TR6-171-172

R. 371

HEAVY MINERALS FROM HAMPSHIRE-VALENTINE PEAK AREA

Samples Tested

Mr. Lloyd D. Price of Beauty Point submitted a sample of approximately six pounds weight for examination. The sample was stated to be a sluice concentrate from the Hampshire-Valentine Peak Area. A previous sample (899/1952) from the same area contained significant tin and gold.

Portion of the sample was sized as follows:—

Mesh	Percent Weight
+ 6	1.0
25	16.4
36	30.4
44	0.7
60	31.6
85	14.6
100	3.0
150	2.0
200	0.2
—200	0.1
Total	100.0

Summary

The sluice concentrate submitted by Mr. Price consisted mainly of ilmenite, and contained 0.9% of tin and no gold. Rejection of the ilmenite by magnetic separation, and gravity concentration of the tin from the non-magnetics presents no difficulty. Production of the sluice concentrate has been estimated by Mr. Price at approximately one cwt. per day, and at this rate it is not an economic proposition.

Investigation

The remainder of the sample was divided into three fractions for examination viz. plus six mesh, minus six mesh, plus 25 mesh, minus 25 mesh.

The plus six mesh material consisted essentially of erratic large minerals, with a few particles of cassiterite. This fraction amounts to only 1% of the total, and is of negligible importance.

The other two fractions were treated separately on a Rapid magnetic separator to give two magnetic concentrates, and a non-magnetic concentrate.

The magnetic concentrates from the two fractions were combined. These first concentrates consisted essentially of ilmenite, with a small amount of rusted iron scale.

The second magnetic concentrate from the two fractions consists essentially of ilmenite and with some monazite. These concentrates show fair radio-activity due to the monazite. This radio-activity is of no economic significance.

The plus 25 mesh non-magnetic product was separated by heavy solution of S.G. 2.91 into two fractions. The fraction with S.G. less than 2.91 consists almost entirely of quartz.

The fraction with S.G. greater than 2.91 contained appreciable cassiterite (assaying 43.6% Sn) and some monazite. Gold content of this fraction was nil.

The minus 25 mesh non-magnetic product was panned to give a concentrate and tailing. The panned tailing contained no gold and a trace of tin (less than 0.1% Sn). The panned concentrate contained a trace of gold and 8.2% tin.

The overall result of the investigation is tabulated below.

Fraction	Composition of Fraction	Wght	Tin	Wolfram (WO_3)	Gold
+ 6 mesh material	Erratics, with a little cassiterite.	1.0	5.1	....	....
—6 mesh, first magnetic conc.	Ilmenite with a little iron scale.	56.6	....	Nil	....
—6 mesh, second magnetic conc.	Ilmenite and monazite.	10.5	....	Nil	....
+25 mesh, non-magnetics, S.G. less than 2.91	Quartz.	1.3	....	....	....
+25 mesh non-magnetics, S.G. over 2.91.	Cassiterite and some monazite.	1.0	43.6	....	Nil
—25 mesh,non-magnetics, panned concentrate.	Monazite, some cassiterite, and other undetermined heavy minerals.	4.9	8.2	....	Trace
+25 mesh non-magnetics, panned tailings.	Quartz.	24.7	Less than 0.1	....	Nil
Total sample	Total sample	100.0	0.9	Nil	Nil

It is most unlikely that the sample submitted could form the basis of an economic project, unless the production rate could be increased greatly in excess of than indicated verbally by Mr. Price.