TRUE NORTH FINANCIAL ASSURANCE REVIEW

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CENTER FOR SCIENCE IN PUBLIC PARTICIPATION

4 March 2004

1.0 Introduction

The True North Project is an open-pit gold mine located 25 miles northeast of Fairbanks, Alaska in the Chatanika River watershed. This mine has been in operation since 2000, and currently operates at a rate of 30,000 to 50,000 tons per day (tpd). Based on estimated gold reserves of 13.1 million tons, the True North Project is anticipated to operate until 2004 at these production rates. The True North Project is owned and operated by Fairbanks Gold Mining, Inc., a wholly owned subsidiary of Kinross Gold Corporation.

The True North Project includes an open-pit, waste rock piles, and facilities for equipment and personnel. Ore from this project is trucked 11 miles to the Fort Knox Mine for processing. The Hindenburg and East Pits were mined with conventional open pit methods during 2000 and 2001, and the Central, Sheppard, and Zeppelin Pits are currently being mined. The open pits at this mine site encompass 352 acres. The True North mine site also contains the following areas of disturbance: 363 acres of waste rock dump piles, 11 acres of growth medium stockpiles and low-grade ore stockpiles, 275 acres of access roads, and 15 acres of mine site facilities including a maintenance complex and blasting storage. A total of 1,014 acres are disturbed or planned for disturbance within the 2,096 acre millsite lease. According to the reclamation plan, approximately 618 acres of disturbance for ancillary facilities, rock dumps, and stockpiles are located on uplands; and 396 acres of disturbance in wetlands is planned for roads and pit development.

Fairbanks Gold Mining, Inc. plans to conduct reclamation both concurrent with operations and after mining operations have ceased. Final reclamation will be conducted in two phases. Phase I is planned to last 2 to 5 years and includes final contouring and revegetation of backfilled open pits, waste rock dumps, growth medium / ore stockpiles, and ancillary facilities. Phase II, passive reclamation, is anticipated to last 30 years and includes water treatment, monitoring and maintenance until closure standards are achieved. At the end of Phase II reclamation the Alaska Department of Natural Resources (ADNR), Alaska Department of Fish and Game (ADF&G), and Fairbanks Gold Mining, Inc. plan to manage the project area as wildlife habitat in addition to a public use and recreation site.

Current financial assurances are held by the state of Alaska, as the mine site is located entirely on state and University of Alaska lands. The ADNR holds financial assurance in the form of a bond in the amount of $2,536,874 (2003 dollars) to cover the cost of mine site reclamation and closure in addition to surface and groundwater monitoring until closure standards are achieved.

The True North Project Reclamation Plan was prepared in accordance with standard engineering cost estimation procedures and is consistent with methods commonly used by industry as well as state and federal agencies. Costs for individual reclamation tasks were based on labor, equipment, and materials.

Labor rates were based on Davis Bacon wages for Alaska. Equipment costs and productivity rates were based on the 29th Edition of the Caterpillar Performance Handbook. Costs for materials were estimated from contractor estimates, and experience from concurrent reclamation.

Current financial assurance amounts for the True North Project used by the ADNR to guarantee reclamation takes place in the event of bankruptcy, or other circumstances where reclamation is not completed by Fairbanks Gold Mining, Inc., are evaluated in this report. This technical review is based on analysis of the existing reclamation plan and financial assurance cost estimate "*True North Project Reclamation Plan*" prepared by Fairbanks Gold Mining, Inc. in December 2001.

This evaluation was developed to ensure that the financial assurance amounts held by the state of Alaska are adequate to cover the costs of reclamation and closure as required by Alaska statutes and regulations. The state of Alaska is required to obtain financial assurances to ensure that the approved reclamation tasks are completed in the event Fairbanks Gold Mining, Inc. fails to perform the necessary tasks as outlined in the reclamation plan.

