

Giant
Yellowknife Mines Limited

R A P I F A X

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

CC: K. Blower; G. Halverson

FROM: K. G. Thomas

DATE: February 4, 1987

SUBJECT: RESIDUE SAMPLES EX BLYTHE

Attached is arsenic trioxide testwork from Lakefield on sample four. Comments as follows:

1. X-ray diffraction indicated the arsenic was present mainly as As_2O_3 and As_2O_5 was not detected.
2. Owing to no fixing at Blythe, solubility was higher than tests 2 and 3 for arsenic, as expected.
3. Owing to the high solubility, effluent treatment costs would make the treatment of the residue for gold have unfavourable economics.

This completes all outstanding testwork at Giant.

Regards,

K. Stephenson
for Ken Thomas

KGT:kis

Attachments



LAKEFIELD RESEARCH

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January 30, 1987

Mr. K. Thomas
Giant Yellowknife Mines Limited
P.O. Bag 3000
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Dear Ken:

Arsenic Trioxide Residue Testwork

Please find enclosed a summary of the carbon-in-leach test conducted on the arsenic trioxide residue sample received at Lakefield Research on January 12, 1987. The procedure was similar to that applied in earlier testwork except that the cyanide concentration was not maintained.

Yours sincerely,

LAKEFIELD RESEARCH

I. Jackman

Project Engineer

IJ:SLK

Enc.

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

Summary of Results

1. Head Analysis

A representative portion was riffled out of the sample for analysis:

Gold:	16.3 g/t Au
Silver:	38.4 g/t Ag
Arsenic:	31.7 % As
Soluble Arsenic:	23.6 % As (water sol)
Iron:	9.63 % Fe

X-ray diffraction indicated that most of the arsenic was present as As_2O_3 . A minor amount was present as a ferroarsenate and As_2O_5 was not detected.

2. Carbon-in-Leach Test

A test was conducted to investigate the recovery of gold and silver following a carbon-in-leach procedure. The sample was first pulped with water at 33 % solids and placed on the rolls for one hour. It was filtered and the resulting filtrate analysed 12.3 g/L As. The washed residue was repulped and conditioned for one hour followed by a 48 hour carbon-in-leach. The conditions and results are summarized on the following page.

Summary of Results - Continued

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

Conditioning: 33 % solids
0.5 g/L NaOH
2.5 g/L Na₂CO₃
0.4 g/L amine acetate
11 hour

Carbon-in-Leach: 33 % solids
6 g/L NaCN (not maintained)
pH 10 maintained with NaOH
10 g/L preattritioned carbon
48 hours

Results:

	Au	Ag
% Recovery on carbon	74.3	67.5
% Extraction	96.7	85.9
% Adsorption	76.8	78.6
Residue, g/t	0.89	7.2
Head (Calc.), g/t	19.5	36.9
Reagent Consumption:	11.1 kg/t NaCN	
	8.3 kg/t NaOH (40.6 kg/t added)	