

TRUE NORTH/FORT KNOX UPDATE

January 2002

This update explains some amendments to the True North Project authorizations, and also addresses concerns sent to the Department of Natural Resources (DNR) by e-mail since October, 2001. The update is divided into the following categories:

- Amendments to the Plan of Operations
- Dust
- Lead Nitrate use at Fort Knox Mine
- Geochemistry of True North Ore
- Groundwater Concerns

Amendments to the Plan of Operations

On December 31, 2001, DNR approved an amendment to the True North Plan of Operations. This amendment authorizes Fairbanks Gold Mining (FGMI) to utilize additional contractor trucks for hauling True North ore to the Fort Knox mill. The total number of trucks hauling ore cannot exceed 9 during the night (7 PM to 7 AM) and 15 during the day (7 AM to 7 PM). All the trucks must still comply with the stipulations of the right-of-way permit, including keeping the noise levels below the authorized standards.

On December 21, 2001, DNR received an application from FGMI to modify the True North Plan of Operations to allow for an expansion of the mine. The proposed modification would authorize expanded mining of the pits, and would increase total upland disturbance by 393 acres. The proposed modification would extend the mine life into 2004, but would maintain the same rate of ore haulage to the Fort Knox mill. DNR is currently reviewing the application, and will conduct a public notice on the application in January or February of 2002. The application is available for review at DNR offices in Fairbanks and Anchorage.

Dust

There continues to be concern from several residents about dust from the haul road. Specifically, the concerns are about the toxicity of True North ore, the possibility of spilled ore contributing to the dust from the haul road, and the levels of dust in the area.

Very little of the True North Ore has spilled on the haul road, and most of it has been cleaned up. DNR and DEC inspectors continue to conduct regular inspections of the minesite and haul road, and their inspections have verified this.

There was one incident in early December in which one haul truck lost control on an icy section of the haul road and collided with another haul truck. The ore from one truck involved in the incident had to be unloaded onto the road, and then re-loaded into another truck. All but about 2 to 5 cubic yards was recovered. The remainder was pushed alongside the road berm. No ore was dumped over the side of the berm. As any remaining ore is now part of the berm and not on the road surface, this ore will not be generating dust.

Even if some ore were spilled and not cleaned up, this ore would not generate toxic dust, nor would it contaminate the groundwater. The geochemistry of the True North ore and waste rock was extensively analyzed during the permitting process. Not only is the ore not toxic, but the quantities of potentially spilled ore are insignificant in that any metals that could leach from this quantity of ore would be immeasurably small. The total amount that could leach to adjacent surface water (such as a puddle) would be so small as to be immeasurable. The effect on surface water that is thousands of yards away or groundwater hundreds of feet below would be even less.

The True North ore can contain trace quantities of many metals, including gold, zinc, manganese, iron, arsenic, antimony, selenium, barium, bismuth, lead, sodium, and magnesium. These metals are present in extremely low concentrations, not at levels which cause concern for human safety. Most of these metals are present in trace quantities in all road dust from unpaved roads in rural Alaska. Even in a location where the True North dust is very concentrated (i.e., the True North Mine pit) industrial health air monitoring has shown that metal levels are below the threshold for worker safety (the results of this air monitoring are available for review at the Fairbanks and Anchorage DNR offices).

While there have been some complaints regarding the dust levels, DNR staff has noted little dust impact during its onsite inspections of the right-of-way. Although some dust has been evident on the snow alongside the haul road, State inspectors have not observed any indications that dust from the haul road is reaching the residences. The prevailing winds in the area are from the north, so during periods when dust is present, it is more likely that the dust would be blown away from the residences. During future inspections, we will ensure that inspectors look for signs of dust transport from the True North haul road.

Despite the reasonable levels of dust, at DNR's request, FGMI continues to explore other options for reducing the dust. In an effort to reduce dust levels, FGMI applied a concentrated solution of calcium chloride and water to the road. However, FGMI has discontinued this practice as it may have contributed to the previously mentioned truck accident. If the area receives more snow, FGMI can grade a layer of snow onto the road to control dust.

Lead Nitrate use at Ft. Knox Mine

On October 17, 2001, Fairbanks Gold Mining Inc. (FGMI) requested permission from the Alaska Department of Environmental Conservation (ADEC) to add lead nitrate as a reagent in the milling process at Ft. Knox Mine. The use of lead nitrate to boost gold recovery in the cyanide leaching process is a common practice at gold mines in the U.S., Canada and Australia. On November 28, 2001 the ADEC, in consultation with the Alaska Department of Fish and Game and Alaska Department of Natural Resources, granted FGMI permission to use lead nitrate in the mill at Ft. Knox Mine. The use of lead nitrate in the cyanide leaching process has not been known to cause negative environmental or human health impacts. The decision to grant FGMI permission to use lead nitrate was based on the following information:

