

September 7, 2016

Mr. John Roberts, VP Environmental Affairs  
TMAC Resources Inc  
95 Wellington Street West, Suite 1010,  
Toronto, Ontario, M5J 2N7

By email: john.roberts@tmacresources.com

**RE: Review of Reclamation Cost Estimate – Doris North Mine**

Dear John,

**Introduction and Background**

TMAC Resources is in the permitting process for the proposed Doris North Mine in Nunavut. Part of that process involves establishing an appropriate security provision for the ultimate reclamation of the mine. TMAC Resources has engaged SRK Consulting (SRK) to prepare an estimate on behalf of the company. Indigenous and Northern Affairs Canada (INAC) has prepared an independent estimate. Currently, there is a significant difference of opinion as to the amount of security which may be required. In an effort to close that difference, TMAC Resources has engaged Brodie Consulting Ltd. (BCL), to review the items of difference and provide commentary. This letter presents BCL's review and comments.

BCL is familiar with the Doris North Project, having been part of INAC's review team for earlier permit applications in 2006/07.

BCL has not reviewed the current mine plan, and only briefly reviewed the reclamation plan. However, the proposed development is very similar to the earlier proposal. The modifications to the tailings processing, and water management system for the tailings area are worthwhile improvements.

It is noted that the proponent and stakeholders are in agreement as to the nature of the project development and the anticipated scope of reclamation activities. Differences pertain only to the estimated cost for conducting the reclamation activities.

TMAC Resources has provided the following documents to BCL:

1. Closure and Reclamation Plan (PDF File)
2. Current Closure Cost Estimate in RECLAIM Format (Excel Sheet)
3. SRK July 22 Memo that accompany the RECLAIM Sheet
4. Email to INAC dated August 17 including Excel Spreadsheet outlining camp and equipment loading
5. Email to INAC dated August 31 clarifying a change to the cost estimate

BCL met with the SRK engineer (Mr. M. Rykaart, P. Eng.) on Sept. 6, 2016 to discuss SRK's estimate and the key areas of the estimate.

Item 2, above, provides a summary and commentary by SRK on the key areas of difference between the two estimates. BCL's review follows that document, and focusses on the items of material difference, which are (in the sequence of SRK's letter of Aug 3, 2016; Item 2):

- Summary Tab
- Water Management Tab
- ICM Tab
- Mobilization Tab
- Closure Summary

### **Summary Tab**

The main item here is allowance for Engineering and Project Management. SRK has suggested 5% for both. INAC has suggested 10% for engineering and 11% for project management. The Doris North Project is a relatively simple development based upon modern mining practices. Onerous engineering and project management, such as been the case for much older northern abandoned mines (Colomac, Giant, Faro) is not likely to be needed at Doris North. It is BCL's opinion that the 5% provision suggested by SRK is reasonable.

**Water Management Tab**

There is an allowance for 3 pumps to carry out the reclamation work. Such pumps will be in use during the mine operations, and are expected to be on-site at the time of reclamation. It is typical (in BCL's work for INAC in the past 20+ years) in determining reclamation security for mines to assume that all mobile equipment must be supplied by the reclamation contractor, and that all fixed/stationary equipment is on-site and available for use by the contractor. Provision of 3 additional pumps is more than adequate for this situation.

Regarding the pump maintenance provision; 100% of capital cost per year for maintenance is excessive. Even 30% would be high considering the operating situation (low head, clean and non-corrosive water).

Removal of a culvert under the access road associated with the fresh water will be required at closure. The road is about 15 m wide. A nominal cost, say several thousand dollars, might be included. \$500,000 is not reasonable for such a minor task.

**ICM Tab**

SRK has included a cost for a mobile camp for workers. This is very conservative as it is typical to assume minor repair and restoration of existing camp facilities. A lesser cost would be reasonable, but some allowance for a temporary camp at the end of reclamation may be warranted. Recommend to leave the SRK allowance, but acknowledge that it is a conservative inclusion.

SRK's provisions for camp fuel is adequate, but difficult to follow through the estimate. SRK described in the meeting that fuel is provided in the ICM Tab and also in Mobilization Tab. The aggregate provision seems reasonable. It is not clear if the fuel provision includes energy for the heat-trace lines for the period of pumping out the tailings area. This should be addressed in an update to the reclamation security based on observed power demand during the first year of operation.

SRK has embedded transportation costs (charter flights) for personnel in the camp costs. It is not clear how many flights are assumed. However, the daily camp cost of \$2000/person is far greater

than the commonly assumed cost of \$150/person for actual in camp costs. The aggregate cost seems reasonable at this stage of planning.

### **Mobilization Tab**

SRK's build-up of mobilization/demobilization costs is far more detailed than is typically done for northern mine reclamation security. It is based upon quotes from the most likely service provider for shipping. It is BCL's opinion to accept the SRK estimate for mobilization/demobilization.

### **Closure Summary**

In Table 3 of SRK Aug 3, 2016, there is a line item for Health & Safety Provision. This is a recent addition to RECLAIM (it was added by BCL in 2015). A provisional amount of 1% was put into RECLAIM based on discussion with Federal Government workers involved in Giant Mine. As the Doris North Project will not have abundant physical and chemical hazards the 1% amount is an appropriate upper limit in this case.

### **Conclusions**

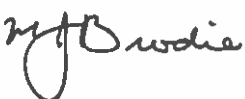
BCL has reviewed the items where there is a difference of opinion on the anticipated cost of reclamation for the Doris North Project, with the intent of identifying what is appropriate for reclamation security. In this regard, "appropriate" means an amount sufficient to carry out all of the necessary tasks, but not more than that amount.

Based upon the documents reviewed, and the meeting with SRK to clarify questions/details, it is BCL's opinion that the estimate for reclamation security provided by SRK is reasonable and appropriate. SRK's estimate uses current RECLAIM unit costs, with supplemental quotes for key items (fuel, shipping). The level of detail is suitable for this stage of the project. There does not appear to be any rationale for a greater security provision.

Please call if you have any questions regarding this review.

Yours truly,

Brodie Consulting Ltd.



M. J. Brodie, P. Eng.