

DRILL CONTROL INTERFACE™ (DCi™) PROVIDES UNDERGROUND EFFICIENCY

Case Study: **19 percent increase** in six month average meters drilled



Overview:

Ever Increasing Safety and Productivity

Owned and operated by BHP Billiton, Olympic Dam is Australia's largest underground mine site with more than 450 kilometers (279 miles) of underground development. The underground mine produces 10 million tons of ore per year using the sublevel open stope mining method.

Boart Longyear has been working at Olympic Dam as part of a long term agreement with BHP Billiton. As the operation continues to grow, improved productivity and safety is demanded for exploitation of newly defined ore zones. Boart Longyear has answered this need by developing drilling technologies and methods for improved diamond core drilling.

The past introduction of rod-handlers, by Boart Longyear, reduced drilling contractors' exposure to the manual handling of rods, leading to limited occurrences of hand injuries. Boart Longyear also participated in a study involving rig-moves which resulted in improved site move time by 11 percent. Now Boart Longyear has developed and implemented the Drill Control Interface (DCi) to increase the efficiency, productivity and safety of the LM™ series of underground diamond core drill rigs.



The Challenge:

Increase productivity of Underground Diamond Core Drilling

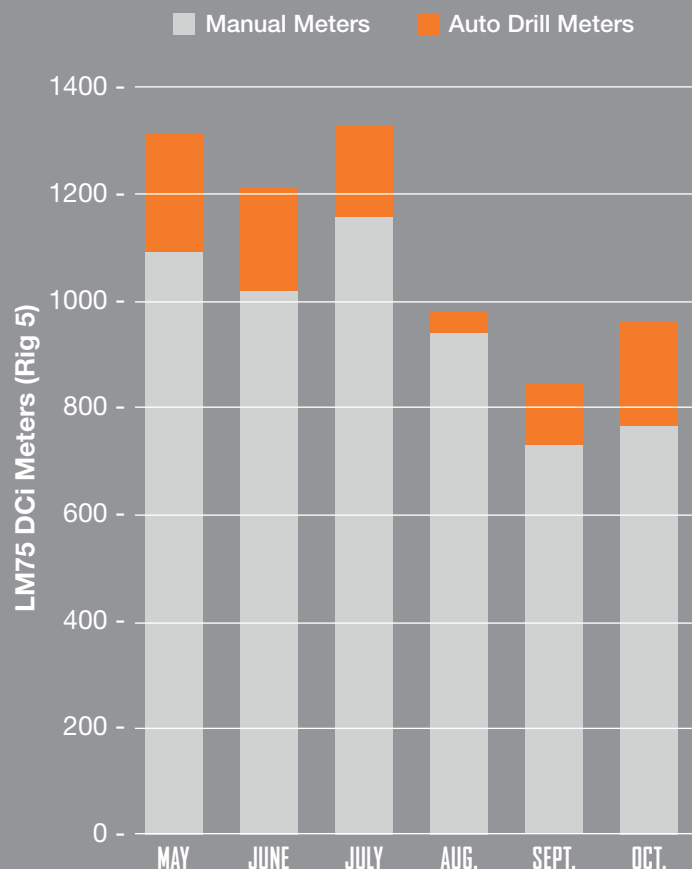
Boart Longyear provides diamond core drilling services at the Olympic Dam mine site. Currently operating five LM75 diamond core drill rigs, Boart Longyear drills more than 55,000 meters a year. Diamond drilling is used to extract rock samples (core) for analysis of the Olympic Dam ore body geometry and to collect geochemical information which will be used to create block models for planning and extraction of future resources.

Customer: BHP Billiton
Service: Underground Diamond Core Drilling
Location: Olympic Dam, South Australia
Application: LM™75 and Drill Control Interface™ (DCi™)



Vital Stats:

- 908 meter improvement compared to historical six month average meters drilled
- AUD \$2.90 average per meter unit cost improvement
- 13.5 percent monthly productivity increase



AUD \$2.90
per meter
unit cost
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13.5%
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increase

908
meter improvement
compared to six
month average

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Boart Longyear was able to introduce the DCi to not only increase productivity, but to also enhance safety for the drilling contractors.

The Solution:

DCi Increases Meters Drilled

Over a six month period (May –October 2013) Boart Longyear used an LM75 drill rig with the DCi to drill a total of 5,726.3 meters using a BQTK size diamond core bit. This was an increase of 907.7 meters drilled over the previous six month average, which resulted in a unit cost improvement of \$2.90 per meter average and monthly productivity increase of 13.5 percent.

With the deepest hole depth of 700 meters drilled on site, the DCi allowed Boart Longyear to continue drilling during crib breaks and shift change over. This is possible because the DCi incorporates a programmable logic control (PLC) system where a supervisor can pre-set parameters for drilling. These parameters create a semi-autonomous drill system allowing the LM75 to achieve a three meter run in absence of a driller.

The DCi PLC system results in fewer hoses, less leaks and clutter around the drill. A supervisor can set drilling parameters for inexperienced operators and an auto

shutdown will occur when a drill run ends or programmed parameters are exceeded. Also a laser proximity will shut down the rig when breached — keeping drillers at a safe distance at all times.

A fully electronic user interface means the DCi has a lighter and more portable control cabinet compared to hydraulic controls. The 50 kilogram (110.23 lb) weight difference and the limited number of components allows drillers to move the unit easier and faster. There are only three plugs to disconnect from the DCi and no hydraulic hoses.

The PLC allows one push of a button for unattended drilling. By drilling within the pre-set parameters set by a supervisor, the LM 75 can achieve greater equipment life and greater productivity from inexperienced drillers. Also, an auto rod feed and pull system results in less manual handling and a hands-free wireline descent.

The DCi provides real time key performance data which is recorded, stored and easily downloaded for quick analysis. This current information allows a driller to make adjustments to the drill rig increasing productivity on the go. Because the DCi provides significant instrumentation data, a system diagnostic can be run to determine rig performance, operator performance and can detect early equipment failure.

About Boart Longyear:

With over 120 years of expertise, Boart Longyear is the world's leading provider of drilling services, drilling equipment, and performance tooling for mining and drilling companies globally. It also has a substantial presence in aftermarket parts and service, energy, mine de-watering, oil sands exploration, and production drilling.

The Global Drilling Services division operates in over 40 countries for a diverse mining customer base spanning a wide range of commodities, including copper, gold, nickel, zinc, uranium, and other metals and minerals. The Global Products division designs, manufactures and sells drilling equipment, performance tooling, and aftermarket parts and services to customers in over 100 countries.

Boart Longyear is headquartered in Salt Lake City, Utah, USA, and listed on the Australian Securities Exchange in Sydney, Australia.



More information about Boart Longyear can be found on the Internet at www.boartlongyear.com. To get Boart Longyear news direct, visit <http://www.boartlongyear.com/feed>.

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