



# 4 WAYS CAT TERRAIN FOR DRILLING ENHANCES YOUR ENTIRE OPERATION

When drilling starts on a new blast pattern, it begins a chain of activity that adds value from the shot through the loader to the haul fleet and right into the crusher. The cost and efficiency of every downstream operation depends on executing the drill pattern accurately, safely, and efficiently. Here are four ways Cat® MineStar™ Terrain for drilling enhances your entire operation.

1. **Turning plans into reality** for rock fragmentation and material & grade management
2. **Improving site safety** where there is high risk: equipment on a high wall, blasting with explosives, knowing the blasting strata
3. **Enabling dependable schedules:** TUM data, tracking work completion and monitoring progress
4. **Reducing operational expenditures:** nonproductive drill meters, secondary operations, managing drill tool lifecycle; improving cycle times and fill ratios

## 1 TURNING PLANS INTO REALITY

Drilling operations are the start of the drill-to mill-processes. The plans crafted for each segment of the process are dependent on the quality of compliance achieved in the previous processes. Achieving compliance to plan will facilitate efficiency, cost management and optimized equipment utilization.

Results are revealed in desired fragmentation, improved efficiency in material handling and elimination of most secondary blasting. Loaders can penetrate the muck pile more easily, optimizing load cycle times, fill factors and overall haulage fleet productivity. At the processing plant, consistent material size enables crushers to work more efficiently for maximum throughput with lower energy costs.

**UP TO 5%**  
**IMPROVEMENT**  
IN LOADER PERFORMANCE

## 2 IMPROVING SITE SAFETY

Terrain helps mitigate the high risk associated with blasting with explosives by ensuring holes are where they were planned and by discovering the geological strata and relative rock hardness that is to be blasted with those holes. Consistency in hole parallelism and accurate positions of hole collars drilled to a planned horizon eliminate most surprises in blasting, improving control of rock movement and fragmentation size.

Terrain shows drill operators the locations of bootlegs to help ensure that re-drills avoid undetonated holes from earlier benches. It can automatically stop the drill from moving beyond a safe area designated by a virtual boundary. The use of digital blast plans eliminates surveying activities that put people to work on foot near moving equipment and on unreliable surfaces.

**4X BETTER PATTERN ACCURACY**

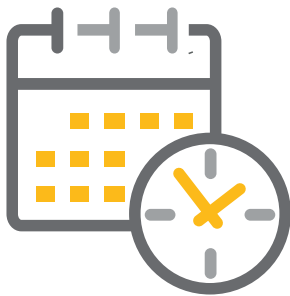
DEPTH ACCURACY WITHIN **10 CM**

**GREATER THAN 50%**  
REDUCTION IN LOST-TIME INCIDENTS



**3** ENABLING DEPENDABLE SCHEDULES

Terrain shows holes completed and holes remaining even when using multiple drills on the same pattern. Granular reporting in real time on usage by machine, tool and operator enables dependable completion and next cycle scheduling. Progression monitoring can be conducted from multiple locations at the same time. Pairing of resources with workload and historical work rates promotes advanced scheduling of downstream processes with fewer planned cushions or standby time.



**4** REDUCING OPERATIONAL EXPENDITURES

The more efficiently and accurately you drill, the less you spend on your drilling operation. Drilling to within 10 cm of target elevation addresses over-drilling, which can add up to \$600,000 per drill each year. Reducing missed holes and short holes can eliminate most secondary blasting requirements. The resulting consistency reduces cycle time and improves fill factors.

Terrain sounds an alarm and can lock the propel mechanism if the drill operator tries to move the drill to the next hole while the pipe is still in the hole. This is just one of the ways the system helps reduce drill consumables cost.

 **+10% IMPROVEMENT IN CONSUMABLES COSTS**

 **UP TO \$75,000 COST SAVINGS BY PREVENTING MOVEMENT WITH PIPE IN HOLE**

 **UP TO \$1 MILLION IN SAVINGS ANNUALLY DUE TO OPTIMIZED DRILLING, LOADING & CRUSHING PRACTICES**

For more information, go to [www.cat.com/terrainfordrilling](http://www.cat.com/terrainfordrilling) or contact your local dealer.