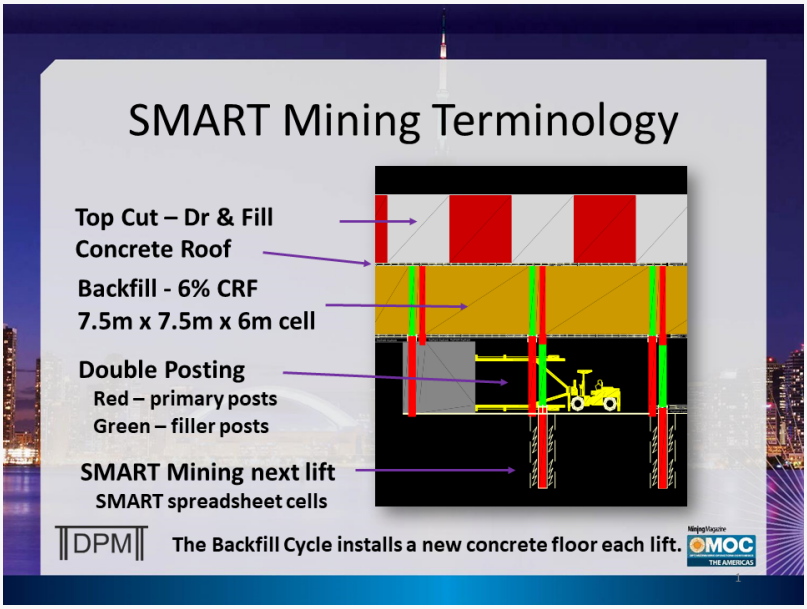
DPM Mining Inc. Announces SMART Panel Mining Cost and Productivity Estimates evolving from Canadian Patent No. 2853584

Mining a 15m wide SMART panel under a concrete roof costs $25 per ton and generates a productivity of 40 to 60 tons per man shift with increased safety.



16. SMART Mining Terminology

TORONTO, ONTARIO, CANADA, May 26, 2021 /EINPresswire.com/ -- DPM 6 – SMART Mining Cost and Productivity Analysis

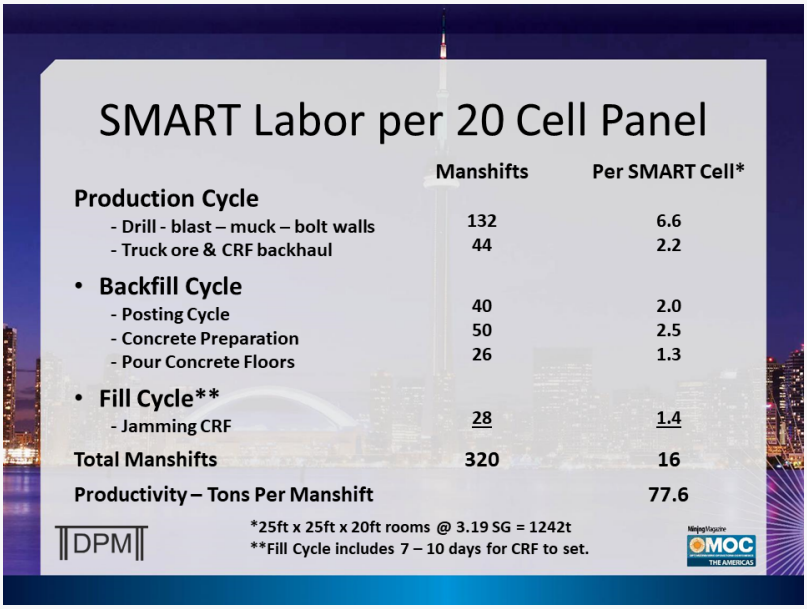
Private Mining Research Company, DPM Mining Inc is pleased to announce a key invention has been issued which allows creating a new SMART underground mining method. SMART coverts mining of an mid sized orebody to a set of linked spreadsheets rather than a series of stopes and pillars. The geological 3D block modelling program can easily calculate the grade or NSR value of each SMART cell.

SMART is a true expert mining system. Each time you rerun the SMART cell output table, generated by a 3D geological block modelling program, updates the data accuracy of each ore cell remaining to be mined. All SMART cell data is re-kriged, including ore grade, SG, metallurgical recoveries, cost data and other key factors like ore hardness or acid generating potential.

The geological model also generates the 3D location of SMART cells per each 6m lift. Top cut post holes are surveyed in to match the 3D corners of each cell. The inserted primary posts and concrete floor installation costs are allocated to the 1st lift of SMART cells. The top cut mining cost only includes the cost of 10m of 5m x 6m, multiple face drifting, plus the cost of jammed CRF. Image 16 shows SMART mining from the top cut down to the 3rd lift, posting on the 4th lift creates a SMART spreadsheet.

The SMART basic mine design is to load ore trucks at the face of a 15m wide panel, truck to

surface, backhaul CRF on the return trip to fill a nearby panel. Mining multiple panels allow scheduling mining equipment at 100% of design capacity as working under a concrete roof eliminates most ground control delays. The labor and material components to mine a SMART panel are standardized thus costs can be adjusted and transferred from mine to mine.



