1. Introduction

In the course of mining and mineral processing, landscapes are altered and soils, rock and water are subject to physical and chemical change. These changes must be managed to ensure that any resulting impacts are minimised, do not jeopardise future land and water uses, and do not breach any regulatory requirements. Failure to manage these impacts in an acceptable manner will result in the mining industry finding it increasingly difficult to obtain community and government support for existing and future projects.

The Minesite Water Management Handbook provides practical guidance, based on scientific principles and leading industry practice, on how to investigate and manage surface and groundwater during exploration, mining and mineral processing. The information is sourced from industry, government(s) and research organisations, consultants and individuals actively participating in the minerals industry.

This handbook has been prepared as a companion document to the AMIC (now the Minerals Council of Australia) Rehabilitation Handbook (AMIC 1990). The handbook has been developed for those who are not familiar with the fundamentals, processes and requirements (both technical and legislative) of water management for mining purposes, and for those site personnel with limited or no experience or training in water management from an environmental perspective. It also provides an indication of what the minerals industry sees as its prime objectives and directions with regard to water management. The handbook is divided into 13 main chapters which include both theoretical and practical topics relating to mine water management. The first five chapters provide an overview of the regulatory requirements, management planning and principles, basic water chemistry and the principles of sampling and flow measurement. Chapters 6 to l3 describe the major water-related technical issues relevant to all areas of a mining operation. They include generic guidelines for:

- the design, construction and maintenance of site surface water drainage;
- issues associated with erosion and sediment control; and
- management and monitoring of surface and groundwater quality:

Specific topics, for example acid drainage, are presented as fact sheets. Both theoretical and practical aspects of each issue are discussed. A glossary of terms is included and, finally, a reference list which is designed to direct the reader to a greater level of detail than is provided in this handbook.