

# Creating optimized drill programs that add real value, and integrate with mine planning

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## ABSTRACT

Using new technology to create optimised drill program designs, it is possible to quantify the value of a drill program. The computer designed programs are optimised to uplift the most amount of resource possible into the specified resource classification, while honouring geological, spatial, equipment and budgetary constraints.

When designing 'by hand', balancing all of these factors is a time-consuming effort with no real way to determine metrics on 'how good' a program will be. The optimisation considers many factors allowing geologists to apply critical thinking and domain knowledge to constrain the optimisation, letting the computer do the heavy lifting of determining hole placement.

Once programs have been created, they can be integrated into a production schedule. This is a critical step in determining the correct sequencing and balancing of resource availability and seeing how a program will interoperate with other tasks in the mine. For example, if drill drives are a requirement for part of the program, will they be developed in a timeframe that is useful for the goals of the program? Do we risk drilling infill holes too late to add value? Do we put production at risk by not classifying parts of the model ahead of time, thus adding to uncertainty?

Using software to assist with optimising and scheduling of drilling is a useful technique to save the geologists from the mundanity of manually laying our drill programs and puts metrics around the effectiveness of a program and has the potential to add quantifiable value to a program.

Several examples will be presented that demonstrate the effective use of drillhole optimisation, comparing manual designs with optimised designs, as well as the examples that show the effective use of scheduling to manage limited availability of drill locations.