## RPMGLOBAL

# **Underground Potash Solution**

## RPMGlobal redefines mine planning and scheduling.

There is no other solution that can match the 50+ years RPMGlobal has focused on the mining industry to deliver the industry benchmark in planning.

RPMGlobal's Underground Potash Solution (UGPS) is a complete mine planning tool that incorporates best of breed design, reserving and scheduling capabilities into a single, easy to use package. **The fully integrated planning solution is designed specifically for underground potash mines.** RPMGlobal has a long history in potash operations and UGPS provides this experience in a state of the art software solution. With UGPS, the mine layout is modelled in true 3D with changes to any model introduced easily and quickly. Schedules are created interactively using a combination of automatic and manual methods, while monitoring the deployment of all equipment on a synchronised animation plot.



### Benefits



#### Reserving & Working Section Modelling

UGPS builds a detailed 3D model of the mine's geology directly from the mines structure and quality grids. Working section composites are then created that account for the minimum and maximum working height of the mine's equipment. The working sections automatically incorporate the additional strata that must be mined when seam thickness becomes too small and the lost potash when the seam thickness is too high.

#### Dynamic Stratigraphic Design

The 3D design capabilities within UGPS is unlike any other. Users don't just design the panels and headings within the mine; they also define how they behave when they intersect major features, such as lease boundaries, collapse zones, wells and other exclusion zones. As the mine layout is created and adjusted, the panels dynamically respond to these features, avoiding a huge amount of repetitive, manual refinement.

#### **Conveyor Modelling**

Customers can define the characteristics of all conveyors used in the mine and graphically specify which headings each type of belt will be installed. The conveyor network acts as a constraint on the overall production, ensuring production from multiple faces never exceeds the capacity of the out-bye conveyors. Delays are also inserted into the schedule automatically to account for the installation, extension and removal of belts during the life of each panel.

#### **Advanced Mining Rules**

Many of the mining rules needed to ensure a practical schedule are generated automatically. The mining sequence within each panel is fully automated, including all rooms and crosscuts, access and turning roads. The availability of each panel is also restricted automatically until access is available from the parent.

#### Parametric Scheduling

100% script-free, UGPS is built on the principle of Parametric Scheduling, helping users generate practical schedules in a fraction of the time it would otherwise take. Robust automated mining rules ensure panels become available only once they have appropriate access. Once each panel is chosen to be mined, the rooms, crosscuts, access roads and turning roads are developed in a logical sequence. Flexible controls are provided to manage the number of miners deployed in each panel and each section. Advanced heuristics ensure unnecessary equipment relocations are avoided and when equipment must be relocated, delays are inserted into the schedule that reflect the distance the equipment must move.

When users want greater control over the schedule, they can run it interactively. The schedule can be paused at any point in time or run until a key event occurs. This gives planners the opportunity to see where the major equipment is operating, either in the 3D animation or on the Gantt chart, and adjust deployment accordingly.

#### Integrated Product Optimiser

Running simultaneously as the schedule progresses, the Product Optimiser removes the need for pre-schedule or post-schedule blending strategies. It uses mixed integer linear programming to identify the optimal blending strategy for the schedule to meet any number of different products. Users can configure multiple stockpiles and process plants and provide each one with its own set of operating assumptions.

The Product Optimiser can model situations where multiple sources are feeding a single process plant to help planners understand the impact of their schedules on final product qualities and the mine's ability to satisfy long-term contracts.

### Intuitive, Practical Scheduling Rules with a Process Driven UI

UGPS uses a process driven workflow that's 100% script free, making it fast to implement and easy to learn. Rather than complex menus and options hidden within deeply nested dialogues, the repeatable process provides every option exactly when and where required. Whether they last used the solution yesterday or six months ago, planners will be up and scheduling in no time. And because the process has been designed specifically for the challenges of underground potash mining, we have avoided the heavy reliance on scripting that's common with alternative tools.





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#### 'What if' Scenario Analysis Capability

With its intuitive, process-driven user interface, highly automated mining rules and extremely rapid scheduling speed, engineers can focus on delivering value knowing the solution has the mining logic covered. You are no longer forced to accept the best option the planner can manually generate in the limited time available. Our scheduling solutions give engineers the opportunity to explore alternative 'what if' scenarios to truly understand how best to drive the mines production in changing market conditions.







#### **True Enterprise Mining Solution**

UGPS synchronises models on a central repository, ensuring a full history of all changes is made. Any number of users can share these models using a managed checkin/check-out approach that facilitates an unparalleled level of collaboration. UGPS can acquire raw data from any software application across the mining value chain. It can also obtain data and publish scheduling results directly to corporate enterprise systems via RPMGlobal's Enterprise Planning Framework (EPF), making it the only Enterprise-enabled mine scheduling application available. It seamlessly integrates with financial systems, ERP's, Fleet Management Systems and Execution/SIC systems to deliver a single source of truth.

#### About RPMGlobal

RPMGlobal is the global leader in the digital transformation of mining. We provide data with context, transforming mining operations. Our Enterprise approach, built on open industry standards, connects systems and information to amplify decision-making across the mining value chain. RPMGlobal integrates the planning and scheduling, with maintenance and execution, with simulation and costings, on RPMGlobal's Enterprise Planning Framework, the mining industry's only digital platform that delivers insight and control across these core processes.

With origins dating back to 1968, we have proudly delivered premier consulting and advisory services to the global mining industry for more than 50 years. RPMGlobal's Advisory Team advise the global mining industry on their most critical issues and opportunities, from exploration through to mine closure. Our deep domain expertise, combined with a culture of innovation and global footprint, ensures our mining customers continue to lead. RPMGlobal is the global leader in Enterprise mining software, Advisory services and Professional development, operating offices in 22 locations across 13 countries and have worked in over 125 countries. For more information visit rpmglobal.com or email info@rpmglobal.com.

