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FAX COVER PAGE

DATE: February 13, 1989TIME: 8:50 a.m.OUR REF. NO: GT4290ATTENTION: Ken BlowerFROM: Kent MortonNO. OF PAGES TO FOLLOW: 3 (Excluding This Cover Page)

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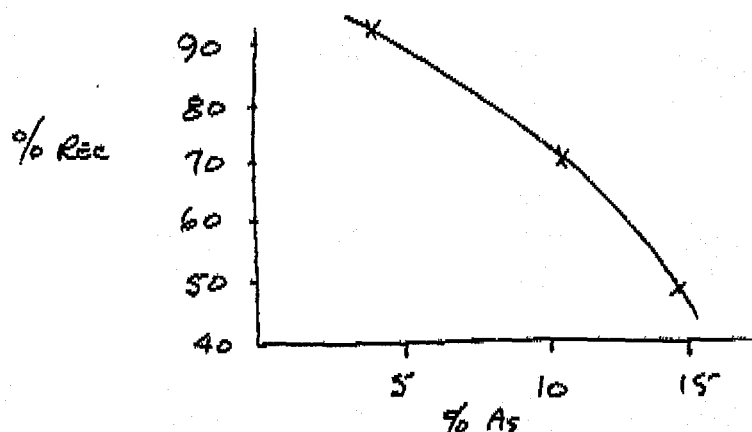
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MEMORANDUM

TO: S. McAlpine
 CC: K. Blower
 FROM: K. Morton
 DATE: February 12, 1989
 SUBJECT: GOLD EXTRACTION FROM HOT FILTER RESIDUE

Three samples of hot filter residue were tested at Lakerfield Research for gold extraction. As expected, arsenic concentration has a major effect on extraction efficiency.

The three samples had arsenic concentrations of 3.9%, 10.1% and 14.3% respectively. Corresponding gold extractions were 89.8%, 70.8% and 48.0% as shown on the graph below.



Interestingly, the pH modifiers used, soda ash and sodium hydroxide, had a consumption rate inversely proportional to the arsenic concentration, while the NaCN consumption rate was not affected by either gold or arsenic concentration.

Au oz/t	As %	NaCN kg/t	Na ₂ CO ₃ kg/t	NaOH kg/t	Au rec
34.2	3.9	3.6	104	20.8	89.8
106.0	10.1	2.15	68.8	13.8	70.8
98.6	14.3	3.98	55.0	11.0	48.0

Arsenic in the hot filter residue affects both gold recovery and the cost of tailings treatment. It is clear, therefore, that hot filter design must focus not only on purity of the WAROX product, but also on purity of the hot filter residue. Arsenic contamination can result from precipitation of arsenic out of the gas stream and may be caused by air leaks, inadequate insulation, insufficient pulse jet heating, etc..



K. Morton

Project No. MLR-064

Date Jan. 23, 1989

SUMMARY OF TEST RESULTS

Test	Reagent Cons., kg/t			Recovery, %				Residue, g/t, %		Calc. Head, g/t, %	
	NaCN	NaOH	Na ₂ CO ₃	24 hours		48 hours		Au	As	Au	As
				Au	As	Au	As				
A-1	3.95	11.0	55.2	43	13	48.0	26.6	56.3	11.5	98.9	14.3
A-2	4.00	11.0	54.8	44	14	47.9	25.7	56.3	11.6	98.2	14.2
Average	3.98	11.0	55.0	44	14	48.0	26.2	56.3	11.6	98.6	14.3
B-1	3.40	20.2	101	92	9	89.6	15.9	3.78	3.46	34.4	3.91
B-2	3.80	21.3	107	91	9	90.0	16.0	3.57	3.37	34.0	3.91
Average	3.60	20.8	104	92	9	89.8	17.0	3.66	3.42	34.2	3.91
C-1	2.15	14.0	70.0	68	10	70.6	17.6	33.2	8.82	106	10.1
C-2	2.15	13.5	67.5	69	10	70.9	17.2	32.7	8.85	106	10.1
Average	2.15	13.8	68.8	69	10	70.8	17.4	32.9	8.84	106	10.1