

SEMI-AUTONOMOUS LHD OPERATION VS. MANNED OPERATION

Cat® Command for underground hauling takes load-haul-dump operations to new levels of efficiency. By automating the tramming and dumping, and by enabling operators to control multiple machines from a remote command center, Cat Command makes underground LHD operations more productive than ever.

Here are four key results from a production study comparing manned LHD operation against semi-autonomous operation with Cat Command.

TOTAL OPERATING TIME



MANNED: 47%



CAT COMMAND: 68%



Keeping operators on the surface reduces shift change times to near zero. Those time savings alone result in significant production improvements:

- 1,200 TONS of additional material moved each month.
- 3 METERS of additional advancement per day.

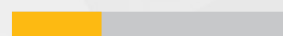
TOTAL OPERATING DELAYS



MANNED: 53%



CAT COMMAND: 32%



Semi-autonomous remote operation allows the machine to go back to work sooner after a blast because operators don't need to take the time to evacuate and return. **Combined with other efficiencies, that adds up to 21% more working time.**

UTILIZATION FACTOR



MANNED: 1



CAT COMMAND: 1.4



Through reductions in shift changeover times, the elimination of downtime due to drivewall collisions and more, Command for underground delivered **an average 44% improvement in machine utilization**, resulting in more tons moved every day.

FLEET SIZE



MANNED: 2 MACHINES



CAT COMMAND: 1 MACHINE



Instead of requiring a Cat R1700G to pull from the draw point plus a Cat R2900G to complete the ore pass, Cat Command enabled the R2900G to **pull directly from the draw point and tram in second gear to the ore pass, eliminating rehandling and the need for the smaller machine.**

For more information, go to www.cat.com/minestar or contact your local dealer.