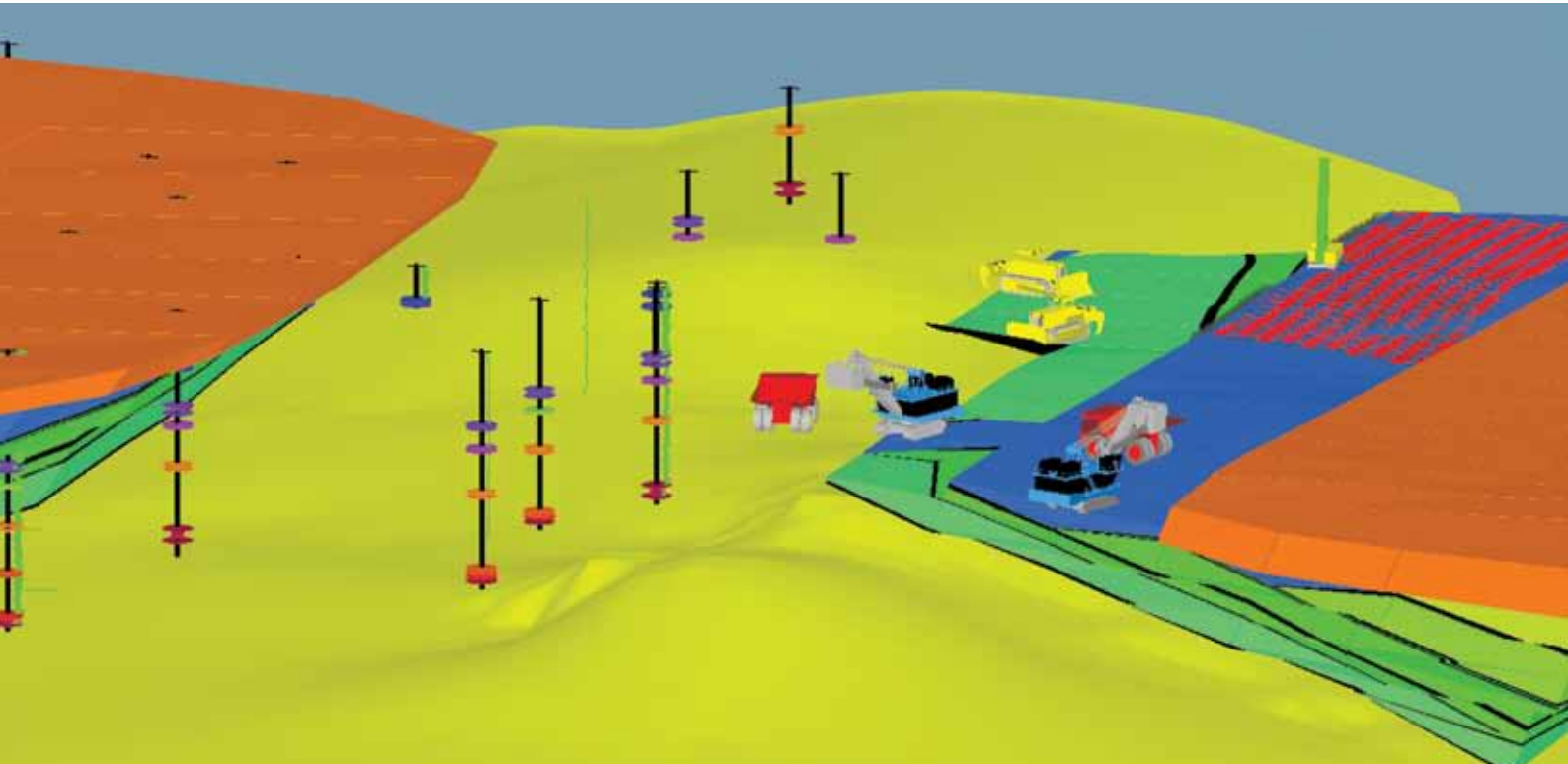# GEMCOM **MINEX**™

Geology and Mine Planning for Stratified Deposits

Gemcom Minex™ provides the best geology and mine planning tools for coal and other stratified deposits, ensuring resources are evaluated accurately and mined efficiently.

