

Axis IP-Surveillance solution provides clarity of operations. IP camera solution monitors mine activity to improve efficiency.



Organization:
Oceana Gold / Stracon
Mining NZ Alliance

Location:
Reefton, New Zealand

Industry segment:
Industrial

Application:
Pit mine monitoring,
operations efficiency

Axis partner:
Snowgrass Solutions

Mission

In May 2006, Stracon Mining Limited entered into an alliance agreement with Oceana Gold New Zealand Limited to undertake the mining at its Globe Progress Mine, located near Reefton on the west coast of New Zealand's South Island. The mine is a 24/7 operation and employs 110 staff. The Alliance operations team was looking for ways to optimize the allocation of their resources and increase efficiencies in the running of the opencast mine.

Solution

Snowgrass Solutions designed and deployed an IP camera system that allowed the alliance to monitor the pit's operations and identify areas to improve the allocation of its equipment, vehicles and resources.

Result

Not only has the implementation of the camera system improved the efficiency of truck deployment within the pit, but it has also benefited the operations team in planning its shifts and improving communications throughout the workforce.

An eye on operations

Located on the west coast of New Zealand's South Island, the Globe Progress is an opencast gold mine that operates seven days a week. The mine is subject to challenging temperature and precipitation conditions. Annual rainfall is 2,100mm. While snowfalls are regular during the winter, summer temperatures can reach around 35 degrees centigrade. Ore zones are only mined during daylight when on-the-spot visual checking is possible.

The Alliance team wanted to find a way to ensure the pit operations were as efficient as they could be, in particular the deployment of the haul trucks throughout the mine. They identified the potential that a rugged surveillance camera solution could have in helping achieve this, and approached Snowgrass Solutions to help investigate this option.

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Andrew Cox, Project Manager, STRACON Mining Ltd.

A solution for the toughest environment

Snowgrass Solutions specializes in remote electronic solutions. Their emphasis is on IP cameras and radio communications for unusual locations and difficult environments. Snowgrass Solutions visited the Globe Progress mine to map out what would be required in order to supply and install a camera solution at the exposed lip of the opencast mine. The camera would allow the alliance Management and Supervision to monitor the operations within the mine on their office monitors.

Given the challenging weather conditions of the area and rugged environment associated with gold mines, the camera system would have to ensure protection from the elements and particularly from moisture creep within the camera itself, which would lead to fogging. Furthermore, the camera would have to be portable – as the mine advances, the camera would have to be relocated. The locations of the camera would not have access to conventional power sources, so a solar charged battery system with the capacity to keep the camera operating for approximately one week without direct sunshine, was required. A high speed radio link would connect the camera to the mine's computer network. Image quality would also be important, with the camera having to be capable of zooming from one end of the 1200m long pit to the other.

Snowgrass Solutions designed a wireless network solution with a long range data radio link and solar derived power system, based on the AXIS 213 PTZ Network Camera, which was chosen for its proven reliability in several of Snowgrass Solution's previous installations and its ability to operate well on a solar charged battery system. The camera system was configured to allow the camera to autonomously move through preset views, capturing images for an FTP upload to a remote server. These images will be used to produce a time lapse movie of the long term changes at the mine.

The camera orientation is controlled by the desktop in the Supervisor's office while eight remote logins have also been set up so that a number of staff can access the camera and manage it remotely, if necessary.

Surprise benefits

Efficiency was the main driver for implementing the camera system and since its introduction in early August 2010 the solution has already identified deployment methods that are improving the effectiveness of mine operations. The camera enables operations supervisors to see if a project is running as it should and whether the allocation of resources is optimised. For example, the camera can identify if there are multiple trucks being loaded by a digger in one area of the pit, while another digger in different section may have no trucks to load, and quickly balance their deployment.

The IP camera system has proved its worth in other ways as well. With the installation of the large screen outside the Supervisor's office streaming live video of the site, it increases everyone's awareness of the pit. When each shift comes into work they can see what is happening in the mine, where the machinery is, which areas are being worked on and get an idea of the status of operations.

The images from the camera have also proved to be a great planning aid. The technical staff will hold daily planning meetings where they will manipulate the camera and use the images on a large screen to map out and communicate their approach to working in the pit that day. Being able to work with live images allows them to discuss their plans much more clearly.

The installation of the camera system has also resulted in improved safety at the mine. By enabling the operations managers to point out the locations of potential issues such as unstable slopes and haul road restrictions. It makes communications much clearer so everyone understands where things are, what they're due to be doing during that shift and where to keep an extra eye out for potential hazards.

"The IP camera system has definitely been a worthwhile purchase," confirmed Andrew Cox, Project Manager, STRACON Mining Ltd. "It represents great value for the results it is providing and we will consider a similar system for other projects".

