

Acid and Metalliferous Drainage Management Consulting Services



EARTH SYSTEMS
Environment - Water - Sustainability

CAPABILITIES

A core expertise of Earth Systems is the management and remediation of acid and metalliferous drainage (AMD) associated with sulfidic materials at mine sites, quarries and acid sulfate soils (ASS). Our expertise encompasses all aspects of AMD management, including identification, characterisation, prediction, prevention, control and treatment of AMD.

SERVICES PROVIDED

- Site AMD auditing, including AMD risk assessment and management system audits throughout all phases of project development.
- Identification and characterisation of soil/rock samples based on geochemical static tests (acid base accounting) and kinetic tests.



- Baseline studies and impact assessment associated with disturbance / dewatering of sulfidic materials and AMD generation.
- Design and implementation of site-specific AMD management strategies, including prevention, control and treatment strategies.
- Development of comprehensive site AMD Management and Monitoring Plans.
- Waste rock dump siting and design.
- TSF management and planning.
- Development of site Rehabilitation and Closure Plans, incorporating long term AMD management or prevention strategies.
- Leading practice environmental training workshops for regulators, managers, supervisors and operators on AMD issues.

EXPERIENCE

Recent experience includes:

- Identification, characterisation, prediction and management of AMD at numerous sites in all states of Australia, as well as Indonesia, Laos, Mali, New Zealand, Peru, Senegal, Solomon Islands, South Africa, Tanzania, Thailand, the US and Vietnam.
- Provision of AMD services to various mining industries including coal, gold, silver, copper, lead, zinc, tin, iron ore, diamonds, mineral sands and pyrite, and ASS sites, in all phases of project development—exploration, feasibility, impact assessment, construction, operations and post-closure.
- Development of new software to facilitate AMD management (eg. ABATES, AMDACT).
- Development of OxCon Modules (OCM), a new kinetic technique for rapidly quantifying sulfide oxidation rates.
- Development of innovative, cost effective technologies for preventing / minimising AMD from underground mines, tailings and waste rock (eg. GaRDS, NBT, AcidBLOCK) .
- Development of patented AMD treatment equipment, used in Australia, Indonesia, South Africa, the US and Peru.
- Senior authors of the Leading Practice Handbook on "Managing AMD" for the Australian Federal Government.
- Presentation of numerous workshops and short-courses on AMD management.



Acid and metalliferous drainage entering a tailings dam at a gold mine in western USA.

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