Benefits:

···⇢ Speed – Minex is designed to rapidly model large, deep and data-intense coal projects. Minex's high-speed and efficient modelling technology offers significant time and cost savings over other mining packages.

···⇢ Transparency – Visually confirm each stage of the modelling and design process to ensure full confidence in the final model, resources and reserves.

···⇢ Connectivity – Reduce data duplication by easily connecting to corporate databases and common file and data storage formats, including GIS, CAD and other mine planning data.

···⇢ Integration – Improve workplace efficiency and reduce training and errors with a single geological modelling and mine planning package.

GEMCOM

The Only Integrated End-to-end Geology and Mine Planning Solution for Stratified Deposits

Gemcom Minex™ is the only integrated end-to-end software specifically designed for stratified deposits. Fully integrating all aspects of mining from exploration through rehabilitation, Minex ensures that your resources are evaluated accurately and mined efficiently, improving your productivity and profitability throughout the mining lifecycle. Developed in partnership with the mining industry, the software is employed by the world's largest mining companies.

Geological Modelling and Resource Evaluation

The basis of any mine plan is a reliable geological model. Minex offers comprehensive tools to help geologists manage data, model and quantify stratified deposits, with support for even the most complex faults.

Integrated Data Management

···❯ Connect seamlessly to corporate borehole data storage systems including Access, Oracle, SQL Server, and acQuire™.

···❯ Comprehensive tools facilitate data validation, auditing and resource reporting to meet JORC, SAMREC or other stock exchange requirements.

Modelling

The key to accurate geological modelling is effective interpretation. Minex uses all available data (i.e. geophysics, qualities, lithology, washability, and structural) to correlate and interpret the deposit.

···❯ Repeatable, fast and accurate modelling tools build entire models, including seam floor, thickness, quality and other surfaces in minutes.

···❯ Specialised tools for deposits with faults allow accurate modelling of inclined or curved faults, in normal or reverse fault environments.

···❯ Model the complete coal wash curve so that yield, ash and other analyses can be estimated across the entire deposit, and used in resource and reserves reports to simulate plant processes by area or schedule time.

···❯ Multiple industry standard

estimation tools, including an interface to GSLIB for kriging and conditional simulation.

···❯ Variogram modelling includes dynamic lag adjustment to help identify the best variograms for the data.

···❯ Validation tools including Jack Knifing to help ensure confidence in the accuracy of your geological models.

···❯ Contouring, sectioning, 3D borehole, statistics and histogram displays to maximise resource presentation to managers, mining engineers or investors.
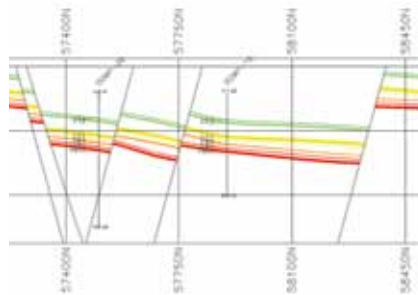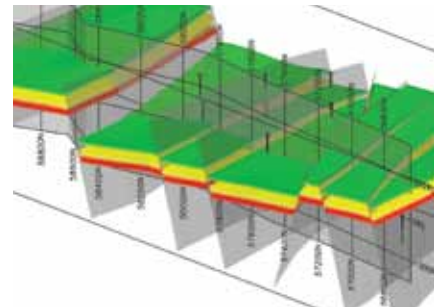

Cross section through a faulted seam model, with borehole traces.

Mine Planning

Minex mine planning functions are integrally linked to the geological model. Planning starts by defining the economic or best coal areas, so these areas can be targeted during the subsequent pit design phase. Once designed, the reserves and quality data are stored in a database to provide fast access for viewing, editing and manipulation.

