

DEPARTMENT OF MINES LABORATORY.

LAUNCESTON. September 16th 1943.

N<sup>o</sup> 102

ORE DRESSING INVESTIGATION No. 615/43.

ANTIMONY ORE / COSTERFIELD . VICTORIA.

Gravity Concentration.

Sample.

A 2cwt sample of Antimony Ore stated to be obtained from Costerfield, Victoria was received from Mr. P.J. Scanlan on behalf of the Controller of Minerals Production.

Gravity Concentration tests were desired for the recovery of the Antimony.

Characteristics of the Ore.

Examination of ore specimens show that the predominant sulphide mineral is Stibnite. Smaller quantities of oxidation products from Stibnite, pyrite and arsenopyrite were observed. The Stibnite occurs as massive pieces up to approximately 1/4 oz. in weight to very small grains included in quartz.

Examination of the ore indicated that gravity concentration to primarily recover values at coarse sizings would produce optimum results. The treatment to which the ore was submitted is shown in Table 1 and consists essentially of one stage of concentration in a Denver Jig and two further stages of reduction with Table concentration at each sizing. The sizing to minus 60 mesh of Primary Table Tails was performed by wet screening merely as a convenient test procedure.

Summary.

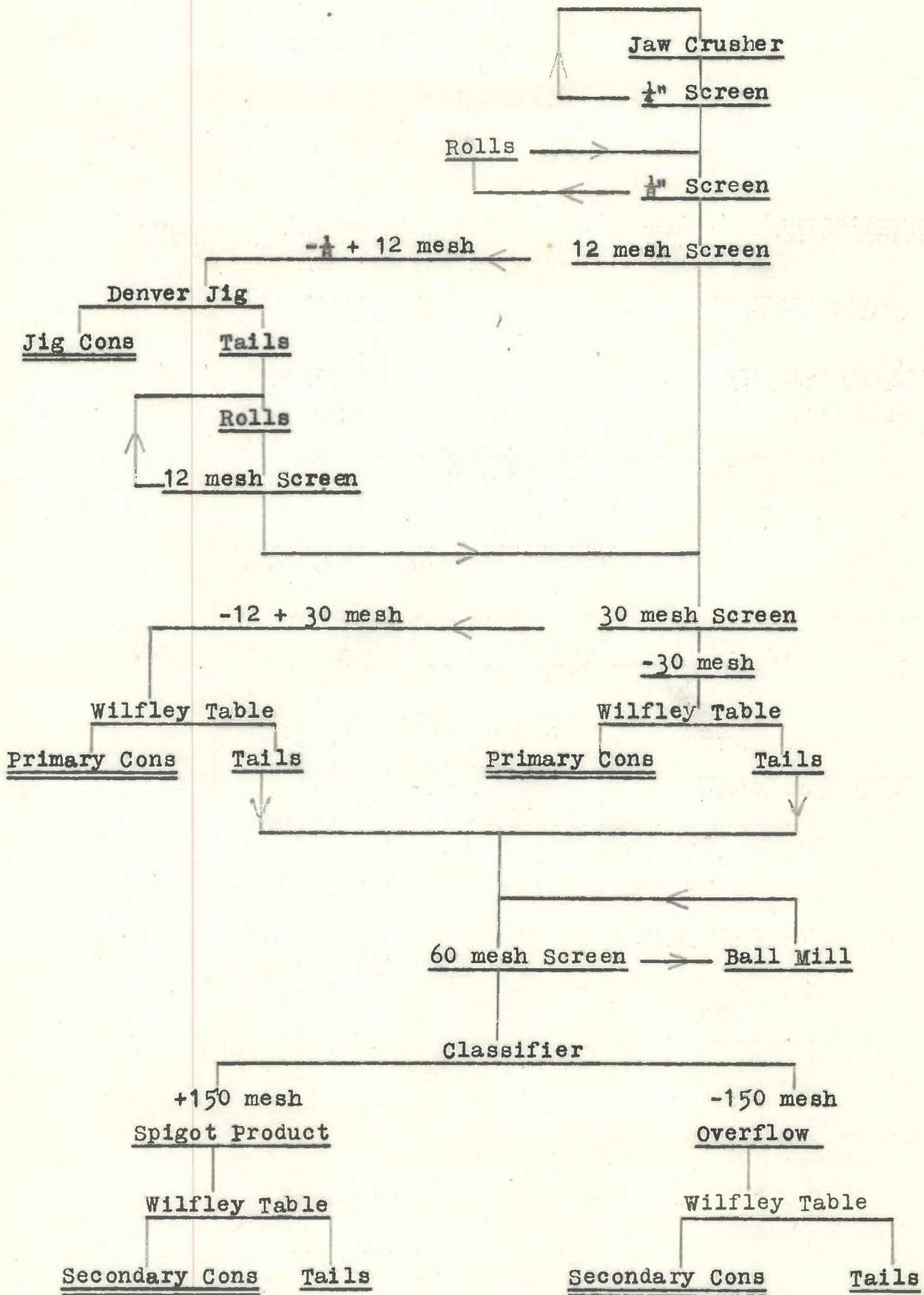
1. Concentration by jigging and tabling resulted in a recovery of 67.12 percent of the Antimony. Of this total jig concentration represented a recovery of 36.42 percent in a concentrate assaying 55.36 percent of Antimony and 0.15 percent of Arsenic. Table concentrates are lower in grade and contain Arsenopyrite and Pyrite. Details of results are shown in Tables 2 and 3.
2. Loss of free Stibnite is unavoidable in jig and coarse table concentration owing to proportions of flat shaped pieces of the mineral.
3. Analysis and examination show that the Jig concentrate is relatively free from Pyrite and Arsenopyrite.

*W.S.R. Hanson.*

CHIEF CHEMIST AND METALLURGIST.

Table 1. Flow Sheet

Costerfield Antimony Ore.



Results.Table 2.

<u>Product.</u>	<u>Percent</u>		<u>Percent Antimony Distribution</u>
	<u>Weight</u>	<u>Antimony</u>	
Jig Concentrates	0.77	55.36	36.42
Primary Table Cons +30 mesh	0.45	28.44	10.94
" " " -30 "	0.48	27.46	11.26
Secondary " " (Spigot)	0.27	22.56	5.20
" " " ( C.O. )	0.16	24.18	<u>3.30</u> <u>67.12</u>
" " Tails (Spigot)	20.17	0.29	5.00
" " " ( C.O. )	77.70	0.42	27.88
Composite	100.00	1.17	100.00

Table 3.Table showing percentages and distribution of Arsenic.

<u>Product.</u>	<u>Percent</u>		<u>Percent Arsenic Distribution</u>
	<u>Weight</u>	<u>Arsenic</u>	
Jig Concentrates	0.77	0.15	1.18
Primary Table Cons +30 mesh	0.45	2.16	9.96
" " " -30 "	0.48	7.14	35.10
Secondary " " (Spigot)	0.27	2.76	7.63
" " " ( C.O. )	0.16	4.94	8.10
" " Tails (Spigot)	20.17	0.03	6.20
" " " ( C.O. )	77.70	0.04	31.83
Composite	100.00	0.098	100.00

Table 4.Weight Percentages of Feeds. (refer to Flow Sheet)

	<u>Percent</u>
-1" + 12 mesh Jig Feed.	53.60
( - 12 mesh Roll Product.	46.40)
Primary Table Feed - 12 + 30 mesh.	50.56
" " " - 30 mesh.	48.64
Secondary " " Spigot Product.	20.44
" " " Classifier Overflow.	77.86