SGME | Engineering new environments

CASE STUDY

PROJECT

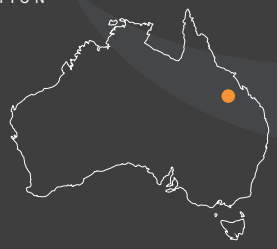
Material characterisation including a soil survey and assessment of land suitability / capability to support closure planning

SECTOR	COMMODITY
Soil Science	Coal

ISO

9001:2015 I 14001:2015 I 45001:2018

LOCATION



SGME was engaged to complete a material characterisation, which involved carrying out a soil survey and assessing land suitability / capability, to support closure planning.

Site description

The mine is an open cut operation that produces hard and semi-hard coking and thermal coal in the Bowen Basin of Central Queensland.

The problem

The mine required a material characterisation, involving a soil survey and assessments of land suitability / capability, to support their closure plan. It needed to physically and chemically characterise soil, overburden and material within the mine's co-disposal area (CDA).

SGME solution

Our material characterisation included a soil survey and assessments of land suitability / capability to determine whether the materials could be used in rehabilitation. Our deliverables had high regard for the government's closure planning guidelines, considered the suitability of soil and overburden for use in rehabilitation including as a cover for the CDA, and identified key management considerations.

In-situ testing and sampling was performed by SGME. For each soil sample, a detailed profile description was prepared including (but not limited to) colour, texture, pedality and the amount of coarse material in each horizon. Soil samples and additional bulk samples were analysed and tested for chemical and physical characterisation.

All soils were classified to suborder level and assessed for their fertility and erosion potential. Based on these classifications, a land suitability / capability assessment was performed to assess the potential for soil to sustain a post-mining land use. Fertility, erosion potential and acid mine drainage potential formed part of the assessment criteria for overburden and CDA material along with other characteristics.

Our expertise in soil and land resource assessment, supported by certified professional soil scientists, ensures accuracy of surveys, data and analyses, and results in comprehensive insights for informed decision-making, sustainable land management and environmental protection.