



# LAKEFIELD RESEARCH

A DIVISION OF FALCONBRIDGE LIMITED

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November 11, 1986

Mr. K. Thomas  
Giant Yellowknife Mines Ltd.  
P.O. Bag 3000  
Yellowknife, NWT  
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Dear Ken:

Arsenic Trioxide Residue Testwork

The two arsenic trioxide samples weighing approximately 160 g each, labelled 1-lime treated and 2-ferric and lime treated were received at Lakefield on September 25, 1986. The carbon-in-leach tests on these samples have been completed in accordance with your letter of September 2, 1986. A summary of the results has been enclosed. If you have any questions, do not hesitate to contact us.

Yours sincerely,

LAKEFIELD RESEARCH

*Rene Jackman* /sk

I. Jackman

Project Engineer

IJ:SLK

Enc.

An Investigation of the Recovery of Gold and Silver  
from Arsenic Trioxide Residue Samples

SUMMARY OF RESULTS

1. Head Analyses

A representative fraction of the two arsenic trioxide samples was analysed for the elements shown below:

<u>Element</u>	<u>1-Lime Treated</u>	<u>2-Ferric and Lime Treated</u>
Gold, g/t Au	14.7	14.0
Silver, g/t Ag	32.9	33.2
Iron, % Fe	8.46	11.9
Arsenic, % As	26.0	16.0
Soluble Arsenic, % As(Sol)	6.39	2.42

*Send in Arsenic  
Leach residue for  
analysis of As, Fe*

2. Carbon-in-Leach Testwork

A carbon-in-leach test was conducted on each sample following the parameters outlined below. The cyanide concentration was maintained during the leach.

Conditioning: 1 hour  
0.5 g/L NaOH  
2.5 g/L Na<sub>2</sub>CO<sub>3</sub>  
0.4 g/L amine acetate  
33 % solids

Cyanidation: 48 hours  
6 g/L NaCN  
pH 10 maintained with NaOH  
33 % solids  
10 g/L preattritioned GRC 22 carbon

Summary of Results - Continued

2. Carbon-in-Leach Testwork - Cont'd

Results:

	1-Lime Treated		2-Ferric and Lime Treated	
	Au	Ag	Au	Ag
% Recovery on Carbon	92.4	73.6	84.1	67.3
% Extraction	94.0	84.7	85.5	74.8
% Adsorption	98.3	86.9	98.4	90.0
Residue, g/t	0.99	5.5	2.18	8.6
Head Calc., g/t	16.3	35.8	15.0	34.1
Reag.Cons.kg/t, NaCN:	15.3		17.0	
NaOH:	2.19		0	

R.T. up to 7  
to h. 5  
22-12-86 } pH kept above 10; maintained CN<sup>-</sup> strength,  
hence higher NaCN consumption than first trial

R.T. and

Comparison of consumption: Grant C.I.P: NaCN is 7 kg/t.  
NaOH is 0.5 kg/t.  
Subtotal is 2.5 kg/t.