

NORTHWEST
TERRITORIES
WATER BOARDALBERTA
ENVIRONMENTAL
SOLUTIONS

WATER REGISTER NO. N1L2-0043

May 2, 1995

Mr. Larry Connell
Manager Environmental Services
Royal Oak Mines Inc.
5501 Lakeview Drive
KIRKLAND, WASH. 98033
U.S.A.

Dear Mr. Connell:

RE: STORAGE OF ARSENIC TRIOXIDE UNDERGROUND - ANNUAL REPORT

The Northwest Territories Water Board has completed its review of the aforementioned report dated January 25, 1995 and is concerned that Royal Oak has not completely fulfilled their obligation in regards to the approved Terms of Reference for this study.

There are numerous deficiencies which were to have been initiated or completed in the 1994 season. Specific deficiencies are as follows:

A) ASSESSMENTS OF PHYSICAL STABILITY OF THE STORAGE CHAMBERS

Engineering assessments were not included for rock competency or bulkhead competency. Historical data assembled to date was not summarized; the report should have indicated what information exists for the storage chambers, and assessed data gaps as well as identified and initiated actions to be taken to address information deficiencies.

This section did not identify which chambers are currently not accessible, their location, and the company's proposed means to collect information.

B) ANALYSIS OF THE TECHNICAL OPTIONS FOR PERMANENT ABANDONMENT

This section should have described in detail the various options for abandonment, identified information required for an engineering feasibility study, and initiated collection of data. Overall, the work on this section appears to have been delayed or omitted altogether.

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- 2 -

C) ANALYSIS OF THE PERMAFROST REGIME IN THE AREAS OF THE STORAGE CHAMBERS

The report states that only six thermistors were installed to monitor the 14 chambers. A more defined monitoring program should be established to provide data for the remainder of the chambers.

D) ANALYSIS OF THE HYDROGEOLOGY IN THE AREA OF THE ARSENIC STORAGE CHAMBERS

It appears that the data collection program was not designed, collected, analyzed, nor implemented.

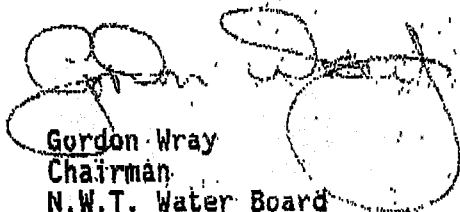
E) UNDERGROUND ARSENIC STORAGE - RISK ASSESSMENT

The work scheduled for the 1994 season under this section has been delayed or neglected altogether.

The Board considers this entire study very important in determining the final abandonment of this hazardous material. It appears that Royal Oak has considered this study low key and has not allocated the required personnel and effort to undertake it. The Board strongly suggests that your company seek a professional consulting firm with appropriate expertise to undertake the remainder of this study by following the approved Terms of Reference and time schedules.

If you require further assistance, please do not hesitate to contact this office. If your inquiry is of a technical nature, please feel free to contact Mr. Erik Madsen at (403) 920-8141 or Mr. John Witteman at (403) 920-8240 of the Water Resources Division.

Sincerely,



Gordon Wray
Chairman
N.W.T. Water Board