2.0 Methods

If the ADNR becomes responsible for reclamation at the True North Project it is critical that adequate funding is available for completion of the required tasks. It is well documented at other mine sites (e.g. Summitville Mine in Colorado; Zortman Landusky, Beal, and Basin Creek mines in Montana; and Brohm Mine in South Dakota) that in the event the operating company files bankruptcy costs incurred by the State to perform reclamation are significantly higher than those originally estimated (Kuipers 2000). In some cases costs incurred by state and federal agencies can be 10 to 100 times higher than those estimated in reclamation plans and financial assurance calculations (Kuipers 2000). For these reasons this review of the True North Project reclamation plan and financial assurance(s) takes a conservative approach to cost estimating.

Financial assurance estimates calculated in this review were performed in accordance with standard cost estimation procedures and are consistent with methods commonly used by state and federal regulatory agencies. Site-specific reclamation tasks and associated areas of disturbance were developed from the aforementioned financial assurance estimate. Assumptions, reclamation tasks and associated costs used in this estimate are the same as those used in the existing reclamation plan and financial assurance(s), except where noted in the explanations for each scenario.

First, the existing financial assurance estimates were replicated (as Scenario 0) in a format that allows for unit costs ($/acre) to be determined for specific reclamation tasks. Next, two scenarios were developed where unit costs, indirect costs, and project timelines were evaluated and varied as described in the following sections. Finally, cash flow worksheets were generated for each scenario.

Detailed estimate calculations, and the resulting scenarios and assumptions, are provided as Attachment 1. Attachment 2 illustrates additional calculations made for the scenario 2. Table 1 below summarizes the financial assurance amounts calculated for this review.

Table 1. True North Project Financial Assurance Costs Summary

	True North	CSP² Scenarios	
	Scenario 0	**Scenario 1**	**Scenario 2** (CSP² Preferred Scenario)
	Based on 2001 reclamation plan.	Based on 2001 reclamation plan with increased indirect costs.	Based on Scenario 1 with increases to unit costs and additional reclamation tasks.
Capital Costs	$1,725,290	$2,084,150	$4,251,308
Operating Costs	$388,701	$469,551	$493,753
Total	$2,113,991	$2,553,701	$4,745,061

3.0 Review of True North Project Reclamation Plan and Financial Assurance Calculations

3.1 True North Project Scenario 0

For Scenario 0 labor costs, equipment costs, material costs, and acreages for specific reclamation tasks used duplicate those provided in the cost estimation worksheets in the True North Project Reclamation Plan. Equipment costs and efficiencies are based on Caterpillar Performance Handbook standards, and wage rates are based on the Davis Bacon Wages for Alaska. Material costs are based on contractor estimates and mine site experience.

Scenario 0 was generated to determine unit costs for specific reclamation tasks used in the True North cost estimate. These unit costs are evaluated and changed in subsequent scenarios. Although data inputs for Scenario 0 were derived from True North cost estimation worksheets, slight differences in total amounts are observed. The Scenario 0 reclamation plan financial assurance amount differs by $124,428 ($2,238,419 - $2,113,991), which results in a 5.6% difference when compared to the True North generated financial assurance.

Differences between the True North estimate total and Scenario 0 appear to be with the “Rock Dumps” reclamation costs. The True North cost estimation worksheets have a discrepancy in the total cost of rock dump reclamation where the summary worksheet (Appendix D) costs total $1,038,701, and the sum of the individual cost estimation worksheets for rock dumps totals $947,853. This would result to a small adjustment in the overall reclamation cost estimate and was not addressed in other scenarios.

One other calculation error was noted in the True North Project cost estimation worksheets. The worksheet for “Shop Rock Dump A” does not contain adequate equipment time for seeding and fertilizing on flat slopes of this rock dump. Equipment costs are listed for only 3 hours of use totaling $162 for this task, while the reclaimed acreage of 40.5 flat acres and equipment efficiency of 1 hour /acre would result in an actual cost of $2,187 to complete this task. This would result in a minor adjustment to the total reclamation cost and was therefore not addressed in subsequent scenarios.

The following observations were noted during review of the True North Project Reclamation Plan:

- Backfill of the East Pit is planned for as a concurrent reclamation activity to be completed before final reclamation. Open pit mining operations in the East and Hindenburg Pits was planned for completion in 2001. The agencies should consider the additional cost incurred for backfilling and reclaiming the East and Hindenburg Pits is this task has not been completed.

