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THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

TREATMENT OF MOINA FLUORITE

**A1** INTRODUCTION

Comalco Limited's drilling programme has indicated large reserves (~10 million tonnes) of fluorite ore in their leases at Moina in Tasmania. Exploratory tests, described in Amdel Service Report No. CM 2873/76, showed that the fluoride content of this ore should be efficiently extracted by a chemical treatment process under development at Amdel, provided sufficient reagent is added. By further processing the extracted fluoride was converted to aluminium fluoride of acceptable grade for the electrolytic production of aluminium.

In a letter dated 12 July 1976, Mr A.H. Bartlett, Exploration Manager of Comalco Limited, requested a proposal for an experimental programme aimed at developing an overall scheme for recovering values from the ore, involving physical beneficiation and chemical treatment.

**A2** OBJECTIVES

The objectives of this Proposal are listed below:

**Part A** To examine the effectiveness of flotation and magnetic separation procedures in producing the following:

- (1) fluorspar concentrate - acid grade (97% CaF<sub>2</sub>), metallurgical grade (70% effective CaF<sub>2</sub>) or a lower grade concentrate suitable for chemical treatment
- (2) tin concentrate
- (3) tungsten concentrate
- (4) magnetite concentrate.

**Part B** To study further the application of the Amdel chemical treatment process to a fluorspar concentrate from Part A, with particular reference to:

- (1) the effect of reagent addition on fluoride extraction
- (2) the effect of programmed heating on fluoride extraction
- (3) the overall reagent consumption

**Part C** To make a first estimate of capital and operating costs for the chemical treatment process.