Optimisation

···❯ The Minex Pit Optimiser locates and generates a final pit that is break even at its limits, using the well known Lerchs Grossman (LG)

3D slice through faulted seam model.
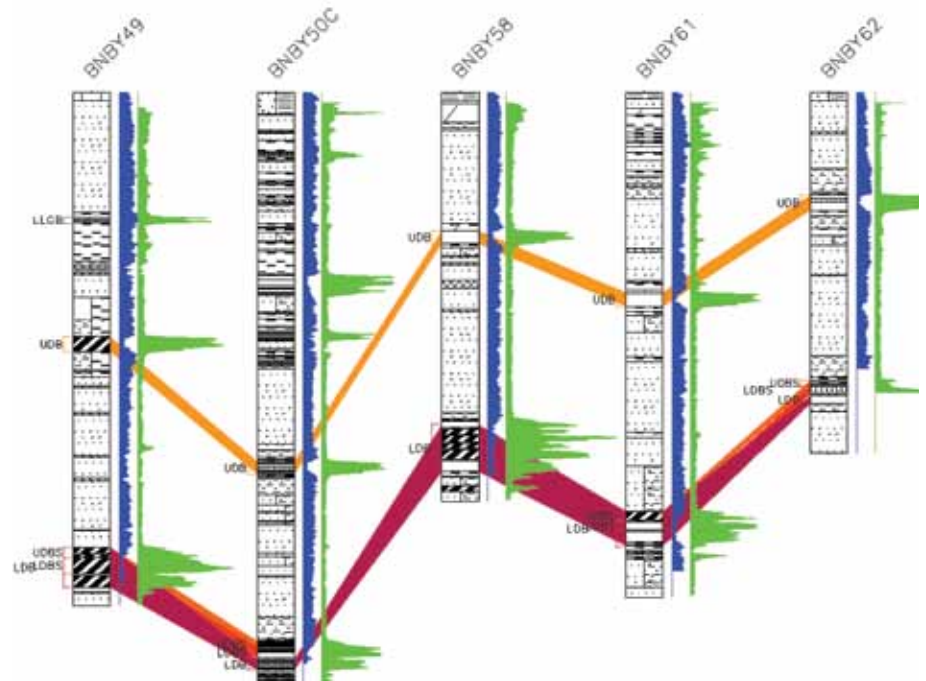
Borehole cross section filled with lithology, showing gamma and long spaced density geophysical signals, with seam correlation lines.

Life of mine pit, ramp and dump design.

algorithm. Pit optimisation is ideal where pits are deep and the material in the sloping final highwall makes a vertical analysis difficult.

⇢ For simpler flat lying deposits Minex provides both vertical and inclined strip ratio calculations.

Mine Design

⇢ Powerful and easy to use Pit and Ramp Design tools allow manual or automatic generation of pits or dumps. Ramps are generated as the pit or dump is created, providing instant visualisation of your project.

⇢ Design a road or spoil pile on any existing mine topography, and easily patch this into existing surfaces.

⇢ Mine designs are integrated with the geological model and optimisation output, enabling fast, accurate and timely designs. Minex dissects the deposit into a set of mining volumes using the intersection of benches, strips and blocks with the geological model.

Short-term Production

Minex provides you with a number of daily production tools:

⇢ Users can interface with a variety of modern Survey GPS instruments to download from the field, or upload for peg out.

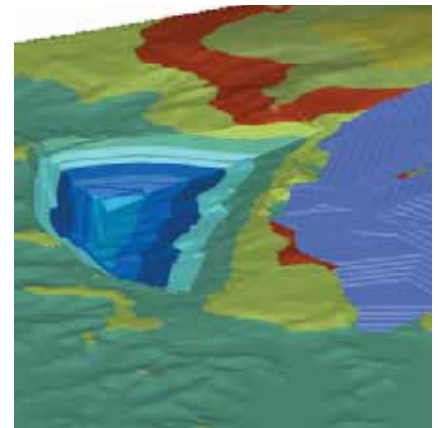⇢ Quickly and easily design blasts in 3D and upload to equipment for GPS drilling control.

⇢ Build maximum dumps to an elevation, a design surface (such as a permitted limit), or until a desired volume is achieved.

⇢ Design dragline dumps.

Mine Scheduling

Effective mine scheduling is a critical part of any mining operation. Smart scheduling of layered deposits, using tools specifically designed for the task, can be the difference between an operation being viable, and one being marginal or losing money. Minex provides numerous scheduling tools to help you get the most from your mine, while efficiently planning the costly extraction of waste material.