- The total disturbed acreage of 1,014 acres reported in the reclamation plan text does not correspond to the acreage planned for reclamation activities of 826 acres in cost estimation worksheets of Appendix D. This difference may be due to the reduction of surface acreage available for reclamation due to the backfilling of open pits. Reclamation tasks and associated costs should be identified for the additional 188 acres if this is not the case.

- The reclamation plan anticipates that all reclamation performance standards will be achieved 30 years after final closure, at which time surface and groundwater monitoring activities will be terminated. This time period seems adequate for monitoring of reclamation performance considering this gold deposit is hosted in a calcareous and carbonate-altered schist, and potential for acid generation is reported to be minimal in the reclamation plan.

3.2 CSP² Scenario 1

Scenario 1, developed by CSP², duplicates the True North Reclamation Plan cost estimate capital and operating costs with changes made to indirect costs as noted below. Scenario 0 indirect costs are calculated at 25% of the estimated contract costs, and Scenario 1 indirect costs are 51% of the estimated contract costs. The difference results from increases in Scenario 1 indirect costs for engineering redesign, procurement, construction management, contractor overhead, and inflation.

A financial assurance cost estimate should be developed under the assumption that reclamation is performed by a third-party under contract to the appropriate regulatory agency. Factors including contractor ownership, standby, overhead, engineering redesign, etcetera result in higher costs than those typical of reclamation costs when performed by mining companies. Indirect costs represent one of the most common areas in which financial assurance requirements are underestimated (Kuipers 2000). Indirect costs are added to this estimate to account for additional costs incurred in the event of agency management and oversight of reclamation and closure.

The True North Project cost estimate included indirect costs for contingency (5%), mobilization and demobilization (5%), contractor profit (10%), and contract/agency administration (5%). In this estimate, indirect costs amount to 25% of the operating and capital contract costs.

The following indirect costs were applied to CSP² Scenario 1:

- *Contingency*. Contingency costs reflect the level of detail and completeness of the cost estimate, as well as the degree of uncertainty of factors and assumptions used in the cost estimate. A contingency amount of 5% was applied to the estimated contract costs in the Scenario 1 cost estimate, which is the same percentage used in the True North Project cost estimate.

- *Mobilization / Demobilization.* Mobilization/demobilization costs account for the transport of equipment and materials to and from the mine site, as well as infrastructure needs. A mobilization/demobilization amount of 5% was applied to contract costs estimated in Scenario 1, which is the same percentage used in the True North Project cost estimate.

- *Engineering Redesign*. Engineering redesign costs stem from a lack of detailed information and plan development in a financial assurance estimate, as well as the need to account and design for actual conditions at the time of reclamation and closure. An engineering redesign cost of 3% was applied to the estimated contract costs used in Scenario 1. The True North Project cost estimate did not include any amount for engineering redesign.

- *Engineering, Procurement, Construction Management*. This indirect cost accounts for the requirement of construction engineering, procurement, and construction management on behalf of the agencies in the event they become responsible for reclamation. An indirect cost of 5% of the contract costs was used in Scenario 1, while the True North Project cost estimate does not account for the cost of this activity.

- *Contractor Overhead*. Contractor overhead accounts for administrating, management, public relations, safety, environmental, legal, performance bonding and other costs associated with doing business. A contractor overhead cost of 15% was applied to the estimated contract costs used in the Scenario 1 cost estimate. The True North Project cost estimate did not include any amount for contractor overhead.

- *Contractor Profit*. This indirect cost accounts for contractor profit. A contractor profit amount of 10% was applied to contract costs estimated in Scenario 1, which is the same percentage used in the True North Project cost estimate.

- *Agency Administration.* Agency administration includes costs incurred by state and federal agencies in situations where reclamation and closure are performed by regulatory agencies. Agency administration costs were accounted for as 5% of the contract costs in both the True North Project cost estimate and Scenario 1.

