

NP111

March 3rd. 1944.

INVESTIGATION NO. 79RENISON BELLRAKE CLASSIFIER OVERFLOW.

Obtained from milling operations during 26,27.1.44. This material constitutes the feed to flotation and gravity concentration sections of the mill.

ASSAYS.

Tin 1.19 percent
Sulphur 24.09 percent

Sizing Analysis.

Product	Percent		Tin Distribution	
	Weight	Tin	Percent	Percent Cum.
+85 mesh	2.35	0.70	1.36	1.36
+100 "	0.40	0.35	0.11	1.47
+120 "	1.08	0.28	0.25	1.72
+150 "	7.01	0.40	2.31	4.03
+200 "	10.44	0.46	3.96	7.99
I.S./1	11.28	2.33	22.13	30.12
2	14.55	1.78	21.35	51.47
3	12.69	1.37	14.32	65.79
4	9.91	1.23	10.05	75.84
5	6.93	1.28	7.40	83.24
6	5.75	1.18	5.60	88.84
7	17.58	0.77	11.16	100.00
Composite	100	1.21		

The sizing analysis shows that 7.99 percent of the tin is in the plus 200 mesh fractions and approximately 34 per cent is minus 500 mesh screen size.

Gravity concentration by any established method, for the purpose of this investigation, can be regarded as ineffective for cassiterite minus 500 mesh screen size. The amount of cassiterite plus 500 mesh in the sample examined is approximately 66 percent. Mill samples taken over the same period indicated that the reject sulphide flotation concentrate contained 15 percent of the total tin. The proportion of this loss of plus 500 mesh size is at present, unknown but it is reasonable to suppose that some loss occurs.

The sizing analysis and sulphide flotation loss indicate that approximately 60 per cent of the cassiterite is recoverable by gravity concentration, assuming that it occurs as "free" grains or composites of major Cassiterite content. The actual recovery in practice is dependent upon many factors, several of which will be investigated at an early date. If the sample of classifier overflow examined is typical of average sizing it is presumed that present mill recoveries will range from 40 to a probable maximum of 48 per cent.

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