17. SMART Labor per 20 Cell Panel

A 2 boom EH jumbo shown in Image 16 was used as a basis for panel scheduling. The jumbo can drill off a 15m wide panel face in 4 hours, the equivalent tonnage of a SMART cell. A battery or electric powered 6m3 LHD, can also easily load the same tonnage. To schedule mining equipment at design capacity, requires mining and backfilling multiple panels in parallel. Each panel has 3 separate work schedules, each requiring different sized mining crews. See Image 17 for a labor estimate for mining and backfilling a SMART panel.

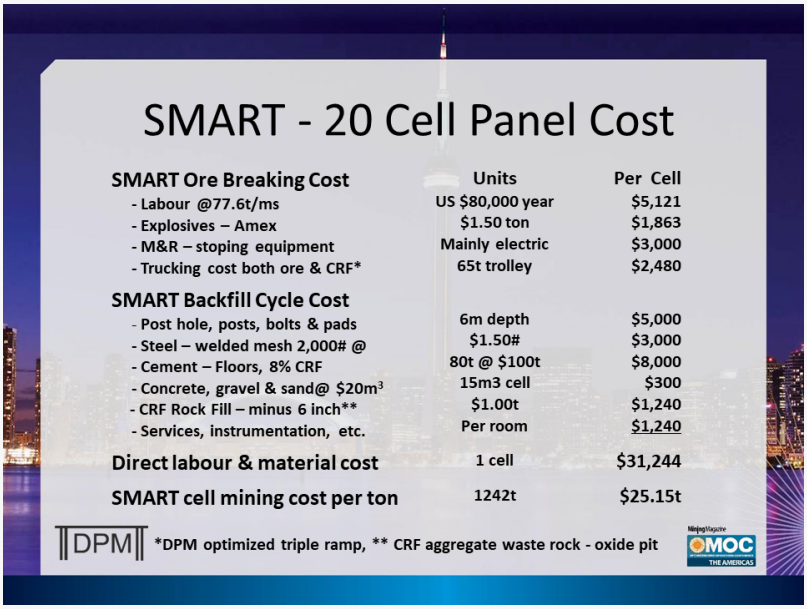
> Blasthole mining productivity is 10t to 20t per man shift and is dropping 3% per year. SMART mining ranges between 40t to 60t per man shift an immediate 200 to 300% improvement in productivity ."
>
> *Charles Gryba, Mining Engineer, Inventor quotes*

The 3 SMART cycles are:

1. Production cycle – the drill, blast, and load truck schedule. You require 3 or 4 panels to keep the jumbo drilling and the other production equipment working continuously.
2. Backfill cycle – you require an equal number of panels in a backfill preparation cycle which includes drilling post holes, posts installation, leveling cushion ore, laying out the welded steel mesh using bricks as spacers, installation of sand forms then finally pouring the continuous concrete floor filling the gaps between the red and green post flanges shown on Image 16.
3. Fill cycle – the process of jamming CRF to tight fill the entire panel after the concrete floor has set, then having to wait 7 to 10 days for the jammed fill to set.

The manpower for each SMART cycle was optimized so that the production, backfill preparation and CRF jamming each average 15 days. The overall time to cycle a 20-cell panel is 45 days thus it takes 7 or 8 panels or about 150 cells top sliced to steady state mining 1 SMART cell per day under a concrete roof. The post hole drill can drill 3 post holes per 10 hour shift thus can

support mining 500 cells per shift allowing the mine to scale production up to 1 - 2 mtpy.



18. SMART 20 Cell Panel Cost

The detailed analysis of an individual panel also shows that it takes 320 man shifts of work to mine and backfill a 20-cell panel. The productivity of 77.6t per manshift assumes a SG of 3.19 for a base metal orebody. The labor productivity now allows estimating the labor and material cost to mine a SMART panel. The mine staff and maintenance crews were not included, they could add 30% or an additional 8 manshifts per cell. See Image 18 for the SMART panel mining cost analysis which includes trucking ore to surface but not G&A or sustaining capital.

A SMART mining cycle takes 16 manshifts to mine 20, 337.5m3 cells at a cost of $25.12 per ton based on a ore SG of 3.19. The SG can range from 2.6 to +4.0 thus a SMART cell tonnage can vary from 877.5t to 1350t. SMART mining productivity thus can vary from 54.8 to 84.4 tpms by just adjusting for the specific gravity. The annual cost of labor and fringe benefits is also site specific. For example, a Goldcorp or Newmont miner in Timmins costs $80,000 year. An equivalent miner in Mexico may cost $20,000 year, an Arizona miner US$80,000, and for a remote Canadian or Alaskan mine, $250,000 per year. The key factor is that it only takes 16ms of work to mine a SMART cell; adjust the minesite labor and material costs to suit the mine location.

The Penoles test mining project proved the SMART technology can safely mine a 15m wide panel. SMART mining costs are about $25 per ton for orebodies in the 10 to 100 million ton range. A site adjusted, first pass SMART mining cost of $30t which includes $5 of G&A and sustaining capital, could be used for NI 43 101 or PEA financial evaluations. The financial affect of eliminating dilution, recovering ~100% of the orebody plus increased miner productivity and safety can improve the NPV by 50% or more.

Rather than keeping the SMART technology confidential 10 EIN press releases will be issued to explain SMART to both the mining and financial markets. To quantify some of the 40 SMART disruptive advantages, 4 well known mines will be re designed using the SMART platform.

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