



LAKEFIELD RESEARCH
A DIVISION OF FALCONBRIDGE LIMITED

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Mr. K. Thomas
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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

Rene Jackman/SLK

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)	