

A-4

Semi-quantitative emission spectrographic analyses of the head sample are given in Table 1 in the body of the Report.

4. ELEMENT DISTRIBUTION DATA

4.1 Assays and Distribution of Fluorite

The results of magnetic and heavy-liquid separations and fluorine assays are given in Table A-1. Acid-soluble fluorine determinations have been converted to values in terms of calcium fluoride (fluorite). The following conclusions can be drawn from this table:

1. The calculated head assay is 15.6% fluorite.
2. About 90% of the ore passes 75 μm , and crushing to this size has resulted in the production of 20% of slimes ($-9 \mu\text{m}$) which contain 25% of the fluorite in the ore. The enrichment of fluorite in the slimes is due to preferential grinding of the fluorite as compared to the other constituents and this effect is also shown, by the increasing assays of the size fractions with decreasing size, from 11% fluorite in the plus 75 μm fraction to 20.2% fluorite in the minus 17 plus 9 μm fraction.
3. Sixty percent of the fluorite in the 'sands' fractions (i.e. the +9 μm fractions) reports into the 3.1 to 3.3 sp.gr. product of the non-magnetic and this material is essentially liberated fluorite. Recovery of fluorite into this product increases from 23% in the plus 75 μm fraction to 83% in the minus 7 plus 9 μm fraction.
4. Increased liberation of fluorite with decreasing particle size causes a decrease in the fluorite assays of the ferromagnetic and <3.1 and >3.3 sp.gr. non-magnetic products. The distributions of fluorite into these products also show a decrease with decreasing particle size. The following tabulation summarises these results in the case of the distributions:

Size Fraction (μm)	Ferromagnetic Product	Non-magnetic Products		
		<3.1	3.1-3.3	>3.3
+75	42	19	23	16
-75+33	37	13	37	13
-33+17	15	9	72	5
-17+9	5	9	83	2
Total sands	(21)	(11)	(60)	(8)