



Department of Energy, Mines and Resources
Ministère de l'Énergie, des Mines et des Ressources

Mines Branch
Direction des mines

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MINERAL PROCESSING DIVISION

40 Lydia St.
Ottawa 1, Ont.
Dec. 5, 1969.

673177

Mr. J.J. Crowhurst,
Bacon and Crowhurst,
Consulting Engineers,
102-1111 West Gorgia Street,
Vancouver 5, B.C.

Dear Mr. Crowhurst:

Re: Anchor Takla

Two additional tests were carried out on the Anchor-Takla "underground" ore. The feature of these was the flotation of sphalerite in saturated lime solution in order to obtain a zinc concentrate of marketable grade (by reducing its pyrite content).

In the first test, no depressant was used in the lead circuit while, in the second test, large amounts of cyanide (2.0 lb/ton) and zinc sulphate (0.8 lb/ton) were added during the lead flotation.

A comparison of the results obtained is shown below:

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Test	Product	Weight %	Analysis			Distribution %		
			oz/ton	%				
			Ag	Pb	Zn	Ag	Pb	Zn
1	Pb-Sb conc*	5.1	300.3	20.10	1.52	66.6	48.4	3.7
	" cl tailing	20.3	19.4	3.42	0.78	20.3	32.8	7.5
	Zn conc	2.9	13.3	1.34	52.80	2.1	1.8	73.3
	" cl tailing	22.0	8.3	1.45	1.35	9.9	15.1	14.2
	Flot tailing	49.7	0.43	0.08	0.05	1.1	1.9	1.2
2	Pb-Sb conc	4.6	201.7	30.60	0.99	48.9	70.3	2.1
	" cl tailing	7.2	17.2	4.45	1.14	6.5	16.0	3.8
	Zn conc	3.2	173.5	1.46	48.10	29.3	2.3	71.3
	" cl tailing	14.2	16.8	1.16	3.06	12.6	8.2	20.2
	Flot tailing	70.8	0.72	0.09	0.08	2.7	3.2	2.6

*Because of the absence of depressants in the lead circuit, three additional cleaning stages were necessary in this test.

Note: The antimony analyses are not available at this time, but are expected to be in proportion to the lead.

It should be noted that the absence of depressants in the lead circuit resulted in a lower grade lead-antimony concentrate and in a much higher weight of middling products (with additional lead reporting in the lead-antimony cleaner tailing). On the other hand, the addition of a relatively high quantity of sodium cyanide and zinc sulphate divert some of the silver minerals to the zinc circuit. The best technique in plant operation might well be to use a moderate addition of depressants in the lead circuit to achieve acceptable grade and recoveries along with a manageable recirculating load. A final test is being done along these lines.

Yours truly,

G.I. Mathieu

G.I. Mathieu,
 Non-Ferrous Minerals Section

GIM/mn
 cc D.E. Pickett
 R.W. Bruce