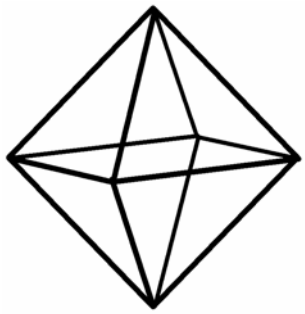
Plan



Kennecott
Eagle Minerals

Eagle Project

Mine Groundwater Assessment Plan

Project No.: 04W018

Kennecott Eagle Minerals Company
Marquette, Michigan

December 2007

Eagle Project

Mine Groundwater Assessment Plan

Project ID: 04W018

Prepared for
Kennecott Eagle Minerals Company
ISO 14001:2004 Registered System

Prepared by
Foth Infrastructure & Environment, LLC

December 2007

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Eagle Project
Mine Groundwater Assessment Plan

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1 Introduction

1.1 Background Information

Kennecott Eagle Minerals Company (KEMC) is planning to develop an underground nickel and copper mine (Eagle Mine) in Michigamme Township, Marquette County, Michigan. The ore deposit is a high-grade magmatic sulfide deposit containing nickel and copper.

Mining of the ore deposit will be conducted underground using blasthole stoping methods. Over the seven year life of the mine, approximately 3,400,000 tonnes of ore will be extracted. The extracted ore will be hauled to the surface, crushed and transported to a mill for processing.

1.2 Purpose

The purpose of this plan is to assess groundwater inflow and to outline procedures for implementing corrective action if groundwater inflow exceeds permitted levels. This plan will allow KEMC to respond to those circumstances when groundwater inflow levels exceed permit standards, assess the inflow deviation and implement corrective action.

2 Groundwater Infiltration Monitoring

Groundwater infiltration monitoring will commence when the portal development extends below the alluvial groundwater surface, approximately elevation 1,420 ft MSL.

At this point, water will be collected in underground sumps and pumped to the contact water basins. This will continue throughout mining operations. Groundwater infiltration flows will be measured based upon the amount of water pumped to the surface via flow meters. Flow meters enable direct reading of flow through the pipeline to the discharge point. Daily flows will be recorded and documented on a log provided in Appendix A.

2.1 Assessment Monitoring

If it has been determined that groundwater infiltration exceeds 300 gpm for 30 consecutive days. KEMC will notify the department and implement assessment monitoring. Assessment monitoring will include:

- Identify the quantity of infiltration exceeding 300 gpm,
- Identify the source and location of increased infiltration,

Assessment monitoring will identify the source of the additional water. Results of the assessment monitoring will be provided to the department within 20 days after completion of the assessment monitoring. If it has been determined through assessment monitoring that the additional water is groundwater seepage (as opposed to storage), KEMC will implement the corrective action as identified in Section 3.

3 Corrective Action

Within 30 days after review and acceptance of the assessment plan, corrective action will be implemented to reduce groundwater infiltration to 300 gpm or less, if it has been determined that the water source is groundwater seepage.

3.1 Grouting Plan

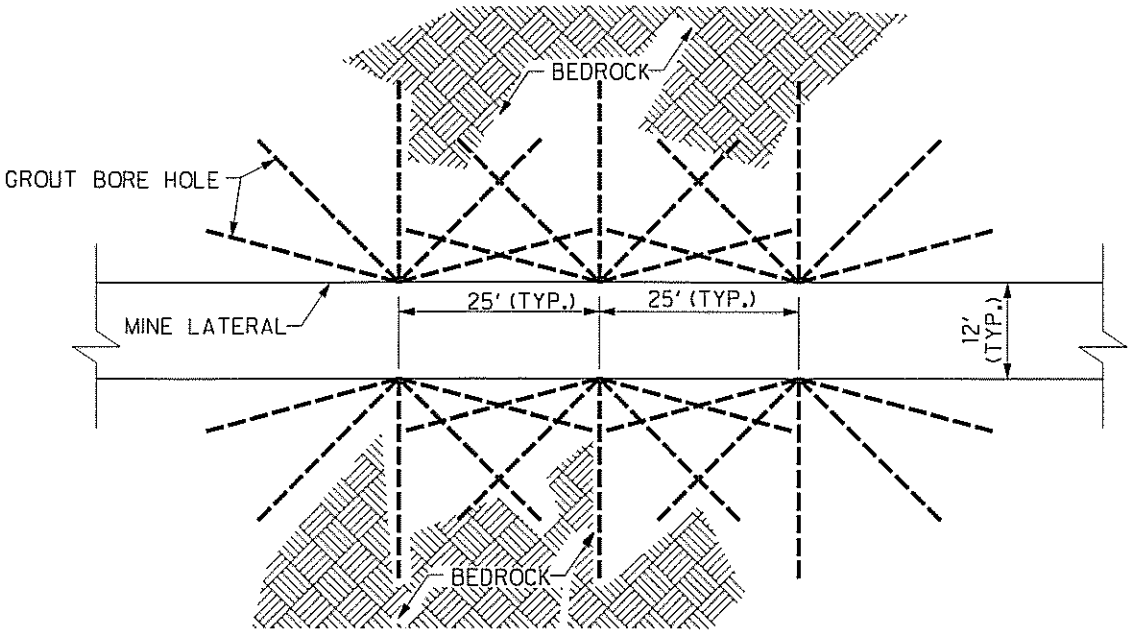
KEMC will implement a grouting program to restrict groundwater seepage into mine openings. Based upon the assessment monitoring, the grouting plan will only be implemented in those areas identified as causing excessive groundwater infiltration.

