


We service the industry sectors required for global growth

-  Mine Planning
-  Specialist Design
-  Geological Services
-  Studies and Assessments
-  Governance Reporting
-  Mine Closure

Building on Xenith's Expertise

We leverage the depth and breadth of Xenith's technical core to deliver the best solution to our client's complex problems.

-  Technical Mining Consulting
-  Exploration and Generative Studies
-  Due Diligence
-  Advisory
(Operational/Technical/Corporate)
-  Land Access and Cultural Heritage
-  Environment and Approvals
-  ESG Solutions

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xenith
know the way

Open Cut Coal Services

We're renowned for delivering exceptional service through our experienced, multi-disciplinary technical teams. With deep expertise in open-cut coal operations, we enhance efficiency and performance using the latest technologies and innovative designs. While committed to technical excellence, we also contribute to a sustainable society through assisting our clients in managing their environmental commitments, driving community engagement and encouraging social impact management.

Our expertise spans all stages of open-cut coal mining, enabling us to create value across every phase of the asset lifecycle.



Xenith have expertise to assist your project in:

Studies and Assessments

- Project studies (scoping/ concept, PFS, FS, BFS)
- Due diligence and financial modelling
- Independent expert reports
- Operational and cost improvement reviews
- Operational benchmarking
- Risk assessment
- Project and strategic optimisation

Mine Planning

- Mining method design and optimisation
- Equipment selection and benchmark modelling
- Short-, medium- and long-term planning
- Mine schedule model development, improvement and reporting functionality
- Incorporating fugitive emissions estimates into mine schedule models
- Dumping optimisation in relation to final landform design
- Site support

Governance Reporting

- Reporting of Resources and Reserves in accordance with JORC and NI43-101
- VALMIN code valuations
- Fugitive emissions estimates and reporting
- NGERs reporting
- Tenement management and Reporting

Geological Services

- Geological modelling and resources estimation
- Mine geology
- Geostatistics
- Exploration planning and support

Specialist Design

- Mine Optimiser modelling
- Dragline systems design
- Truck haulage optimisation

Mine Closure

- Closure, rehabilitation and final landform planning
- Rehabilitation material balance and equipment calculation

Our Expertise

Driving global excellence in sustainable resource management

Stripping Study and Dragline Optimisation

We assisted a large open cut dragline coal operation through:

- » Modelling existing dragline methods (baseline);
- » Liaising with the client stakeholders in defining a set of options;
- » Modelling a range of methods in Dragsim, including options for dozer push in the dragline horizon;
- » Producing charts of stripping cost vs coal uncover rate for dragline method options;
- » Producing "traffic light" guidance sheets for each pit to inform short-term planners' decision making;
- » Client implemented changes leading to large actual savings in stripping costs.

Closure – Rehabilitation

A large strip mine engaged us to undertake the final landform design work at site. This work enabled the mine to achieve an amendment to the environmental approvals and apply the new landform to the closure plans.

We modelled multiple scenarios with a range of parameters applied to the landforms. Each model distinguished the method required for material movement via dozers, scrapers or trucks and excavators. The application of draglines for reshaping was also assessed.

All scenarios were costed to enable the client to select the most cost-effective option to be successfully approved for the amendment of the environmental approvals and the closure plans.

Mine Planning (Spry/Haulage Modelling/Mine Site Support)

We were engaged by an open cut mine in central Queensland producing 3Mtpa run of mine (ROM) coal and moving 46Mbcm per annum total waste to provide mine planning assistance to their operation.

This work included:

- » Mine design and reserving for dig and dump activities;
- » Dragline system optimisation (Dragsim) and execution planning (3d-Dig);
- » Short-range forecast scheduling;
- » Construction of the site budget, including setting of production goals based on industry benchmarking;
- » Technical mentoring.

Our input ensured the site worked to productive mine plans, had an achievable budget, and had technical mentoring provided to site personnel to improve their skill base. Our assistance also allowed the site to maximise cashflow through a prolonged period of low coal prices.

Unlocking Value with Pit Optimisation

We partnered with a leading coal mining company to optimise their open-pit operations, yielding transformative results. The client faced escalating costs and inefficiencies due to outdated pit designs and an incomplete understanding of the deposit.

We leveraged cutting-edge tools and methodologies to:

- » Optimise the pit limits by applying refined cost models into Psuedoflow;
- » Redesign the pit shell to access high-value coal seams more effectively;
- » Optimise sequencing to balance stripping ratios and ensure consistent coal quality for the market;
- » Integrate cost-efficient waste handling strategies to reduce haulage and improve cost efficiency.

These modifications not only boosted profitability but also ensured alignment with the current closure plans.

GLENCORE

 **Whitehaven**



MACHEnergy

 **YANCOAL**
兗煤澳大利亞有限公司

 **NHG**
NEW HOPE GROUP