

Giant  
Yellowknife Mines Limited

R A P I F A X

FAX TO: T. G. Robson,  
William Blythe Co.

CC: (K. Blower

FROM: K. G. Thomas

DATE: August 29, 1986

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Attached are:

1. Arsenic residue testwork by Lakefield.
  - 1.1 Results are comparable to our Cottrell dust treatment by C.I.P.
  - 1.2 Second and third samples are to be tested shortly.
2. Gold on baghouse dust.
  - 2.1 Analytical procedure by W. Richardson, Chief Assayer.
  - 2.2 Sample of standard being sent under separate cover.

We are attempting mass balances and cross check of gold deportment. What is the estimated weight of residue per ton of feed from first shipment? I have a recovery of 99.5%  $\text{As}_2\text{O}_3$ .

Regards,

*K. Stephenson*  
for Ken Thomas

KB:kis

Attachments

**Giant**  
YELLOWKNIFE MINES LIMITED

YELLOWKNIFE, N.W.T.  
X1A 2M2

TELEPHONE 403-873-6301  
TELEX:  
PURCHASING 034-45503  
OTHER DEPT. 034-45514

URGENT! ☐ AS SOON AS POSSIBLE ☐

08842

FROM W.L. Richardson <sup>2/5</sup>

DEPT. Assay

COPY TO K.G. Thomas;file

SEND TO

DATE

August 28-86

SUBJECT Gold on Baghouse Dust

MESSAGE

Weigh up a 5.0 gram sample of dust

~~xxx~~ Treat with 15mls of ~~Mx~~ HCl containing Stannous Chloride(90 grm./2 liters)

Boil on hot plate for 3-4 minutes: remove and cool slightly: add 10mls HNO<sub>3</sub>(conc.)

return to hot plate for another 3-4 minutes: remove: rinse off watch glass and

filter contents into 125ml flask: dilute to 100mls with water: add 15mls M.I.B.K.

stopper flask with plastic stopper and shake for 5 minutes. Let layers separate and read via A.A.S.

As standard we use Calcine Residue(approx .15 oz./ton) treating in same manner.

Sample enclosed: MUST BE FIRE ASSAYED TO DETERMINE EXACT VALUE

REPLY

*W.L. Richardson*

4500E - 1

← SPEEDIMEMO →

MOORE SPEEDIPLY — 1 — MOORE CLEAN PRINT PATENTED 1963-1966

REPLY  
FROM

DATE



# LAKEFIELD RESEARCH

A DIVISION OF FALCONBRIDGE LIMITED

PHONE (705) 652-3341  
TELEX NO. 06962842

3/5

August 14, 1986

Mr. K. Thomas, Mill Superintendent  
Giant Yellowknife Mines Ltd.  
Post Office Bag 3000  
Yellowknife, NWT  
X1A 2M2

Dear Ken:

## Arsenic Trioxide Residue Testwork

We have completed the testwork on the arsenic trioxide digested in ammonia liquor requested in your letter of July 2, 1986. The results have been summarized in the attached enclosure.

If you have any questions, do not hesitate to contact us.

Yours sincerely,

LAKEFIELD RESEARCH

I. Jackman

Project Engineer

IJ:SLK

Enc.

4/5

# An Investigation of the Recovery of Gold and Silver

## From a Sample of Arsenic Trioxide Residue

### Summary of Results

#### 1. Head Analyses

A representative sample of the arsenic trioxide residue was removed for analysis.

Gold:	20.8 g/t Au
Silver:	23.7 g/t Ag
Iron:	13.7 % Fe
Arsenic:	15.6 % As

X-ray diffraction showed the majority of the arsenic to be present as  $\text{As}_2\text{O}_3$ . Some arsenic was detected as  $\text{FeAsO}_4$  and no  $\text{As}_2\text{O}_5$  was found.

*$\text{As}_2\text{O}_5$  is more soluble by factor  $> 5$ .*

#### 2. Carbon-In-Leach Test

A carbon-in-leach test was conducted on a 45 g sample of arsenic trioxide residue. The leach parameters are given below:

Conditioning:	1 hour
	0.5 g/L NaOH
	2.5 g/L $\text{Na}_2\text{CO}_3$
	0.4 g/L Amine Acetate
	30 % solids
Cyanidation:	48 hours
	6 g/L NaCN (not maintained) - ?
	pH 10 maintained with NaOH
	30 % solids - ?
	10 g/L GRC 22 carbon

Summary of Results - Continued

2. Carbon-In-Leach Test - Cont'd

The results have been summarized as follows:

	Au	Ag	
% Recovery on carbon	88.8	58.4	✓
% Extraction	96.0	77.5	✓
% Adsorption	92.5	75.4	✓
Residue, g/t	0.80	5.8	✓
Head(Calc.), g/t	20.6	25.8	✓

Reagent Consumption: 4118 kg/t NaCN  
33.3 kg/t NaOH

*J. O. R.*

Comparison of Consumption

CAL      Cathode Unit/month.    100 t  
            Trans/month                28000 t.

$$\frac{4.18 \times 300}{28000} = 0.045 \text{ kg/t}$$

$$= 0.089 \text{ lb/t}$$

CIP                      = 0.2 lb/t.

Na OH

$$\frac{33.3 \times 300}{28000} \times 2.205 = 0.79 \text{ lbs/t}$$

CIP                      0.021 lbs/t.