



**TECHNICAL REVIEW OF OPERATIONS AT  
MINERA VALLE CENTRAL**

**RANCAGUA REGION VI, CHILE**

**FOR**

**AMERIGO RESOURCES LTD.**

**May, 2003**

**AMEC INTERNATIONAL (CHILE) S.A.**

## 1.0 SUMMARY

Amerigo Resources Limited (Amerigo) is arranging to purchase Minera Valle Central (MVC). MVC is a private Chilean company that extracts copper from tailings discharged from CODELCO's El Teniente concentrators. The tailings are then returned to El Teniente's tailings disposal system. AMEC International (Chile) S.A. (AMEC) was contracted by Amerigo to provide a review of the past and future operation of MVC.

MVC currently has 18½ years remaining on its tailings supply contract with El Teniente. It has also negotiated a supplementary source of higher grade tailings from the Colihues tailings impoundment. MVC plans to treat 10,000 tpd of tailings from Colihues, mixed with the fresh tailings from El Teniente. El Teniente currently supplies approximately 90,000 tpd of fresh tailings and this is scheduled to increase to 126,000 tpd in 2004 and to 130,000 tpd from 2005 on completion of its expansion program.

AMEC's scope and hence also this report covers the technical and production aspects of the present and potential future operation. Legal, specific tax issues and economic analysis are not covered.

MVC's operation is located in Region VI in central Chile, approximately 8 km east of the city of Rancagua. The site is 36 km west of the El Teniente mine and adjacent to the Colihues tailings impoundment. The Colihues impoundment was used from 1977 to 1987, El Teniente now deposits its tailings in the Carén impoundment that is 50 km east of the MVC site.

MVC first started recovering copper by reprocessing El Teniente tailings in 1992. The plant was expanded in 1997 and the current design capacity is 100,000 tpd.

El Teniente has been in operation since 1904 and is the world's largest underground mine. Current production is around 90,000 tpd of ore (although it has been as high as 100,000 tpd) at an average grade of 1.16 %Cu. El Teniente has reported more than 3 billion tonnes in reserves and at the expanded production rate of 130,000 tpd of ore has more than 60 years life remaining. El Teniente has provided its production plan that shows it will produce 1,139 million tonnes of tailings over the next 25 years at an average grade of 0.112 %Cu<sub>T</sub> (Total Copper) and 0.03 % Soluble Cu. AMEC recommends that the tonnage forecast be discounted by 3.5%. This will not significantly affect MVC's production.

Production records from El Teniente indicate that there are 213 million tonnes of tailings in the Colihues impoundment at an average grade 0.26 %Cu<sub>T</sub>. This represents a potentially significant additional supply of high grade tailings for MVC.

MVC plans to extract the tailings from the Colihues impoundment using a dredge pump on a floating platform. Pilot dredging trials have been carried out where up to 4,000 tpd of tailings were extracted at a sulphide copper grade of 0.2% Cu.

The existing MVC process plant is well designed and maintained and is in good condition. In 2002 it produced 10,650 tonnes of copper in concentrate. AMEC has estimated that the plant could produce 12,160 tonnes per annum of copper in concentrate from the expanded El Teniente production (122,000 tpd at 0.12% total copper). No plant modifications would be required.

AMEC has estimated (at rough order of magnitude level) that improvements to the primary classification and flotation sections of the plant plus the installation of a circuit to reprocess rougher tailings could potentially increase production to 15,490 tpa of copper in concentrate at a capital cost of US\$3 million. The treatment of 10,000 tpd of Colihues tailings would increase production to an estimated 19,470 tpa of copper in concentrate at an additional cost of US\$4.7 million.

MVC reported total cash operating costs to cathode of US\$0.627 per pound for 2002. AMEC reviewed these costs and considers them reasonable. At the expanded production levels indicated above, AMEC has estimated the following operating costs.

- 12,160 tpa Cu in concentrate, US\$0.582/lb.
- 15,490 tpa Cu in concentrate, US\$0.534/lb.
- 19,470 tpa Cu in concentrate, US\$0.522/lb.

An environmental review was carried out. The MVC plant was put into operation before the current environmental regulations were enacted. It was not required to obtain an environmental permit at that time. However, any planned expansion the entire plant must be submitted for approval. AMEC held discussions with the local environmental authority. The required permits can be obtained through the submission of an Environmental Impact Statement. This is a less exacting document than an Environmental Impact Assessment. Approval has already been received from the environmental authority (CONAMA) to treat Colihues tailings, however, approval will also be required from the National Service for Geology and Mining (SERNAGEOMIN) regarding stability aspects of the dam.

MVC is still awaiting receipt of its official operating permit from SERNAGEOMIN. All documentation has been submitted and no issues are expected.