

TRQ-155-156
R. 311

TASMANIAN UNITED URANIUM CO.
GRAVITY CONCENTRATION OF ORE CONTAINING
PITCHBLENDE

Previous investigation R 298:	14.8.56
Previous preliminary report R 311:	18.4.57
Correspondence	26.3.57

Review and Investigation

A sample amounting to 170 lb. was submitted by the company to determine the amenability of mined ore to gravity concentration. This ore is stated to be mined from the same locality as the sample submitted in 1956 (R 298). Sample R 298 contained 3.4% of U_3O_8 . The mineral was identified as pitchblende, amorphous and individual grains were generally very small, many being of the order of one micron. The mineral could thus only be expected to have limited application for concentration by any gravity process, and best result obtained was a recovery of 57% in a concentrate containing 5.46% of U_3O_8 .

The sample submitted was stated to be fairly representative of the total ore mined and stacked, and it was desired to check on concentration by gravity methods.

No responsibility is accepted for the results shown in this report except in so far as they apply to the sample tested.

The sample was submitted to gravity concentration tests after reduction to — 10-mesh B.S. screen. The plus 30-mesh fraction was concentrated in a jig, and the — 30-mesh fraction by table concentration.

Summary

1. The sample contained 0.44% of U_3O_8 .
2. Reduction to — 10-mesh B.S. size followed by screening and concentration by jiggling and tabling as indicated resulted in a recovery of 9.7% of the uranium in a concentrate amounting to 2.5% by weight and containing 1.71% of U_3O_8 .
3. Comparison of concentration results of the two samples is shown below.

Investigation No.	Head Value	Weight %	Concentrate Recovery %	% U_3O_8
R 298	3.42	21.8	39.5	6.19
R 311	0.44	2.5	9.7	1.71

4. Recovery by jigging in the plus 30-mesh fraction and by tabling in the — 30-mesh fraction were practically identical. This comparison shows that the ore is not amenable to gravity concentration and that as the grade has dropped so has the recovery.

Test Result—Test No. 1

Reduction by rolls to — 10-mesh B.S. Screened on 30-mesh and + 30-mesh concentrated on a Denver jig and — 30-mesh on a Wilfly table.

Results

<i>Product</i>	<i>Weight</i>	U_3O_8	U_3O_8 <i>Distribution</i>
Jig Concentrates, 1	1.5	1.18	4.0
Jig Concentrates, 2	15.4	0.34	11.8
Jig Tailing	35.5	0.33	26.5
Table Concentrates, 1	1.0	2.5	5.7
Table Concentrates, 2	9.3	0.42	8.9
Table Tailing	37.3	0.51	43.1
Composite	100.0	0.44	100.0
Combined Concentrates, 1	2.5	1.71	9.7

Jig concentrates 2 and Table concentrates 2 were produced to ascertain whether further concentration was practicable.