

De Beers' Finsch Diamond Mine

Increased efficiency at world's most sophisticated mine



Construction of the new Operations Center at the Finsch Mine



The Challenge

To install a highly reliable SCADA system that would deliver superior operability, scalability and intuitive operator interface, all without incurring any significant downtime in operations during the transition.

The Solution

De Beers' Finsch Mine selected CitectSCADA because of its built-in redundancy, superior scalability and simplified configuration. It is used to monitor and control processes throughout the mining operation – from rock breaking, ore management, access control, production control, dispatch and CCTV.

The Finsch diamond mine in the Northern Cape Province of South Africa is the most technologically advanced underground diamond mining operation in the world. It is one of six operations managed by De Beers Consolidated Mines (DBCM), the South African subsidiary of the internationally renowned, Luxembourg-based De Beers, S.A.

The Finsch resource was first mined in an open pit fashion before going underground in 1978. The 2005 production totalled 2.2 million carats. Reserves at Finsch are sufficient to maintain the current mining rates until 2024.

The mine is currently transitioning from open stopping mining applied at the upper levels of the underground mine, to a mass caving method known as block caving for its newly established ore block below.

The Challenge

The expansion into a new block (Block 4) required the creation of a purpose-built Operations Center to house new equipment and promote maximum efficiency. The Operations Center exemplifies advanced technology, especially in its use of blown fiber, an ultra lightweight single bundle of optic fibers passed through pre-installed tubes using only airflow. This type of fiber optics allows expansion without disrupting operations.

In accordance with the establishment of a state-of-the-art mining operation, the Finsch diamond mine wanted to develop a more intuitive operator interface with simplified configuration for easier maintenance and operation. CitectSCADA's easy configuration tools and user-friendly screens enabled the Finsch Mine to implement the system without incurring delays.

The Benefits

CitectSCADA's easy configuration tools and user-friendly screens enabled the De Beers' Finsch Diamond Mine to quickly deploy the system and train operators without significant delays. CitectSCADA's large number of native drivers and ability to link to disparate hardware platforms will ensure easy future expansion.

An automation system that can easily grow with the expanding operations



Monitoring mining processes



Inside the state-of-the-art Operations Center

The Solution

After a careful selection process to identify a SCADA solution that would provide the necessary high operability and scalability, as well as superior connectivity, a select group of De Beers' mines in South Africa chose CitectSCADA. Its built-in redundancy and system stability were key factors in the decision and in ensuring safety and reliability for the mine's operations, the CitectSCADA system has dual redundant CitectSCADA server pairs.

The CitectSCADA system is used to monitor and control processes throughout the mining operation – from rock breaking, ore management, access control, production control, dispatch and CCTV – to deliver a total low-risk solution that dramatically minimizes downtime, lowers life-cycle costs and provides crucial information in real time.

A high capacity (1 GB/second) Ethernet LAN handles the vast flow of data within the operations. Four 62-inch plasma screens provide an overview of the production status and progress; two for the autonomous operation, and two for the other mine operations. A fifth screen provides real-time coverage of the autonomous operations underground.

The Benefits

In planning the center, one of the primary risks that were identified was the possibility of production downtime. With the help of a team of professional service experts, the SCADA control systems were developed and deployed without incurring any downtime. This expertise and experience enabled the transfer of the CitectSCADA system to the new site without causing any costly downtime or disruption to production.

The new Operations Center meets all user requirements, including the ability to cater to current and future business requirements. Ample room was created for future expansion and extensions to the Finsch Mine. The ease of relocating the CitectSCADA system to the new site and its high level scalability mean the Finsch diamond mine has a SCADA system that can easily grow to meet its future needs, while also providing the highest performance and reliability for existing operations.

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