

Technical Memorandum



Date: November 9, 2006
To: Mahesh Vidyasagar and Ted Eary, MFG, Inc.
Joe Maki, Michigan DEQ.
From: David Sainsbury, Itasca Consulting Group, Inc.
Re: Crown Pillar Subsidence and Hydrologic Stability Assessment for the Proposed Eagle Mine (*DRAFT*)
Ref: ICG06-2420-49DTM

Itasca Consulting Group, Inc. (Itasca) has conducted a technical review of the Eagle Mine crown pillar stability analysis (Golder, 2005; Golder 2006a; Golder 2006b; Golder 2006c; Golder 2006d) that has been submitted to the Michigan Department of Environmental Quality (MDEQ) by Kennecott Eagle Minerals Company as part of a mining permit application.

Due to the difficulties associated with determining the mechanical properties of a rock mass from limited drill-core information, as well as the limitations of the rock mechanics analyses conducted thus far, an accurate assessment of the crown pillar subsidence and hydrologic stability cannot be made without further detailed field investigation and analysis.

The proposed mine plan allows for mine development to begin while further field investigation and analysis are conducted prior to mining above an elevation of 327.5 m (Phase 3 Mining Limit). This approach will allow for greater understanding of the actual rock mass response to mining prior to development of the actual crown pillar.

It is recommended that the initial mine permit be limited to development below the Phase 3 Mining Limit. This will result in a substantial 87.5 m thick crown pillar. Mining should not be permitted above the Phase 3 Mining Limit until further detailed field investigation and industry best practice analysis are conducted to determine the expected crown pillar subsidence and hydrologic stability.

Sincerely,

A handwritten signature in black ink that reads "David Sainsbury". The signature is written in a cursive, slightly slanted style.

David Sainsbury, Ph.D.
Itasca Consulting Group, Inc.

REFERENCES

Golder Associates Ltd. (2005) *Eagle Project Geotechnical Study*, Appendix C-2, Report to Kennecott Exploration Company, 04-1193-020.

Golder Associates Ltd. (2006a) *Eagle Project Additional Geotechnical Scope*, Appendix C-3, Report to Kennecott Minerals Company, 05-1193-011.

Golder Associates Ltd. (2006b) *Bedrock Hydrogeological Modeling to Assess Inflow to Proposed Eagle Project*, Appendix B-4, Report to Kennecott Eagle Minerals Company, 05-3236-2c.

Golder Associates Ltd. (2006c) *Eagle Crown Pillar Discussion*, Technical Memorandum, 05-1193-011.

Golder Associates Ltd. (2006d) *KMC Eagle Clarification Discussion*, Technical Memorandum, 05-1193-011.