

R. M. Leach

GIANT YELLOWKNIFE MINES LIMITED
YELLOWKNIFE, N. W. T.
CANADA

July 3, 1967

J. H. Grainger,
Regional Engineer,
Dept. of National Health & Welfare,
Public Health Engineering Division,
541 Federal Public Building,
Edmonton, Alberta.

Dear Jack:

Enclosed please find a study we have just completed on the discharge of soluble arsenic into the Yellowknife Bay watershed.

It is very difficult to compare this study with last year's study because of the great difference in the Baker Creek flows. However, there is one comparison that can be made. That is the total plant output of soluble arsenic.

In July 1966 the output was:

Mill waste to tailings pond (July 18 - 25)	=	306 lb/day
Conc. wash thickener overflow (0.23 ft. ³ /sec. x 7.10 ppm x 5.39 x 10 ⁶)	=	8.8 lb/day
Mine discharge water (0.56 ft. ³ /sec. x 3.05 ppm x 5.39 x 10 ⁶)	=	<u>9.2 lb/day</u>
TOTAL	=	324.0 lb/day

In June 1967 the output was:

Mill waste to tailings pond (June 1 - 15th)	164 lb/day
Conc. wash thickener overflow (June 15th)	1.1 lb/day
Mine discharge water (June 15th)	<u>19.2 lb/day</u>
	204.3 lb/day

From the above data it may be concluded that the soluble arsenic output has been reduced to about 63% of the output last year at approximately the same time.

It was not possible to obtain a very good arsenic balance for the Baker Creek flow. Possible reasons for this are:

1. Variations in As content of mine drainage water due to backfilling being done on an intermittent basis.
2. Difficulty in measuring flow of Baker Creek upstream from Bow Lake.
3. The number of observations were minimal and both flows and assays might not be representative of average conditions.

It is hard to conceive that the As content of the Yellowknife River would be as high as 0.011 ppm and we have no past data for comparison. We will take further samples from time to time at the bridge to see if the As level drops. We have no means however of determining the flow in the river.

It would appear that we have made good progress in reducing our total output of soluble arsenic. We believe we can improve the situation even more by treating the Hot Cottrell Dust residue. Plans are underway to start this in the near future.

In closing, the Giant tap waters for June averaged 0.161 ppm, with a high of 0.323 ppm on June 8th (only one day above 0.3) and a low of 0.073 ppm on June 30th.

Copies of this report and letter are being sent to S. Homulus in order to keep his Department informed of our progress.

Yours very truly,

GIANT YELLOWKNIFE MINES LIMITED



W. A. Case
Mine Manager

WAC/nh

c.c.S. Homulus
H.L. Brown
RJMCL