seepage collection and monitoring systems appear to be functioning according to design based on the currently available data and in compliance with permit conditions.
- The current pit lake model is generally appropriate and provides a reasonable indication that concentrations in spill water will not exceed current water quality standards.
- A few administrative compliance deadlines were missed, but overall operational compliance is above industry standards.
- Environmental health and safety procedures in place with the environmental management system and cyanide code certification demonstrate pro-active management of the Fort Knox Mine.
- The reclamation schedule is very focused with limited flexibility to address uncertainties, i.e., changing water quality, unpredictable changes in climate, variability in exposed pit wall, tailings, and waste rock dump mineralogy.
- The reclamation cost estimates appear to be adequate to cover surface reclamation as proposed; however, the uncertainties surrounding long-term water quality and management,

i.e., treatment, pumping, etc. are not clearly defined and may be substantially underestimated.

True North Mine

- Surface reclamation in particular recontouring and revegetation has been successful, with some minor exceptions:
 - Differential settlement due to permafrost melting within the waste rock dumps resulted in surface tension cracking. FGMI continues to monitor and repair as needed;
 - Reclamation of the Hindenburg waste rock facility blocked a segment of upper Spruce Creek resulting in minor upstream ponding and possible seepage through the waste rock.
 - A small amount of debris remains at the site from building demolition.
- Limited baseline water quality data for Spruce Creek and more recent monitoring data indicate the need for continued monitoring.

Agencies

- Overall permitting and regulatory oversight of the mine and associated activities is reasonable and appropriate.
- LMPT has taken too long to review, comment, and issue authorizations in a timely manner.

Recommendations

The scope of the audit required a review of the company's compliance with permits and authorizations such as a general overview of the operations. Further, SRK's role was not to solve issues. The following are general recommendations to address some of the issues identified during the audit:

Fort Knox

- Collect samples of TSF pond water at depth to assess redox conditions and how mobilization of arsenic, antimony, copper, and selenium may be affected;
- Continue monitoring the tailings seepage in accordance with Waste Management Permit #2006-DB0043 for the Fort Knox Mine to assess the "zero discharge" status for seepage flowing from the TSF to Fish Creek of Victoria Creek;
- Complete the column rinsing tests to determine final rinsing requirements for the Walter Creek Valley heap to assess long-term water quality and management. A heap rinsing study is currently being developed.
- More detailed growth media balances should be developed as the site moves toward final reclamation and closure to prioritize placement as necessary.
- Complete the consolidation study to determine trafficability and how this affects the reclamation schedule, water management, cover placement, the rockfill channel design, and possible reactivity of the tailings.
- Re-examine the requirement for 12 inches of growth media placement during reclamation;
- Work with ADF&G to further enhance the fishery in the WSR and wetlands is ongoing or being considered and includes:
 - Development of a second wetland complex along the north side of the Fish Creek valley;
 - Conversion of the existing Gil causeway into revegetated islands;
 - Additional civil work in Last Chance Creek to mitigate aufeis;
 - Continued maintenance of the road down the valley between the tailings dam and the Water Supply Reservoir;
 - Construction of a passive water treatment wetlands below the tailing dam; and

- Removal of beaver dams to maintain fish passage for Arctic grayling spawning in the developed wetlands.
- FGMI and the agencies, particularly ADEC, should consider the establishment of a trust fund as a financial security mechanism for post-closure water management issues.

True North Mine

- Repair surface cracking on the True North waste rock facilities once movement has stabilized;
- Consider Golder's recommendations or alternatives concerning monitoring the temperatures within the True North waste rock slump areas and other mitigation;
- Evaluate the re-establishment of the Spruce Creek drainage by pulling back the toe of the Zeppelin/Hindenburg waste rock facility to allow surface water to free drain and bypass the waste rock;
- Investigate the nature and extent of this discoloration in the Central Pit area to determine if it is indeed sulfide oxidation, and propose possible mitigation efforts, as necessary.
- Install warning signs at the base of pit highwalls warning the public of the danger of falling rocks;
- Continue monitoring revegetation success;
- FGMI and agencies consider the establishment of a trust fund as a financial security mechanism for post-closure water management issues.

Agencies

- Consider a computerized document tracking system for control;
- Plan and implement adequate training and resources for ADNR staff to convert Permits to Appropriate to Certificates of Appropriation. The legislature approved funding for more positions to deal with the state-wide backlog of permits. An additional staff member was hired in September 2011. Initial training was completed on November 4, 2011, and Fairbanks staff has received approval to begin processing Water Rights Permits and Certificates of Appropriations.