

COAL

Reference: CS-13

Geological investigation, deposit evaluation, mine design and geotechnics for coal and lignite projects have been key components of GWP Consultants' services to clients for over 30 years. GWP has extensive experience in geological and mining engineering support for coal mining from the exploration and evaluation of deposits, through mine design and operation, design of stockpiles and post-closure planning. GWP has particular expertise in geotechnical aspects of coal mining including slope and tip design in challenging geotechnical settings and the assessment and analysis of subsidence related to current and old underground workings.

Geological investigation and deposit modelling

- Geological and geotechnical core logging to identify coal seams and the presence of intraformational shear zones, modelling of seam stratigraphy and the distribution of heat affected coals, Scotland.
- Training in coal petrology and exploration methods for a client in Finland.



Resource estimation

- Competent Person's reserve reports meeting London Stock Exchange rules relating to the raising of capital for the purchase of former British Coal deep mines.
- Estimation of resources and statistical analysis of coal quality in an independent assessment leading to feasibility decisions at an open cast coal site in Scotland.



Mine operating

- Review of the scope of application of bucket wheel excavators, Australia.
- Implementation of computerised mine planning and scheduling at a large lignite mine in Poland, and associated training.
- Determination of diggability characteristics and blasting requirements for a coal contract, UK.



Mine Design and Planning

- Technical audit of surface coal mine designs and review of steep seam surface coal mining operations in Australia.
- Mining method evaluation, conceptual mine design and feasibility study for a proposed extension to an underground lignite mine to supply a mine site power plant in Turkey.

Subsidence related to coal mining

- Subsidence analysis and monitoring of post mine closure movements at a World Heritage site. Expected subsidence was back-calculated using data extracted from detailed investigation of mine plans and mine working layouts.
- Computation of subsidence displacements and strains due to coal mining beneath a landslide. Dr. Alan Cobb, partner, acted as an Expert Witness at a Lands Tribunal, and successfully demonstrated that coal mining was instrumental in re-activating the landslide.



Coal Stock Assessments

- Sampling and statistical estimations of moisture content in stockpiled coal; geological and statistical studies concerning coal quality variation in the ground and its relationship to product quality; advice on sampling from the face, from stockpiles and from conveyors.
- Valuation of stockpiled coals at UK power-stations in due diligence studies, involving site investigation drilling and sampling, block modelling and estimation of coal quality; volumetric estimates of coal stocks from ground surveys and from airborne LiDAR surveys.

Coal geotechnics

- Geotechnical audit for a surface coal operation, Kalimantan, Indonesia; detailed study of geotechnical constraints on development of a large coal mine in Venezuela.
- Preparation of statutory geotechnical stability and accident reports, as prescribed by the UK's Quarry Regulations (1999).
- Numerous geotechnical studies in UK opencast coal mines, especially those with steep dips, intraformational shear zones and high faces, including back analysis of failures and recommendations for remedial measures or new operating rules to avoid recurrences.



Post-closure assessments

- Expert evidence to arbitrations relating to quantities of coal available to work as compared to the amount represented in contract documents, groundwater ingress and management, slope stability and unforeseen ground conditions, in UK opencast coal mines.

Key contacts

For details and to discuss your requirements, please contact the following:

Ruth Allington, Joint Senior Partner. An engineering geologist with over 25 years' experience in the design of quarries and open pit mines for a range of construction materials (aggregates, dimension stone, brick and tile clays etc.), industrial minerals (including special clays and cement raw materials) and for coal and lignite.

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