18. BENEFICIATION STUDIES.

A. GENERAL.

Beneficiation studies have been carried out on wrigglite by The Australian Mineral Development Laboratories (AMDEL) in Adelaide and by the Tasmanian Department of Mines in Launceston.

Amdel initially did work on chemical extraction of the fluorite from surface samples of wrigglite and subsequently carried out mainly flotation testing of a composite sample from drill core.

The Department of Mines has investigated, and is continuing to investigate, fluorite, tin and tungsten extraction on a bulk sample of wrigglite collected off dumps at the Shepherd and Murphy mine.

B. AMDEL INVESTIGATIONS.

(a) Chemical extraction of fluorite:

Aim and method

Amdel offered in late 1975 to try a roasting process to extract fluorite from Moina wrigglite. They had previously used their method in an ore that had not given acceptable flotation results.

The exact method remains confidential to Amdel, but is believed to be a roast at 400°C with ammonium sulphate, and collection of gaseous fluorine compounds. Details of what is probably the method used are at the end of Appendix 28. (This method was published in Amdel report No.1178 in 1977).

Two samples, Moina 1 and Moina 2 were submitted to Amdel. Both are samples collected by A.H. Bartlett of wrigglite from outcrop adjacent to the old Shepherd and Murphy mill site.

Results

Only sample Moina 1 was tested. Full results are in Appendix 28.

Extraction of fluoride was 70%, but this initial work did not attempt to modify and optimize the method. The tin remained in the residue and so was not extracted.

The high iron content of the wrigglite caused a major wastage of the reagent, so no further work was carried out with this method; all further work was by more conventional