KEMC will employ a drilling and grout program to restrict groundwater flow. Grouts used for such applications are commonly cement-based grouts. However, additives could be used such as a bentonite that can further enhance grouting performance. Specific grouting mix will be determined based upon flow reduction requirements, characterization of the permeating structure, orientation of the cut-off structure and chemical characteristics of the grout. Grouting pressures would be established based upon project needs. However, commonly 1 pound per square inch (psi) per foot below the bedrock surface is a general practice.

The grouting plan will include:

- Cover grouting conducted in a “fan” layout as shown on Figure 1.
- Primary grouting in designated areas will be spaced 20 feet apart.
- Secondary and tertiary grouting would be conducted if further inflow reduction is needed. Secondary and tertiary grouting would be spaced 10 and 5 feet respectively.
- Construct a drainage/monitoring gallery in the grouted area to assess effectiveness of the grouting plan.

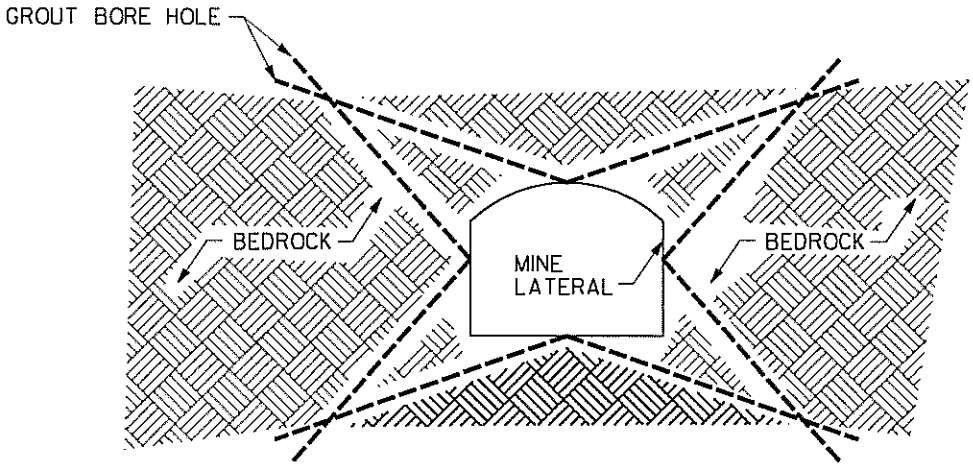
Figure



HORIZONTAL SECTION
NOT TO SCALE

NOTES:

1. LOCATION, NUMBER AND LENGTH OF GROUT HOLES WILL BE BASED UPON DETAILED GROUNDWATER ASSESSMENT.
2. CROWN PILLAR GROUTING IF REQUIRED WILL EMPLOY SIMILAR GROUTING PROFILE.



VERTICAL SECTION
NOT TO SCALE

Foth Infrastructure & Environment, LLC			
REVISED	DATE	BY	DESCRIPTION

CHECKED BY:	JOSI	DATE: DEC. '07	
APPROVED BY:	SVDI	DATE: DEC. '07	
APPROVED BY:		DATE:	

Kennecott
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FIGURE 1
TYPICAL GROUTING FAN
GROUNDWATER ASSESSMENT PLAN

Scale:	AS SHOWN	Date:	DECEMBER, 2007
Prepared By:	JOW	Project No.	04W018

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Appendix A

Flow Rate Assessment Log

Flow Rate Assessment Log
Kennecott Eagle Minerals Company

Date	Measured Flow [1]	Time	Time Duration [2]	Flow Rate (gallons/minute)

(1) Recorded from Flow Totalizer

(2) Difference in time between recorded events