⇢ Detailed Interactive Scheduling – Create schedules by interacting with rich 3D graphic displays generated directly from Minex seam models, pit designs and reserves.

⇢ Target Scheduling – Seek a volume or tonnage in a given scheduling period.

⇢ Excellent flexibility in the monitoring of schedules using "live" current period and historical charts and tables.

⇢ Visually monitor waste and ore extraction information as a schedule progresses to improve decision-making and to save time by finding and resolving potential problems early in the scheduling process.

⇢ "Play" any saved schedule to visualise it graphically. This effectively communicates plans to management and operators, and visually validates the plans practicality.
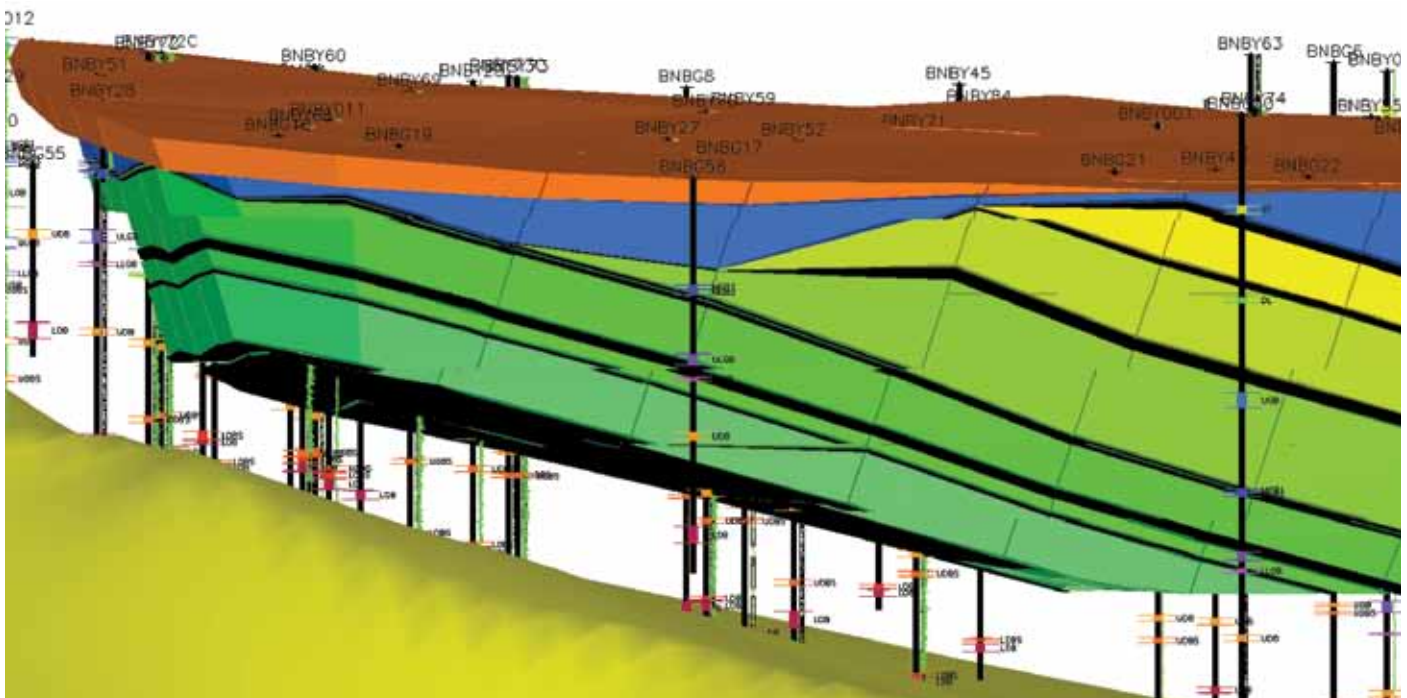
3D view of seam model reserves blocks that are ready to schedule, with boreholes and geophysics.

····∶ Easily perform multiple "what-ifs" by choosing a point in an existing schedule to create a branch where you can test an alternative scenario.

