

Water Management



Mines require significant quantities of water, depending on the process adopted to extract the minerals. It is therefore crucial that modern water management strategies are adopted to:

- maximise the value of this precious resource in arid climates
- provide proper disposal strategies, whether evaporation ponds, or treated discharge, in wet climate or high ground water make mines.

ATC Williams has had nearly 30 years' experience in developing water strategies for a range of mining operations, both in Australia and around the world. We have managed water environments at the extremes – from the very dry situations of central Australia and the Middle East, to the high rainfall areas of west coast Tasmania, monsoonal Northern Territories, and Indonesia.

A key influence in mine water management is the tailings water and associated water recovery from thickeners and decant ponds, or if disposal is necessary at mines with a positive water balance, the use of evaporation ponds, or other disposal strategies is usually driven by regulatory requirements. It is often imperative to maximise the amount of water that is recovered from tailings.

Water management on mine sites has several key aspects:

- supply of water to the site
- storage and management of the water at the site

- recovery of the water from the tailings streams and storage facilities for recycling
- disposal of water from the site.

ATC Williams works closely with the client in evaluating the likely process water demand for the mine and investigating the supply sources that are available.

This is typically assessed in conjunction with conceptual tailings management strategies over the life of mine, thus allowing a cohesive and integrated approach in assessing such aspects as the merits or otherwise of thickeners for each site.

Climate data, process demands, ground water make, site water storages and primary transfer pipelines across the site are modelled and transfer rules applied to determine the optimum storage capacities. From this, a life of mine water balance is created.

For remote sites without nearby weather stations, ATC Williams can create synthetic climate data for the water balance modelling.

Working with our geotechnical engineers and dam designers, using 3D CAD systems, the most suitable sites for water storages are identified and geotechnical field investigations undertaken.

Basic and detailed design of pump stations and pipelines complete the services we are able to provide.

