GOING UNDERGROUND: MINESIGHT AND THE FUTURE
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Better known for its open-pit applications, MineSight continues to be the software of choice for several underground mines. Now MineSight’s creator, Mintec, is channeling more than 40 years’ experience into underground mine evaluation and underground mine engineering tasks. The goal: to be the only software worth considering underground.

Mintec has been a leading player in the mining software market since 1970. MineSight’s 3D CAD package already makes quick work of mine design tasks, such as 3D layouts of primary underground development (shafts, adits, ramps, etc.), secondary development headings (stope access drives, draw-point crosscuts, slot raises, etc.), stopes, rooms, and pillars.

Blasthole rings and fans are designed with MineSight’s Ring Design tool. MineSight Underground Survey tools handle underground mine progress monitoring and as-mined volumetrics and shapes. This includes importing data from optical scanners (Cavity Monitoring Systems). MineSight’s reserve calculation routines intersect the grade model of the deposit with the underground design solids to produce underground reserve estimates of partial block accuracy - with or without recovery and dilution factors.

To consolidate these tools, Mintec has embarked on significant software development in underground mine evaluation and scheduling. This development is split into three application areas.

- Conceptual level studies
- Long term scheduling needs for feasibility level studies
- Short term scheduling needs at operating mines

Software under development for Conceptual level studies will focus on quick underground evaluations, based solely on the grade/geology model of the deposit. No detailed mine design work is required at this stage of the evaluation. MineSight Stope is in testing and will provide the following functionality:

- Algorithms to determine economic stope boundaries for quick reserve estimates, with or without recovery and dilution factors
- Segregation of economic stoping areas into individual stopes and pillars
- Scheduling of individual stopes to determine a Net Present Value for the potential underground mine

The program performs multiple case evaluations and utilizes database technology for storing individual case results. MineSight’s Advanced Reporting and Charting tools present and compare the results from different cases.
Long-term underground scheduling needs for feasibility level studies will be accomplished with an underground version of MineSight’s popular open-pit medium/short-term scheduling program, MineSight Schedule Optimizer.

Inputs to the program will include the following:

- Annual tonnage and grade targets
- Development rates and precedences
- Stoping rates and precedences
- Optional user controls
- Capital and operating costs

Outputs from the program will include the following:

- Maximized NPV annual schedule of
  - Major access development
  - Stope development
  - Stope production
  - Pillar extraction
  - Backfill activities

Presentation of the life-of-mine schedule will be performed using:

- MineSight’s Advanced Reporting and Charting
- Gantt chart display of schedule
- MS3D visuals and animation

Short term underground scheduling needs at operating mines will be accomplished by MineSight Atlas, which is under development. Atlas will allow true calendar-based scheduling of underground development activities, stoping activities, and backfilling activities. This will be based on a starting date and a rate of advance in units of meters/day, tonnes/day, cu.meters/day, etc. MS3D graphics will be linked to a dynamic Gantt chart display of the calendar-based schedule. This will include assignment of resources to different activities, consideration of resource limits, and bottlenecks in the schedule.

Mintec looks forward to a bright future underground. MineSight’s formidable mine design capabilities, coupled with the new developments under way in mine evaluation and mine scheduling, will create a complete underground engineering solution for all types of deposits and underground mining methods.
Minesight Atlas will set a new standard in short-term planning products.

About Mintec
Mintec, Inc. is a software developer and service provider for the mining industry. Founded in 1970, Mintec has grown into a global network of mining professionals providing technology, service, and support in the most complex mining operations in the world. Minesight, the company’s comprehensive modeling and mine planning software platform, offers integrated solutions for exploration, modeling, design, scheduling and production. Headquartered in Tucson, AZ, we deliver efficiency and reliability that improves productivity at every stage of your mine’s life.

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