

Giant
Yellowknife Mines Limited

R A P I F A X

TO: T.G. Robson
William Blythe & Co. Ltd.

CC: K. Blower; G. Halverson

FROM: K. G. Thomas

DATE: January 14, 1987

SUBJECT: RESIDUE SAMPLES EX BLYTHE

Attached is arsenic trioxide testwork from Lakefield on samples two and three. Sample four is presently being tested.

1. Fixing with ferric appears to lower recovery.
2. These tests were conducted maintaining NaCN strength; therefore gave increased consumption.
3. Arsenic solubility was higher than expected from theory. Gives unfavourable economics for treating at effluent treatment plant.
4. NaOH is lower owing to lime additions at Blythe.

Regards,

K. Stephenson
for Ken Thomas
Mill Superintendent

KGT:kis

Attachments (3)



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
X1A 2M2

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, Ag*

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 Na₂CO₃
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
6 h. 5
22-12-86

pH kept above 10; maintained CN⁻ 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.