

Memo to: S El-Alfy

From: D Anthony

Date: October 20, 1995

cc: Larry Connell, John Stard

Re: Giant Mine Roaster Stack - Air Quality Remediation

Air quality in Yellowknife has been a topic of concern for several years (decades). Emissions of arsenic and SO₂ from the Giant Mine roaster stack are known to be the primary toxic pollutants in the Yellowknife area. In April 1991, two local individuals (Chris O'Brien and Kevin O'Reilly) filed a complaint with the GNWT, citing the Environmental Bill of Rights. In early July 1994, the GNWT issued a guideline for maximum desirable levels of sulphur dioxide and Total Suspended Particulates (attached).

Larry Connell and I met with Mr Emery Paquin - Director and Jim Sparling - Air Quality Specialist of the GNWT Environmental Protection Division on July 14, 1994 to review the guideline and develop a course of action to meet the ambient air quality standards. A copy of the meeting minutes are attached.

Terms of Reference for an air dispersion modelling study were developed in August 1994 (attached) and the study was awarded to Dillon Engineers in October, 1994. The study was published in May. This report is referenced as project G-9 in the monthly environmental reports. Larry Connell has a copy of the study in Kirkland, if you need to read it.

The GNWT held a meeting with interest groups at the Legislature, November 23, 1994 to review the Giant Mine roaster stack emissions and actions taken by the GNWT, to reduce pollutant levels in Yellowknife. A copy of the meeting minutes are attached.

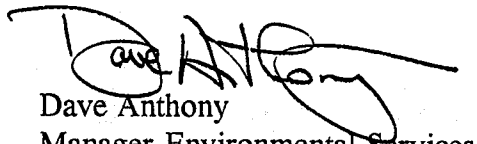
Royal Oak agreed to investigate the cost of modifications to the existing roaster exhaust system, to increase dispersion of arsenic and SO₂. Dillon Engineers was contracted to complete the evaluation in July. An assessment has recently been sent to your office, the GNWT and Environment Canada, in this regard.

We have also agreed to investigate the cost of installing continuous emission monitoring equipment, which would measure SO₂ discharged on a daily basis. Jim Sparling has been advised informally that this equipment would cost \$70 000 to install. Further, our review of available equipment has shown that there are no monitors available for measurement of arsenic, on a continuous basis.

Air emission legislation is being developed for SO₂ (GNWT) and arsenic (Environment Canada). Drafts of these Regulations will be issued during the 1st quarter, 1996. We believe that the arsenic regulation will not require any change to current installed equipment, however there may be a reporting requirement, relative to emissions and maintenance activities. The SO₂ regulation will probably limit maximum ground level SO₂ concentrations in Yellowknife. Meeting this regulation may require extension or replacement of the existing stack. Installation of continuous emission monitoring equipment may also be required. The work would probably have to be completed in 1997.

Sampling of roaster stack emissions is normally completed every year. This year, the work was completed by a consultant in early September. Prior to 1996, the work had been completed by Paul O'Hara, however his departure in January 1995 means we have lost this expertise. Rob Hutchison was trained to do this work in 1996, however I am told he will also be leaving Royal Oak Mines. In any event, the equipment which we own is considered obsolete and incapable of completing the stack sampling, to produce reliable results.

In order to ensure we can meet any new Regulations, it would be advisable to conduct further sampling during 1995/96 on a more frequent basis. In this manner, we will not be surprised with any new information in this regard.



Dave Anthony
Manager-Environmental Services
NWT Division