

GROUND CONTROL

PROVIX has recently deployed two Pan/Tilt and Zoom cameras to bolters at Rio Tinto's remote Diavik diamond mine in North Slave Region of the Northwest Territories, Canada. A complex video camera system was required to support remote drilling and bolting operations.

PROVIX designed and manufactured a triple camera video system, initially for a Boltec Bolter for underground operation at Diavik. The first PTZ video system was deployed in the spring of 2013 and after a successful trial and familiarisation period, Diavik has outfitted their remotely operated bolters and

jumbos with the same PROVIX camera system.

The two rugged Pan/Tilt and Zoom cameras were fitted on either side of the bolter, to provide visual guidance and

support for both drilling, bolting and screening operations. A smaller fixed camera was added to provide a constant frame of reference for the equipment operator, who is positioned about 100 feet back from the face. The operator runs both the Tele-Remote controls and the PROVIX video system from the safety of a sea-can,

where three large LCD monitors provide an up close and personal display of the back, the face, the booms, the screens and the positioning of the drill.

User feedback indicates that drilling is up to 50% faster than when performing the same bolting operation without the PROVIX camera system. When asked for feedback on the video system both supervisors and operators stated conclusively that the operator can view the work area and the task at hand, more effectively on the large LCD monitors, than if they are actually in the cab of the bolter. I'm including the

comments from the production engineer at Diavik.

"We had our first test with the bolter and camera system this morning. I can say without reservation that

we are extremely pleased with the results we got. Our operator was very pleased and was able to start bolting right away and had no issues using the camera controls".

The rugged robotic PROVIX PTZ camera has been designed hazardous environments and is suited for both surface and underground mining operations as well



as other applications in construction, petroleum processing and oil field applications: the cameras are ideal for vehicle and equipment mounting for remote operation, process monitoring and with up to 26x zoom capability, surveillance of any activity.

The high speed PTZ cameras are shock-proof with upgraded bearings and with integrated pan, tilt and 26x optical zoom. The reinforced metal camera housing is literally bullet proof and has been constructed to be resistant to flying rocks and debris and includes an integrated wiper system for lens cleaning during operation

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