



MINE ADVISOR™ UNDERGROUND PLANNER EXTENSION

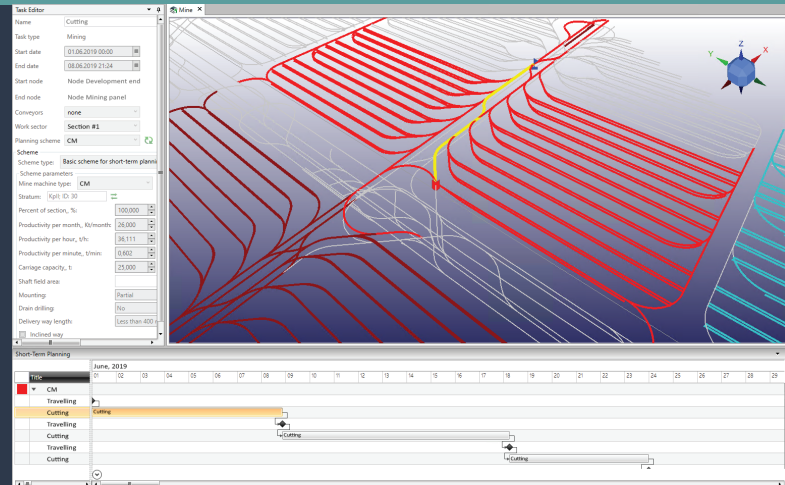
DIGITAL TWIN-DRIVEN PLANNING, SCHEDULING AND OPTIMIZATION FOR UNDERGROUND MINING OPERATIONS

OVERVIEW

The Mine Advisor™ Underground Planner Extension is an advanced planning and decision-support module within the Mine Advisor™ platform. The extension combines geological models, mine development status, production targets, equipment availability, and operational constraints within a unified Digital Twin environment.

Using simulation-driven workflows and optimization algorithms, the system enables mining companies to generate realistic production plans, evaluate alternative operating scenarios, and continuously adapt schedules to changing underground conditions.

The result is improved productivity, higher resource utilization, and greater confidence in production forecasting.



KEY CAPABILITIES

COMPREHENSIVE PLANNING

Generate integrated development and production plans based on all major underground mining activities, constraints, and available resources.

SHIFT-BASED CONTROL

Translate production schedules into executable shift plans and monitor actual versus planned performance in near real time.

ADVANCED OPTIMIZATION

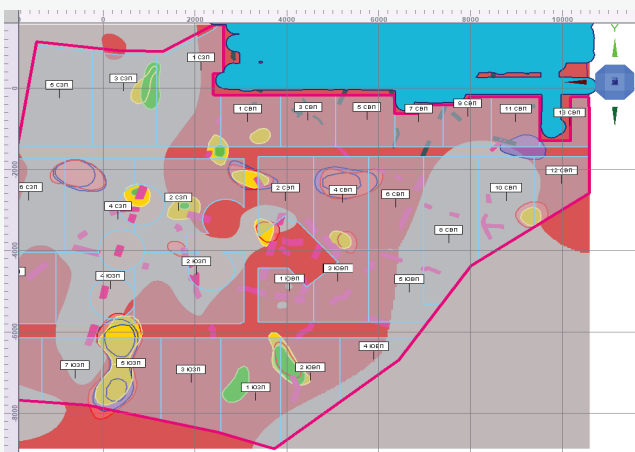
Utilize genetic algorithm-based optimization techniques to evaluate alternative scheduling scenarios and identify efficient production strategies while balancing equipment availability, resource utilization, and operational constraints.

DYNAMIC REPLANNING

Rapidly adjust schedules and forecasts in response to changing geological, operational, or equipment conditions.

SCENARIO EVALUATION

Assess multiple production alternatives and compare their impact on production targets, resource utilization, and operational performance.



RESOURCE CALCULATION FOR DIFFERENT CUT-OFFS

Interactively estimate available mineral resources by simultaneously taking into account multiple parameters, such as grade, seam thickness, dipping angle, and dilution, in full compliance with JORC and SAMREC standards.

ACTUAL VS. PLAN RECONCILIATION

Track deviations, identify bottlenecks, and continuously improve planning accuracy through integrated analytics.

CORE FUNCTIONALITIES

- Mid-term production planning
- Short-term scheduling and operational planning
- Shift-level micro-planning and control
- Production forecasting and scenario evaluation
- Development and production coordination
- Equipment and resource management
- Capacity-constrained scheduling
- Operational KPI monitoring
- Actual vs. plan reconciliation and analytics
- Management reporting and dashboards
- What-if analysis and scenario comparison

NATIVE MINE ADVISOR™ EXTENSION

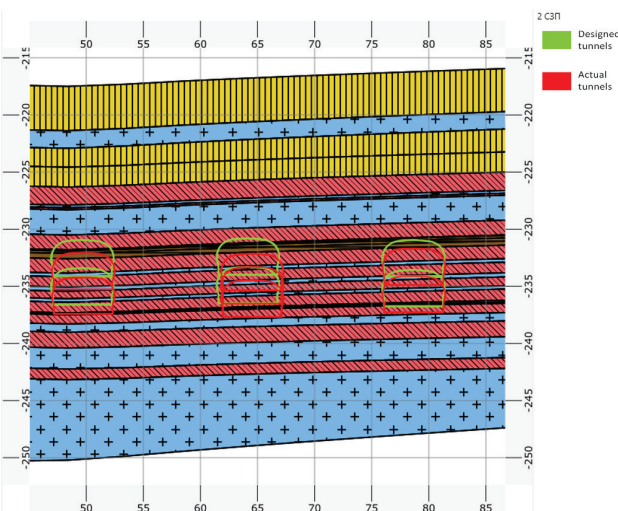
The Underground Planner Extension is a specialized Mine Advisor™ application developed specifically for underground mining operations. Built on the Mine Advisor™ platform, it utilizes shared geological, survey, planning, and operational data within a unified Digital Twin environment. This common architecture enables efficient planning, forecasting, monitoring, and decision support from a single source of truth.

BUSINESS VALUE

- Improved production performance and schedule reliability
- Enhanced utilization of equipment and personnel
- Better forecasting and management visibility
- Faster response to changing operational conditions
- Reduced operational risk through simulation-based planning
- Improved decision-making through data-driven optimization

FROM PLANNING TO EXECUTION

The Underground Planner Extension connects production planning with day-to-day mine operations within a Digital Twin environment, providing a continuous flow of information between planners, supervisors, and management. The result is improved schedule reliability, increased operational visibility, and more effective decision-making across the mining operation.



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