

TR16-307-308

R.634. Preliminary examinations of tin ore samples from North Valley, Mt Bischoff.

Several grab samples were obtained by the Chief Chemist and Metallurgist from the Ringarooma Mining Pty Ltd leases in the North Valley, Mt Bischoff. The objects of the examinations were to establish the nature of the tin occurrence in the North Valley and the means of recovering it.

SAMPLES

Reg. No.	Description
712348 } 712349 } 712350 }	Nuggets of cassiterite from Machen's face material, presently being treated in a sluice box. Nuggets taken from sluice box.
712351	Grab samples of sediment from banks in Waratah River between old (3 head) battery and bridge near where roads enter valley.
712352	Grab samples of light coloured material near where both roads enter the valley.
EXAMINATION OF SAMPLES	
712348. 50 Cassiterite Nuggets	

The specific gravity of the three largest nuggets was determined. A small chip which appeared to be pure cassiterite was assayed for tin. A small fragment was broken from the nugget of lowest specific gravity, wedged-wood ground to -150# and concentrated in two sizes, +300# and -300#, by superpanning and the concentrates assayed for tin.

Results

Reg. No.	Specific Gravity	Calc. approx. % Sn
712348	6.28	74
712349	5.50	64
712350	4.56	52

Assay of small chip of 'pure' cassiterite

Sn 69.9% Fe 0.53%

Assay of Superpanner Concentrate from 712350

+300#	Sn 71.6%	-300#	Sn 73.5%
	Fe 0.07%		Fe 0.06%

Discussion

The results of these tests show that there is a wide range of tin content in the so-called pure cassiterite nuggets. Microscopic viewing of the nuggets shows that they consist of aggregates of relatively small crystals and contain varying amounts of clay or shale-like material.

Crushing and/or grinding releases the cassiterite and the superpanner

tests show that high grade tin concentrate can be made from the nuggets.

Depending on the incidence of low grade nuggets, it is possible that crushing and re-concentration of sluice box concentrates could be necessary to ensure the production of a consistently high grade concentrate.

712351. *Sediment from Banks of Waratah River*

This material consisted of brown siliceous material containing a considerable amount of iron oxide slime. It was relatively easily slacked in water.

A sizing analysis and tin distribution was carried out on a sample of the material with the following result:

Fraction	% Wt	% Sn	% Sn Distn	% Sn Distn Cumulative
+ $\frac{1}{4}$ inch	3.2	0.02	0.1	0.1
+7# 2400 μ m	3.1	0.04	0.2	0.3
+14# 1200 μ m	1.3	0.19	0.5	0.8
+25# 600 μ m	4.1	0.36	2.9	3.7
+52# 300 μ m	11.4	0.63	14.2	17.9
+100# 150 μ m	18.1	0.46	16.5	34.4
+200# 75 μ m	18.5	0.36	13.2	47.6
C/S1 23 μ m	3.4	2.30	15.4	63.0
C/S2 18 μ m	5.6	0.83	9.2	72.2
C/S3 12 μ m	6.3	0.83	10.3	82.5
C/S4 8 μ m	5.0	0.88	8.7	91.2
C/S5 6 μ m	2.1	0.58	2.4	93.6
O/F <6 μ m	17.9	0.18	6.4	100.0
Head	100.0	0.51	100.0	

Discussion

The sample assays 0.51% Sn. Most of the tin (78.8%) is present in the size range 300 μ m to 12 μ m and reasonable recoveries (of the order of 60%) could be expected from treatment by sizing followed by tabling and vanner concentration.

It is unlikely that more than 20% of this tin could be recovered by the comparatively crude method of forking unsized material in a sluice box.

712352. *Light Coloured Material from Road Junction, North Valley*

This sample contained an unidentified heavy black mineral. The sample was sized by wet screening and the black mineral concentrated by tabling and/or panning.

Result

Chemical analysis showed the black mineral to be chromite. The sample contained a negligible amount of tin.