····∶ Schedule reporting includes flexible and detailed reports that can be exported directly into Microsoft® Excel®.
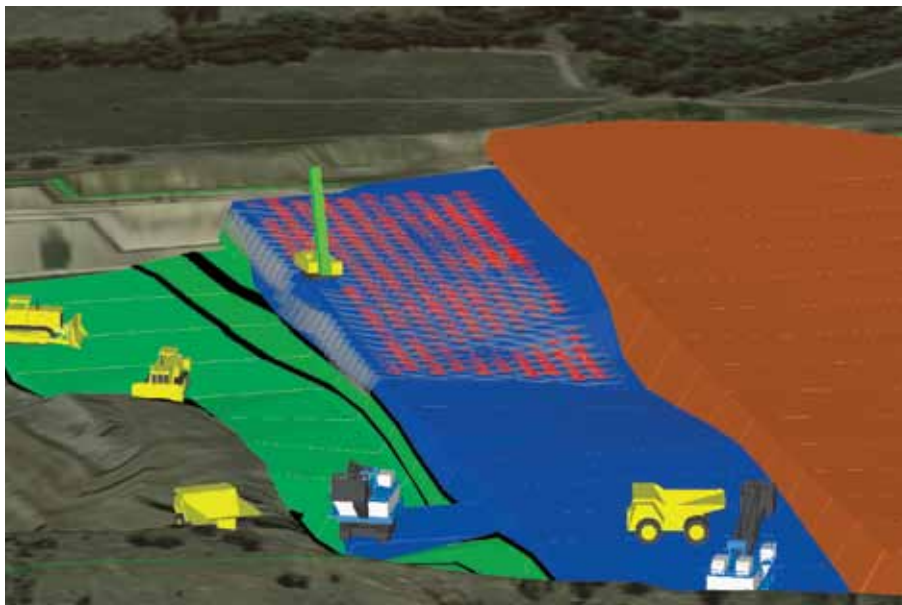
Mine Rehabilitation

Minex's mine rehabilitation functions are integrally linked to other planning processes, allowing you to successfully plan the construction and rehabilitation of final landforms.
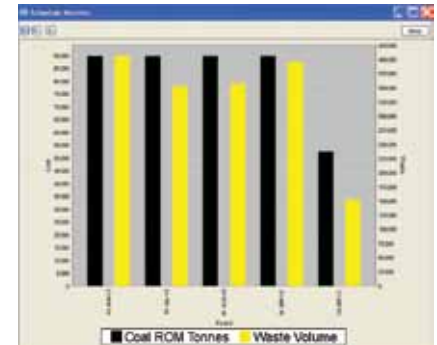
····∶ Staged dumps can be quickly designed from the excavation surface to an elevation or landform design. Dump volumes can be progressively matched to the schedule period volumes ensuring the dumps are practical.

····∶ The Cross Section Rehabilitation tool simplifies the complex task of dozing down a truck shovel dump to form a final rehabilitation surface.

····∶ The Spoil Reshaping tool smoothes mine dumps into a final landform that meets environmental limits while minimising reshaping costs.
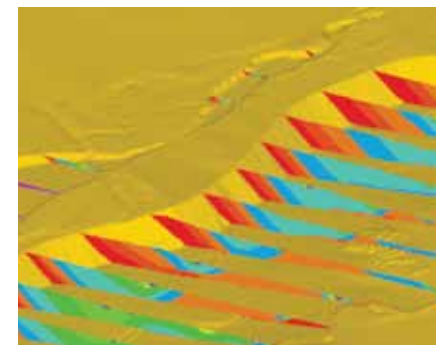
····∶ Minimise dozing while meeting elevation and slope restraints.

····∶ Achieve significant cost savings in both landform design and dozer hours.

Live schedule graphical monitoring.

Detailed Interactive Schedule progressing, with overburden blast design.

Final optimised pit shell, with progressive increasing sale price pits shown on cross sections.

For more information email minex@gemcomsoftware.com or visit www.gemcomsoftware.com/minex.

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When mining companies seek to increase mine productivity, they turn to Gemcom for technology and services. The Company is home to world-renowned mining solutions like GEMS, Surpac, Minex, Whittle, and InSite, and to industry thought leaders who are pushing the boundaries of what's possible in mining.

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