

## Project 3.10

# Improved prediction, remediation and closure of AMD/NMD sites by examination of mine waste behaviour at the meso-scale

### Why the project?

When sulphide minerals are exposed to water and oxygen, an oxidation process occurs. This process leads to drainage, which can be neutral or acidic depending on the conditions.

While work has been undertaken for decades to address the resulting drainage – known as Acid or Neutral Metalliferous Drainage or AMD and NMD – it remains a significant global problem. Given the risk of serious environmental harm and impact on post-mine outcomes, CRC TiME's foundational portfolio includes the 'Developing the business case for responsible acid and metalliferous drainage (AMD) management project.'



### Overview?

This project builds on the business case. It is one of CRC TiME's flagship projects, involving \$10 million of investment over five years.

The project will provide links between prediction, scale and residual risk to improve AMD management. It will aim to use both mineralogy and microbiology to enhance assessment and remediation by examining behaviour of mine wastes at different scales.

### What are the project objectives?

In a phased approach, the project will:

- monitor baselines and unravel the key parameters affecting meso-scale studies
- provide characterisation and lab-scale assessment of remediation options
- define microbial and mineralogical contributions
- carry out lab-scale remediation strategy assessment
- provide tailored AMD/NMD control options and assessment
- create improved testing strategies for better predictive capability
- disseminate the information and provide training and improved awareness for utilisation.

### What will the project deliver?

It is intended that improved predictive testing methodologies will be incorporated into a new Acid Rock Drainage Handbook to supersede existing guidance. Toolkits to support improved mineralogical and biological characterisation will also be produced.



## Who are the end users?

Findings, tools and resources can be used by the mining, mine engineering and technical services industries as well as governments to improve post-mine outcomes.

## Timeline

2022 - 2027

## How does this align with CRC TiME Impact objectives?

Mines are closed in ways that deliver social, economic and environmental value

Closed sites are repurposed to enable a faster transition to diverse and resilient local economies

Mine closure business solutions drive new commercial and/or regional closure opportunities

Continued investment in Australian resources

Policy, decisions and management systems reduce risks



## Project Partners

### Project Participants

BHP, The University of Queensland, MMG, Rio Tinto, O’Kane Consultants, Newmont Mining Services, Fortesque, Australian Genome Research Facility, Minerals Research Institute of Western Australia, The University of Western Australia, Flinders University

### Advisory Participants

Great Lakes Institute for Environmental Research, Blue Minerals Consultancy, Teck Resources Limited (Teck Metals & Teck Coal), Department for Energy and Mining (SA), Department of Climate Change, Energy, the Environment and Water



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