Case Study

1000-Year Landform Evolution

Glencore
McArthur River Mine, NT, Australia

> Background

Okane completed erosion and landform evolution modelling to support the submission of an environmental impact statement for McArthur River Mine. Two modelling packages, the Water Erosion Prediction Program (WEPP) and SIBERIA, were used to determine the erosion risks over timeframes of up to 1000 years for the Northern Overburden Emplacement Facility.

> Approach

The objective of the initial works was to provide a rapid assessment of possible material and slope geometry options to determine erosion rates and relative depths of incision for several preferred slope geometries. In addition, the study provided an analysis on the long-term performance of the most promising profile, and the cover system thickness necessary to prevent exposure of underlying contaminated waste, all whilst using minimal volumes of clean non-acid forming material.

> Client Benefit

The initial erosion assessment work was subsequently refined by utilising an erosion flume apparatus at the University of Newcastle to generate laboratory-derived SIBERIA input parameters for five site-specific materials. The results of the modelling assessments informed the development of a proposed cover system for the Northern Overburden Emplacement Facility that was used to support the environmental impact statement submission.

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> **Modelling to assess landform configuration erosion and stability risks over a 1000-year timeframe.**

Integrated Mine Closure and Relinquishment Solutions

okane | 25 YEARS
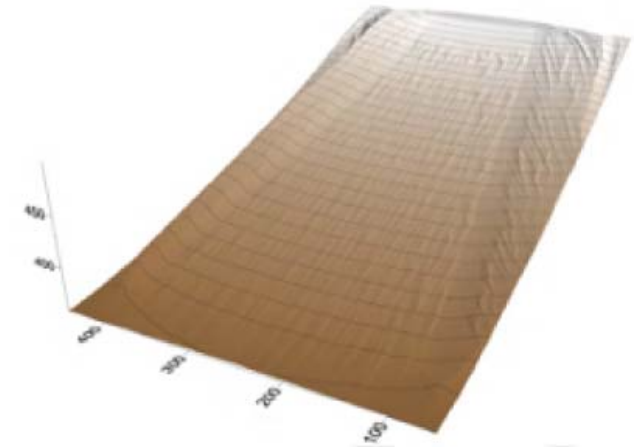
Polidor, A. Tindall, A. (2014). McArthur River Site. Standing On Sacred Ground.