TR12_159_160

R. 542 PART 1

METALS EXPLORATION N.L.

PRELIMINARY EXAMINATION OF ORE FROM GREAT ADVENTURE MINE IRVINEBANK, QUEENSLAND

Sample

A sample of minus $\frac{1}{8}$ inch ore weighing approximately 5 lb was air freighted for preliminary testing by the above company. This testing consisted of assaying, cassiterite grain sizing and preliminary sulphide flotation. Failure to prove sufficient ore reserves limited the project to the above work.

Test Work

1. *Analysis of Sample*

ASSAYS

Tin	2.52 per cent
Lead	1.00 per cent (Total)
Arsenic	0.17 per cent

In addition to these elements the sample contained an appreciable amount of zinc and traces of nickel, copper and cadmium.

The oxidised appearance of the sample led to an investigation of the nature of the lead mineral present. It was found that the material contained 0.3% lead present in an oxidised condition, probably as anglesite.

The tin reported is present as cassiterite.

2. *Cassiterite Grain Size Analysis*

A sample of ore was roll crushed to pass 22 mesh B.S.S., and a weighed amount was treated with hydrochloric, nitric and hydrofluoric acids in that order to decompose sulphides and siliceous gangue present. Cassiterite is relatively unaffected by this treatment, and sizing of the acid insoluble residue, together with tin assays on the sizings, shows the grain sizes of the naturally occurring mineral.

The information is useful in assessing probable recoveries by gravity concentration methods, and the degree of grind necessary to liberate the mineral.

Fraction B.S.S.	*Cassiterite Grain Size—Microns*	*Tin Distribution*	
		%	*% Cum.*
− 22+ 44	−699+353	4.1	4.1
− 44+ 60	−353+251	6.4	10.5
− 60+100	−251+152	17.1	27.6
−100+150	−152+104	12.0	39.6
−150+200	−104+ 76	14.0	53.6
−200+300	− 76+ 53	9.2	62.8
E.F. 1	− 53+ 28	19.0	81.8
2	− 28+ 20	7.1	88.9
3	− 20+ 13	3.5	92.4
4	− 13+ 10	2.5	94.9
5	− 10	5.1	100.0
Composite		100.0	

E.F. = Elutriation fraction.