

John Stord

\*\*\*\* Confidential\*\*\*\*

December 28, 1995

**COMMENTS - SEACOR ARSENIC REPORT**

- page 1 - 8th line "suicidal" is misspelled;
- page 11 - under Soil: 5th line - Should this read 8 mg/kg and not g/kg?;
- Page 12 - There is no data from Great Slave Lake in this table would be nice to have. Possibly current arsenic levels from Back Bay, Yellowknife Bay, and some place as a control area in the East Arm possibly. Know that historical data is quite high in Back Bay;
- Page 20 - refer to 4 Canadian Gold milling operations produced 1750 tonnes to atmosphere. It would be good to include which mines these are after such a statement;
- Page 24 and 25 these pages are out of order and there are two pages for each number;
- Since there is no seawater in the Yellowknife area is it important to discuss seawater effects throughout the report. Feel it should be based more on the conditions that occur in the Yellowknife area? Just a thought;
- Page 51 - This graph appears to be the same for both scenarios is this right?;
- Page 54 - 5.C.4 - 4th line take out the "d";
- Page 62 - 1st paragraph - it does not mention if this study took into account whether or not the workers did smoke, which could have increased their chances of respiratory cancer;
- Page 64 - last paragraph 5th line should be a space between than and the;
- page 82 - 6th line, should be "can" instead of an;
- Section 6 - this section goes back and forth. On page 78 it states that "inorganic arsenic is an established carcinogen (CEPA 1993) - known to cause skin and respiratory cancer". Then on page 84 it states, "even at very low daily doses arsenic is a cumulative poison". While on page 86 it states that "the question on whether arsenic is a direct carcinogen in humans has yet to be answered".

It is suggested that this section flow a little better. Some one reading it would be completely confused on whether or not arsenic is or is not a carcinogen;

- Page 88 - Last sentence regarding leukemia. We will have to consider whether or not this statement should be left in the report even though it may be true. Should further documentation be added to explain this statement. As the statement stands by itself it appears to look quite negative for Yellowknife and the Giant Mine;
- Page 92 - Sulphur Dioxide Section. This scenario is exactly what we have at Giant and would make readers very uneasy about the situation here at Giant. Do we keep in or change the wording?;
- Page 110 - It is recommended that the requirements for the NWT be discussed first and then all the other jurisdictions, as this report is basically tailored for the Giant operation;
- Page 111 - The table provided. Certain values do not have the appropriate measurements following them (ie 50 should be ug/L).
- Page 113 - Northwest Territories Section - From line 4 Starting at "Legislation .... to line 9 ..... 873-7654". This section should be moved to the next page relating to atmosphere. The section does not have anything to do with waters or terrestrial.
- There is no appendices attached after the following Appendix 4,5,6,7, &8 - should there be?

### **IN SUMMARY:**

In summary this is a very thorough report on arsenic covering a considerable amount of data especially relating to the toxicity of arsenic. I am unsure of what the contract required the consultant to do.

However, it would have been good if the document concentrated more on the exact setting parameters, climate, waters, etc. that is associated with the Giant Mine and the Yellowknife area in general. It would have been ideal to have information of what forms the arsenic surrounding the property were most likely in. What arsenic leachate results one would get from the rain and snow and the effects it would have to the water bodies. It is understood that pH, temperature and other factors will effect the form of arsenic.

But a summary statement indicating something like, "Over the last 40 years .... the majority of the arsenic surrounding the giant property is most likely in this form of arsenic \_\_\_\_\_. What the potential effects to the environment would be from that particular form of arsenic.

The reason such statements were not included was most likely due to the fact Seacor was unaware of the data for soil, arsenic emissions etc. in the Yellowknife area. Possibly, this could be collaborated in a second report Seacor could do. After they have reviewed all the data from emission and surface contamination studies conducted over the past two - three years. This report could be prepared and included in the final report which is due for the arsenic vault study in 1997.

Another point to be aware of is that once and if this report is included in any submission to the Water Board, it becomes a public document and anyone can obtain a copy of it. This is the primary reason why the report should be reviewed and commented on by Royal Oak personnel.

A handwritten signature in dark ink, appearing to read 'Erik Madsen', written in a cursive style.

Erik Madsen  
Superintendent Environmental Services