- *Inflation*. Inflation indirect costs account for the difference in the dollar value between the time the estimate was generated and reclamation and closure are performed. An inflation amount of 3% was applied to the contract costs estimated in Scenario 1. The True North Project cost estimate did not apply inflation, with the exception of a 1.5% increase per year for water monitoring activities.

Application of these indirect costs in Scenario 1 results in an increase of 21% over Scenario 0. The True North Project Reclamation Plan costs were estimated as $2,553,701 under Scenario 1. Indirect costs for Scenario 1 amount to 51% of the estimated operating and capital contract costs, while indirect costs were 33% for Scenario 0.

3.3 CSP² Scenario 2

Scenario 2 includes the addition of indirect costs as described for Scenario 1, as well as changes to unit costs and reclamation tasks as described below.

- *Revegetation Costs*. The unit costs estimated in the True North Reclamation Plan for revegetation assume that only one-time planting is necessary and weed control is not required. The seed application rate of 11 pounds/acre also seems low when compared to other operations.

  Scenario 2 uses a revegetation unit cost of $1,500/acre on flat surfaces and $2,500/acre on sloped surfaces. These unit costs are based on Montana Department of Environmental Quality (MDEQ) financial assurance recommendations based upon agency experience. These changes increased the revegetation costs from $163,624 in Scenario 1 to $1,533,800 in Scenario 2.

- *Building Demolition*. The True North Project Reclamation Plan assumes that buildings are removed for salvage prior to the cost estimation for demolition. Costs for demolition of foundations are calculated, and a flat rate of $25,000 was added for building demolition in the event facilities are not removed from the site by Fairbanks Gold Mining, Inc. This estimate does not include waste disposal costs associated with demolition.

  In the event of bankruptcy, buildings will most likely be demolished rather than salvaged by the regulatory agencies. Scenario 2 uses unit costs for demolition based on RS Means Heavy Construction Cost Data (Chandler 2001). Demolition and removal of buildings was estimated with a unit cost of $0.19/ft^3. Assumptions were made that buildings are steel with an average height of 30 feet, which resulted in an estimation of building volume at 421,200 ft^3 (14,040 ft^2 foundation area * 30 ft) requiring demolition. These changes increased the building demolition costs from $38,971 in Scenario 1 to $93,999 in Scenario 2.

- *Detoxification / Disposal of Wastes*. The reclamation plan for True North discusses plans for proper removal and disposal of hazardous and toxic materials, including petroleum products, acids, and solvents, remaining on the mine site but does not account for this in the cost estimation. Scenario 2 includes a one time cost of $10,000 for the proper handing and disposal of hazardous and toxic wastes.

- *Reclamation Monitoring*. Although the True North Reclamation Plan contains action triggers of 30% cover after 3 years of closure, and 70% cover of vegetation for bond release there is no cost estimated for reclamation monitoring in Scenario 1. Scenario 2 includes an operating cost of $16,028 for reclamation monitoring and minor maintenance to be performed annually for the first 10 years after closure, and then every other year until water monitoring is terminated (30 years). See Attachment 2 for additional details on development of these costs.

Application of these additional costs in Scenario 2 results in an increase of the current financial assurance amount by 125%. The True North Reclamation Plan costs were estimated as $4,745,061 under this Scenario.

Scenario 2 is the CSP² preferred alternative presented in this review. This scenario includes additional costs for indirect expenses, revegetation, building demolition, waste disposal, and reclamation

monitoring. The duration of surface and ground water monitoring of 30 years seems adequate given the nature of the ore body and surrounding geology.

4.0 Conclusions

As illustrated by this review, the True North Project financial assurance of $2,238,419 currently established may not be adequate to cover the costs of reclamation and closure incurred when these tasks are performed by a regulatory agency. As shown in Scenarios 1 and 2 presented above, financial assurance costs could increase from between 21% and 125% when accounting for additional indirect costs and reclamation tasks. This results in a potential increase of the overall financial assurance amount to between $2,553,701 and $4,745,061.

5.0 References

Chandler, HM. 2001. *RSMeans Heavy Construction Cost Data*. 15th edition. Kingston: RSMeans Company, Inc. 470 pages.

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