

*minor changes made  
before sending, by fax, Aug 18/97.*

Water Register: N11.2-0043

August 18, 1997

Mr. Gordon Wray, Chairman  
Northwest Territories Water Board  
P.O. Box 1500,  
9<sup>th</sup> Floor Precambrian Building  
Yellowknife, N.W.T., X1A 2R3  
Canada

FAX # (403) 669-2719

Dear Mr. Wray:

**Re: Appendix V of the 1996 Annual Report - 1996 Progress Report on the Underground Storage of Arsenic Bearing Minerals Study**

The following information regarding the study of closure options for the arsenic trioxide bearing baghouse dust stored underground at the Giant mine is provided in response to your letter of July 17th, 1997. In mid 1996 Royal Oak Mines made a decision to depart from the agreed upon terms of reference for this study.

This decision was made based on the following factors:

- The expert consultants retained by Royal Oak to carry out the component studies had no past analogous experience in dealing with similar situations. It appeared that an extensive program of data collection was about to be embarked upon with no clear indication that a technically viable closure option would emerge at the end of the study,
- The study was becoming focused on expensive data collection with little attention being paid to the primary objective of the study which was to develop a viable closure plan. Further collection of data on permafrost conditions would not change the finding that the permafrost had retreated from the area of the mine in which the arsenic was stored. Collection of data on the hydrogeology of the area surrounding the arsenic storage vaults would not change the fact that this stored arsenic trioxide must be kept isolated from groundwater as it has been over the past 50 years,

- It was becoming clearly evident that no matter how technically viable any of the closure options being studied that proposed leaving the arsenic trioxide bearing baghouse dust in place underground were found to be, it would not receive wide spread acceptance from government or public sources without some degree of perpetual maintenance and environmental monitoring. In this case the risk associated with any new technology would likely be considered to great to receive acceptance. Perpetual care appeared to be the likely outcome.

In 1997 Royal Oak informed the Board that it had switched the focus of its investigations in relation to the closure of these arsenic storage vaults. Little detail was provided to protect the long term potential success of the alternatives being investigated.

Royal Oak has subsequently re-directed its resources away from the original terms of reference for this study to investigate the technical and economic viability of recovering the arsenic trioxide bearing baghouse dust from the underground storage vaults, bringing it to surface where it would be upgraded or processed into a marketable product. This work is continuing and is focused on three primary areas of investigation:

1. Development of mining techniques to safely and effectively recover the arsenic trioxide bearing baghouse dust from the underground storage vaults and to transport it into surface storage facilities,
2. Development of process technology to upgrade the arsenic trioxide bearing baghouse dust into a refined arsenic trioxide product suitable for sale into the world marketplace. Royal Oak has initiated investigation of three process flowsheets for upgrading the arsenic trioxide bearing baghouse dust into a refined arsenic trioxide suitable for use as a feed source in the manufacture of copper chromated arsenite (CCA), the primary wood preservative in use in North America today,
3. Analysis of the current status and outlook for world supply and markets for an upgraded arsenic trioxide product an for CCA.

These areas of investigation are being directed by Royal Oak personnel with the assistance of Kilborn - SNC Lavalin, Lakefield Research and Hazen Research.

It is Royal Oak's intent to develop the technology to safely recover arsenic trioxide bearing baghouse dust from the underground storage vaults located at the Giant Mine, to construct and operate a plant in Yellowknife to upgrade this crude arsenic trioxide into a product suitable for use in the ongoing manufacture of CCA and to ship this product from Yellowknife to such a manufacturer. The Company recognizes that it will take several years to develop the appropriate technology, obtain the necessary environmental and regulatory approvals and to construct and commission the required facilities.

Royal Oak believes that the removal of the arsenic from underground storage and conversion into a useable product offers the best long term solution to the risk associated with the long term

storage of arsenic trioxide at the Giant Mine. The economic and technical viability have not yet been demonstrated but offer promise.

As indicated in our application information for the renewal of the current water use license for the Giant Mine, Royal Oak proposes to provide the Northwest Territories Water Board by May 01<sup>st</sup>, 2000 with a detailed proposal suitable for environmental assessment, including a schedule for implementation, for the permanent removal or securing of the arsenic trioxide stored underground at the Giant Mine. Royal Oak Mines will co-operate with the Board to refine the proposal so that the long term objective of preventing the untreated release of this arsenic to the environment is achieved.

We trust this answers the questions raised in your letter of July 17<sup>th</sup>.

Sincerely,  
Royal Oak Mines Inc.

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