INTEGRATED PLANNING TOOLS FOR OPEN PIT METALS OPERATIONS

Strong technical solutions tailored to specialized industry needs

Deswik has developed a fresh and innovative range of unique tools that span the value chain from receipt of a geological model through to reporting for costing. Our software incorporates design and scheduling features across the core platform and associated modules, including:

- Comprehensive core functionality for open pit metals operations at both long and short-term planning horizons:
  - 3D mining reserve solids with integrated Gantt scheduling
  - Handle complex geological block models
  - Superior Boolean processing for accurate 3D solids
  - Detailed process management via Deswik workflows.

- Deswik.AdvOPM provides advanced open pit metals tools such as:
  - Automated Road design
  - Truck limited haulage
  - Margin ranking and pit shell optimization
  - Advanced scheduling functions including backwards pass resource leveling, objective targeting and resource path importing.

- Deswik.OPDB to develop comprehensive open pit production drill designs.

Our integrated planning tools give our software the proven capability and reputation of taking a project from the design stage to a schedule faster than ever before.
An Integrated Solution

Dynamically link your mine designs and schedules

Deswik uses best practice mine planning techniques embedded in next generation software enabling you to spend more time analyzing and planning scenarios rather than manipulating data. Built on our core software modules Deswik.CAD and Deswik.Sched, and linked via Deswik.IS, our integrated approach to mine planning helps our clients to deliver more with their mine planning expertise.

3D design environment

- Easily generate accurate 3D solids from bench polygons, blast masters and geological control strings.
- Variable ramps, graded switchbacks, automatic berms and tracing for cutback design.

Powerful design

- Automated reprojections allow quick analysis of conceptual pits and haul roads prior to finalizing design.
- Multiple pit design parameters based on block model fields, 2D polygons or 3D solids.
- Create bulk Boolean rules to cut or merge thousands of solids in one operation without error, cutting against topography and pit designs.

Geological data

- 3D visualization of block models.
- Import and validate block models from various mine design software packages.
- Interrogate solids against user defined block models with legends based on filters.

Data manipulation

- Calculate medium-term and long-term drill and blast values, such as powder factor or holes by length, using intuitive formula builders.
- Attribute graphics with user calculated property fields from Deswik.Sched to visualize mined grades in the graphics.

Interactive scheduler

- Create derived tasks such as grade control drilling, production drilling or production blasting.
- Superior control of dependency creation allowing the user to develop specific mining sequences combined with varying shaped mining blocks.

Powerful scheduling

- Gantt Chart based scheduling is easy to update and readily understood by all stakeholders.
- Schedule within the long-term horizon and still retain all the detail required for short-term scheduling and execution in the one model.

Landform and Haulage modeling

- Multiple haulage strategies that can be varied over time, such as Minimize CycleTime, Minimize RL, Minimize Fuel Usage or Minimize Cost.
- Multiple scenario manager and comparison tools including automated updating of Deswik.Sched with key haulage information for reporting.

Superior reporting

- Use the comprehensive reporting functionality to easily export data to Microsoft Excel.
- Use critical path and float analysis to help manage complex scheduling.

Inclusive platform

- Import from and export to most mine design and CAD software packages.
- Customize and manipulate data using plugin and scripting interfaces.
Deswik.AdvOPM

Advanced functionality tailored to the specialized demands of open pit metals operations

Pit shell optimizer
- Using reserve solids, grids or block models, vary the revenue to calculate the pit shell delivering the maximum undiscounted cash flow.
- Allows users to rapidly identify the economic limits of the deposit.

Truck-limited haulage
- Specify truck fleet and the system dynamically models the mining and dump schedules based on trucks available.
- TLH is also appropriate for modelling mixed-fleet haulage scenarios.

New Landform and Haulage options
- Incorporate conveyor systems with fixed and mobile conveyor load points, modelling interaction with normal truck haulage circuits.
- Include trolley assist haulage options into landform scenarios.

Advanced resource leveling
- Access to features such as backwards pass leveling, multi-field or sink rate targeting and time usage models.
- Short term manual scheduling via interactive resource paths or import resource paths from other packages.

Reconciliation
- Generate as-mined, as-designed and difference solids from initial, design and final surfaces.
- Detailed reporting of compliance to plan from a 3D perspective.

Margin calculator
- Wizard-based calculation of Net Present Value and incremental, cumulative and maximum cumulative margins from reserve solids.
- Import, export and run multiple scenarios against defined costs and revenues as required.

Calculate Stereonets
- Import strike azimuth and dip data to generate geotechnical Stereonets directly in the Deswik CAD design space.
- Support Schmidt, Wulff, Rose and observation diagrams.

Automated road design tool
- Determine cut and fill requirements from road centrelines, with solids creation and surface updating.
- Design to gradient and bench and berm limitations with cut and fill balancing for dropcarts.

Pseudoflow
- Alternative pit shell optimization algorithm providing the same resultant pit shells as Lerchs-Grossman, but significantly faster.
- Efficiently removes “redundant” options, reducing processing requirements.
- Additional speed lets you run an increased number of iterations.
- Allows for the generation of many options and determination of what the key drivers are for ultimate pit shell size.
- Use variations to run a static set of formulae for a set number of iterations to generate ‘Hill of Value’ optimizations.
Deswik.OPDB

Fast, efficient drill and blast design for open pit mining methods

- Construct hole templates with design parameters such as fixed/variable collar or toe spacing, angle changes and variable toe horizons.
- Rapidly generate drill patterns using pre-defined hole templates then manually adjust as required to final design considering previous design and geological structures.
- Audit drill patterns against blast hole distribution and location constraints.
- Update holes layouts against survey and design changes, fast and intuitive hole numbering.
- Export design data ready for direct import into BMI’s BlastPlan Pro blast design software.
- Rapidly setup plot templates with tables referencing key design information that updates for each plotted drill design.
- Export to various data formats and upload the design directly to the drill rig.
- Distribute drill designs and GPS guidance files to surveyors in either DXF or CSV formats.

Deswik.Blend

Optimize your product value with material flow modeling

- Material flow modeling and targeting that closes the planning gap between pit production and blended product.
- Blend production outputs from any mining complex, including both surface and underground feeds and multiple plants.
- Outputs are balanced across defined periods against the competing priorities of product quantity targets, product specifications and maximizing the value mix for multi-product scenarios.
- Integrated seamlessly within Deswik.Sched eliminating any manual transfer of data.
- Extend the results to Deswik.LHS for haulage scenario analysis including stockpile reclaim and reject placement trucking.

An Integrated Platform

Dynamically link your mine designs and schedules

“Digging deeper to expose more value in open pit metals mine planning”
Our industry-leading consulting solutions include

- Mine Planning, Design and Scheduling
- Equipment Selection and Optimization
- Geological Services
- Technical Due Diligence, Peer Reviews and Audits
- Software Implementation
- Scoping, Pre-Feasibility and Feasibility
- Process Mapping and Improvement
- Mergers and Acquisitions Support