

→ LARRY CONNELL ←

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## facsimile transmittal

To: P. Riveros Fax: (613) 996-9041

From: Mary Goldman Date: 01/12/98

Re: Arsenic Project Pages: 4

CC: Larry Connell

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

Dear Patricio,

I gave some thought to our discussion of today. I am a bit worried about our discrepancy of antimony assays. It is possible that ROM assays are biased but I think that you should examine very carefully all your experimental procedures. Antimony precipitates from solution quite easily and the fact that your tests with reagent grade material produced such low concentrations may be an indication that precipitation had occurred. The crystals may be so small that you cannot see them with the naked eye. Any drop in temperature may cause precipitation, especially if the solution is still in contact with the dust.

The experiments that I conducted with the dust followed the procedure below:

- The pregnant solution was filtered in a double walled filter. Hot water was circulated through the filter to heat it up prior to filtering and to keep it hot while filtering. The flask containing the filtered solution was kept in a water bath to maintain the temperature.
- The residue was washed with hot water.
- Samples taken for assay were immediately added to a volumetric flask containing dissolving acid.

My concern with the discrepancy between ROM and CANMET results is that you may end up conducting the ion exchange work at antimony levels considerably lower than those that will be achieved in practice. For this reason I feel that we should try to resolve this issue.

I am wondering if it would be possible for you to run a few tests:

- Assay your pregnant solution at two different temperatures: hot and room temperature. This would give us an indication of the impact of temperature on the antimony assay.
- Assay your pregnant solution by ICP and AA. This would give us an idea of the bias of the AA analysis due to interference.

My progress report #3 presents results for a round robin conducted at Giant, Lakefield, Maxxam and Taiga laboratories. Only solid samples were used. Giant's antimony assays were in the middle of the pack. Iron assays were generally higher.

I am attaching copies of two leach tests conducted on Giant's baghouse dust by Lakefield, on June 1997. On test W\_3, a Preg+Wash solution was produced containing 37.2 g/L As, 4.9 mg/L Fe and 75 mg/L Sb. This test was conducted at ~ 5% solids. Please note that a solution produced in a previous test (25.7 g/L As, <2 mg/L Fe and <1 mg/L Sb) was recycled and used as feed solution for test W\_3.

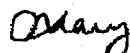
If you look at the Final Pregnant + Wash solution of test W\_1, you will notice that it assayed 30.6 g/L As, < 2 mg/L Fe and <5 mg/L Sb. This test was conducted at 15% solids (?).

My progress report #2 presents results of leaching tests conducted at different %solids. I conducted my tests at 30 min and 95°C. Lakefield conducted theirs at 120 min and 95°C. Our results at 5% solids (mine was actually 5.3% solids) are in good agreement. Lakefield's results were not very consistent. It is possible that all of the antimony and iron precipitated from solution in the test conducted at 15% solids.

I was not involved in this project at the time that Lakefield's testwork was conducted so I don't know how the assays were conducted. We can try to find out.

Please call me if you have any questions.

Regards,

  
Mary Goldman

LR Project No. 5123

Client: Highwood Resources

Test No. W\_3

Objective: To produce hot leach solution for Tests No's PP4 through PP8.

## Procedure:

- 0 MSDS: As, As<sub>2</sub>O<sub>3</sub> carry - over into the vapor phase!  
0A Work under ventilation, wear protective clothing, mask. Post sign(s).  
1 Determine % H<sub>2</sub>O of the feed.  
2 Make up 3.0 litres of pulp using 150 g feed and 2980 ml of Test W2 Stage 1 M.L.  
3 Bring the slurry in a 4 l Pyrex reaction kettle w/ water bath and reflux condenser.  
4 Heat up the slurry to 95 °C. Maintain vol. = ct during the tests using water.  
5 @ 120 minutes: stop/ filter hot/ hot displacement wash @ eq'l vol.  
6 Res.: dry, weigh, p.a.: TBA  
7 Measure vol\_sol'n HOT, p.a.As (Dilute 1:10). Mark & store bulk sol'n for future testwork  
8 Sol'n: cool down o/night. Comment on crystals. if any, no wash.

Product	Wt./Vol.	Analysis, mg/L, %			Observations
	g, ml	As	Fe	Sb	
Feed	150	71.1	0.79	1.55	Dry feed in
W2 Stage 1 M.L.	2980	25700	2	7	
Preg+Wash	3050	37200	4.9	75	
Final Residue	93.3	nd	nd	nd	
Crystals	n/a				

***Bold-italic data indicates values below detection limits.***

LR Project No. 5123  
Client: Highwood Resources

Date: June 2, 1997  
Operator: M.A.

Test No. W\_1

Objectives: determine solubility of As, Fe, Sb in water; produce kinetic leach data.

Conditions: 95 °C, 15 % solids, 120 minutes, kin. sampling as detailed.

**Metallurgical balance**

Product	Wt./Vol. g. ml	Analysis. mg/l, %			Distribution. %		
		As	Fe	Sb	As	Fe	Sb
Final P & W	3020	30600	2	5	28.18	0.15	0.21
Final Residue	312.4	75.40	1.26	2.33	71.82	99.85	99.79
Crystals	42				0.00	0.00	0.00
Feed	485	71.10	0.79	1.55			
Calculated Head	485	67.62	0.81	1.50	100.00	100.00	100.00
Initial sol'n IN	2750	0	0	0	0	0	0

*Bold-italic data indicates values below detection limits.*

Dry wt of the crystals: 39.3 grams, implying that the cc. of the ML became 20749