

Case Study

Waste Management Strategies Informed by Geochemical Risk

Newman, WA, Australia

> Background

Okane was retained to conduct and provide interpretation of results from a drilling and geochemical testing program undertaken at several waste rock dumps (WRDs) with potential to produce acid and metalliferous drainage (AMD) at an iron ore mine in the Pilbara.

> Approach

Phase 1 testing produced acid load estimates for each WRD. Phase 2 testing refined the predicted acid load estimates by:

- Investigating assumed existing/stored acidity and whether a portion of inferred sulfate acidity can be classified as non-acid generating.
- Assessing the relationship between sulfur grade and acid potential.
- Providing information on the effective buffering capacity of material identified with positive acid neutralising capacity (ANC).
- Providing information on the mineralogy of secondary minerals forming because of the oxidation processes and the potential for "coating" of sulfidic mineral surfaces.
- Providing information on laboratory static leaching potential to link with a regional environmental geochemical database.

> Client Benefit

A series of AMD estimation factors were developed from the Phase 2 testing program increasing the accuracy of AMD loading estimations for the WRDs. Results assisted Okane and the client design effective waste placement strategies and WRD designs.

Managing geochemical risk through waste placement.

