



Design and Management of Tailings Storage Facilities

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Course objective

To develop the skills and knowledge to manage the deposition and storage of mine tailings in a safe and environmentally acceptable manner and be aware of the pointers to developing problems before failures occur.

Course description

Although each mining operation will have its own site specific facilities and techniques for the management of tailings and mine waste, the course covers the range of options that are currently used both nationally and internationally. This provides an understanding of the principles involved and a perspective on other options that may be viable to a particular site. Design considerations and procedures are discussed, although the primary objective is not to develop design skills per se, but rather to enable operators and managers to understand and interpret design and operating reports prepared by outside consulting engineers.

The course will briefly cover the preparation and transportation of tailings, focusing on how these aspects affect design and operational decisions for the tailings storage facility (TSF). The engineering characteristics of tailings relevant to the management of these facilities are dealt with in detail, with the objective of providing a sound fundamental understanding of this aspect of tailings management.

Aspects such as potential failure modes and possible consequences are addressed, with reference to selected international events, as well as to risk management, liability and environmental considerations, particularly in regard to specific local and national legislation. The imperative for designing and managing a TSF with ultimate closure in mind is stressed, as this is an often neglected aspect of mine waste management.

The following topics will be covered and tailored to the level of knowledge and expertise of the trainees, as well as specific issues identified during the initial site visit:

- Preparation, transport and deposition of tailings
- Methods of construction and procedures used
- Design aspects critical to successful construction and operation
- Failure modes, including examples, and ways to recognise potential failures
- Potential environmental impacts and appropriate mitigation methods
- Operating with final closure in mind

Course format

An initial session of one - two days on-site where the practice of tailings disposal and the underlying principles governing these operations are covered.

Completion of a comprehensive assignment by trainees. This assignment is designed to add value to the training experience and provide an opportunity for obtaining feedback from the training personnel at the ACG.

Follow-up visit by trainer, if requested, to carry out review of assignment and a practical evaluation of the skills required.

NB. The course can be adapted to meet site-specific requirements and procedures.

Target audience

This course is intended to accelerate the learning process of those responsible for tailings disposal facilities by providing focused sessions that deal with basic principles and operational practices. The sessions are integral to understanding the performance of tailings disposal facilities and have been developed to reinforce the participants' understanding of the linkages between cause and effect.

Personnel that are responsible for the day-to-day operation and management of TSFs often do not have relevant training and may not be equipped to ensure the facility is operated in such a way that potential risks are minimised. Currently, many young practitioners are required to take responsibility for operating a TSF without having any training. Lessons are learned on-site, often by 'trial and error' and potentially at significant cost to the mine owner.

Quotation

The cost for the presentation of this on-site training course depends on the duration of the course on site. Please contact the ACG for a quotation.