- During the milling process, the lead recombines to form lead sulfides, sulfates, and hydroxides which are deposited in the Tailings Storage Facility (TSF). Thermodynamics (laws that govern the behavior of chemical compounds) show that these lead compounds are insoluble at water conditions currently found, and those anticipated post-closure, in the Tailings Storage Facility (TSF). Insoluble compounds are inert in the presence of water and are unable to be dissolved and transported away from the TSF.
- Regulatory agencies in Nevada and Canada, which regulate mines that use lead nitrate in their mills, have not seen any significant environmental impacts as a result of the use of lead nitrate. Dr. Guy Deschenes, a research scientist at CANMET – Mining and Mineral Sciences Laboratories, who has published over 75 technical papers on hydrometallurgy, states that gold mines in Quebec, Manitoba, Ontario and Australia that use lead nitrate have not reported any environmental problems as a result of using lead nitrate.
- Meteoric Water Mobility Procedures (a procedure that replicates natural water travel through the mine tailings) performed on True North ore after addition of lead nitrate and cyanide in bottle roll tests indicate that the lead in the tailings is insoluble. Subsequent analysis on the filtrate (water that has been seeped through the tailings) from these tests show lead values within the Water Quality Standards (below method detection limit of 2µg/L).
- Fort Knox is a zero-discharge mine. That is, water is contained in the tailings facility by the dam and a pump-back system and does not go into Fish Creek nor the Chena River. This arrangement allows the company and the agencies that monitor the mine to monitor and test the waters in the tailings facility. Thus, should monitoring show that lead is getting into the water, the agencies can detect it and the processes can be stopped or changed before lead builds up to levels that exceed water quality standards. In this way, there are two levels of assurance. First, the science shows that there will be no effect. Second, monitoring will confirm the science, but if a problem is found, the zero-discharge arrangement at the mine will allow the processes to be stopped before harm occurs to the environment.
- FGMI will increase the monitoring frequency of lead from quarterly to weekly to more closely track the lead concentrations found in the waters in and around the

TSF (the results of this monitoring are available for review at DNR offices in Fairbanks and Anchorage). If lead concentrations are found to be increasing in the TSF, the ADEC will require additional treatment or retract its permission for FGMI to use lead nitrate.

- ADEC Solid Waste Permit 0031-BA008 requires that FGMI and any contracted transporters have spill response plans in effect for transport of hazardous materials to the mine. The lead nitrate will be stored in 1 metric ton sealed polyethylene containers, which are placed on a pallet and wrapped in plastic. The palletized containers are placed in watertight sea containers for transport to the mine site via truck.

Geochemistry of True North Ore

DNR has received several inquiries about changes in the chemistry of the tailings being deposited in the Fort Knox Tailings Storage Facility. The third quarter, 2001 quarterly monitoring report for the Fort Knox Mine showed levels for arsenic, antimony, and selenium elevated from past monitoring reports, most likely resulting from the processing of True North Ore in the Fort Knox Mill. Staff from DNR, DEC, and ADF&G have reviewed the monitoring report and other information, and have determined that the elevated metals levels do not cause an environmental problem, and that the operations remain consistent with FGMI's authorizations.

During the permitting process for the True North Project, the geochemistry of the True North ore and waste rock was extensively analyzed. This was necessary primarily for two reasons: first, to ensure that the waste rock dumps at the True North Mine would not cause any long-term environmental effect, and second, to ensure that the tailings from the processed True North Ore could be safely stored in the Fort Knox Tailings Storage Facility.

The geochemical analysis of the True North ore showed that the waste rock from the mine has a very low potential for acid mine drainage. Certain areas were identified where this potential may be higher, and FGMI must increase monitoring of the waste rock geochemistry if it mines in these areas. At a minimum, waste rock geochemistry is monitored quarterly, and the monitoring results are provided to DNR and DEC. Also, the waste rock dumps will have monitoring wells installed within each dump to check any water leaching through the dumps, and additional monitoring wells have been installed below each dump to monitor the groundwater quality.

The geochemical analysis of the True North ore predicted that arsenic, antimony, and selenium levels would increase in the tailings. However, this is not a concern because the tailings storage facility does not discharge any water. Wells are installed below the dam to pump groundwater back into the tailings pond to ensure that there is no discharge. Monitoring wells are also installed downstream from the facility to make sure that any contamination in the groundwater can be detected early. In the long term (after mine closure), the metals in the tailings will become insoluble within the tailings and the

bedrock, and all water leaving the facility should meet clean water standards. In any case, FGMI would be responsible, and has bonded, for treating the water until the clean water standards can be met.

To be on the safe side, FGMI is increasing the monitoring frequency from quarterly to weekly of the water in the tailings storage facility for lead, arsenic, antimony and selenium. This will help us ensure that the addition of the True North ore tailings and the lead containing compounds lead nitrate, to the Fort Knox tailings storage facility have no adverse environmental consequences.

All the monitoring reports for True North and Fort Knox are available for review at DNR offices in Fairbanks and Anchorage.

Groundwater Concerns

One inquiry expressed concerns that the groundwater in the vicinity of the residences could be impacted by spilled ore or the calcium chloride used for dust control, and that DNR should provide test results from monitoring the local groundwater. As explained above, the spilled ore is not a potential contaminant of the groundwater because it is not toxic and the quantities are insignificant. Groundwater generally follows the surface topography, so we can estimate that the groundwater is approximately 200 feet below the surface of the haul road. Calcium chloride does not have a potential for contamination of the groundwater in the vicinity.

Although no monitoring of the groundwater is done in the immediate vicinity of the residences (because there is no potential source of contamination), groundwater is monitored at each mine site. Monitoring wells have been installed at both the True North and Fort Knox mines to ensure that groundwater quality is maintained.

If any member of the public has complaints, comments, or questions about the True North Project, or would like to review any of the documents discussed above, they should contact either DNR (Ed Fogels, 269-8629, edf@dnr.state.ak.us) or FGMI (Security, 488-4653 x2875).