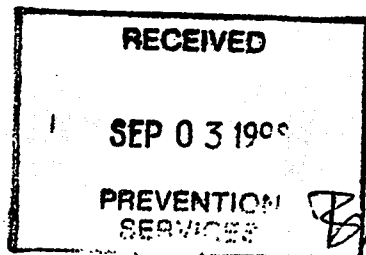


Water Resources Division
Box 1500
Yellowknife NT X1A 2R3

August 31, 1998

Sylvester Wong
Chief Inspector of Mines
WCB-Prevention Services
Box 8888, Yellowknife NT
X1A 2R3



Your file Votre référence

Our file Notre référence
N1L2-0043

Dear Mr. Wong:

Royal Oak Mines Inc. - Giant Mine
Construction of #15 Arsenic Trioxide Storage Chamber

The Water Resources Division has reviewed the above mentioned document. The comments contained here address only the water-related aspects of the Number 15 Arsenic Trioxide Storage Chamber.

General comments:

We would like to point out that the recent renewed Water Licence for Royal Oak Mines(ROM) Giant operation contains specific conditions for the ultimate removal and disposal of arsenic trioxide dust from underground storage. The condition of the Water Licence states that the company must submit to the NWT Water Board by October 1, 1999, an Arsenic Trioxide Management Project Description for the permanent management and disposal of this material. It is our view that underground storage is not an acceptable option for the permanent management and disposal of arsenic trioxide dust. Therefore, we feel that Chamber Number 15 should be considered the final vault developed for this purpose.

Specific comments and questions:

ROM states that there are no exploratory drill holes in the vicinity of the chamber; however, Golder Associates Ltd.'s assessment states that five diamond drill holes were drilled into the walls of the proposed chamber.

1. Were any water flows observed from these drill holes and are there any estimates for these flows? ?

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2. Will these holes be grouted? ?
3. What are the estimates of all groundwater flow into Chamber Number 15 before and after grouting? ?

5.0 Grouting:

Regarding to the grouting material to be used:

1. What is the lifespan of this grouting material? ?
2. What is the durability of the grouting material? Specifically, what are the effects of blasting on the competency of grouting and resistance to the surrounding environment (ie; pH, temp, corrosion). ?

ROM states that the proposed grouting will be effective during operation of mine. How effective will the grouting be in a post-closure scenario such as flooding of the workings? ?

7.0 Bulkhead Design:

The design of the bulkheads should incorporate the ability to inspect the lower sill, especially the lower bulkhead.

8.0 Contingency Planning:

The chamber is to be pressure tested to 25 psi. Is this an adequate pressure to be certain of the containment ability of the chamber, and how is this number derived? ?

An inspection or assessment of the chamber for seepage should be conducted prior to commissioning. 4/25/11

If you have any questions please contact Sevn Bohnet at (867) 669-2696 or Neill Thompson at (867) 669-2653 of the Water Resources Division.

Yours sincerely,



David Milburn
Manager, Water Resources