

Integrated Fire Protection at Toromocho Minera Chinalco

Case Study

Honeywell provides a comprehensive, smart, and integrated fire protection system for Peru's largest copper project

Benefits

With Honeywell's fire protection systems the Toromocho Minera Chinalco project in Peru has reinforced plant safety, and met all local and international regulations and safety standards.

The system uses the best available technologies for fire detection, linear heat detection, fire and gas suppression, and digital audio and mass notification, to protect the premises, people, and environment.

The system is fully integrated with management systems: A single panel and control center station provides supervision, operation, and control for all mining areas. This fully integrated approach has enabled the project to reduce operational risks and the total cost of ownership.

Honeywell engineers worked closely with the customer to tailor the solution to Toromocho's requirements and accommodate changes to the schedule as they arose.

Background

Minera Chinalco Perú S.A. is a subsidiary of the Aluminum Corporation of China (CHINALCO), the second largest aluminum producer and the third most important source for primary aluminum worldwide. It maintains bauxite mining operations, as well as aluminum refining and smelting plants. It also has various copper, non-ferrous metals, and rare metals projects focused on the engineering and technology services industries.



Challenge

CHINALCO strives for excellence through innovation and competitive work. The Toromocho project had a primary goal of ensuring safety and upholding the plant's zero-accident policy.

It was vital for the project to meet all local, national, and international fire protection regulations, as well as to protect the reputation of the mine, which boasts of strong environmental credentials.

Besides these stringent requirements there was also the challenge of complex logistics, and extreme weather conditions.

Solution

Minera Chinalco chose Honeywell as its partner for the Toromocho project's fire protection system. The scope included design and engineering, calculations and documentation, supply, testing, installation, integration, and

In 2007, CHINALCO acquired all the shares of Peru Copper Inc., owner of Minera Peru Copper, which is now Minera Chinalco Peru S.A. The following year, it signed the transfer of concessions for the Toromocho Project, the country's largest copper project.

Located in the district of Morococha, Yauli province, of Peru's Junin region, Toromocho contains a reserve of 1526 million tons of ore with an average grade of copper of 0.48%, an average grade of molybdenum of 0.019%, and an average grade of silver of 6.88 grams per ton.

Minera Chinalco Peru is responsible for operating the Toromocho project. Both the copper concentrate and molybdenum oxide will be transported by rail to the port of Callao.

About Honeywell Fire Protection

Honeywell is one of the world's leading suppliers of industrial safety systems, including fire and gas detection, voice alarms, and public address systems. Our state-of-the-art safety systems and services protect workers, the environment, local communities and the profitability of businesses.

commissioning of all the necessary hardware and software for a comprehensive and smart integrated solution.

The project drew heavily on Honeywell's portfolio of equipment and solutions:

- 24 Honeywell XLS-140/2 fire alarm control panels, UL-Listed and NFPA 72 compliant
- Five Honeywell XLS-NCA2 network control annunciators for fire premises operations, distributed accordingly
- One Honeywell XLS-DVC (Digital Voice Commander) and a Wheelen 6-Cells Mass Notification system for a strong and powerful evacuation system
- Manual valves, fire hose cabinets, deluge valves, foam mixers, and core components for monitoring water suppression systems into the fire system
- Monitoring of one IG-55 Inert Gas Extinguishing System and a Fike Fire Panel. This isolated system in the plant was integrated into the Honeywell fire system
- A complex cause/effect matrix was developed to provide automatic activation of nine water/foam deluge zones in the event of a fire condition. Additionally, Honeywell XLS140/2 fire alarm control panels provided relay output modules to stop critical machinery devices in case of emergency.
- Conveyor detection included linear heat detection systems using fiber optic techniques. These linear heat detection systems are monitored with intelligent input

modules connected to the XLS140/2 fire alarm control panels. Linear heat detection provides a very early detection system for critical areas, such as conveyors.

Fire systems were installed in every mine area: crushing, stockpile, grinding, copper flotation, molybdenum flotation, copper extraction and molybdenum extraction, as well as areas for reagents, tailings, water pumping, water processing, the main electrical substation, and in control rooms.

Honeywell also provided two of its powerful software solutions: the Experion Industrial Security Life Safety Manager application for monitoring, controlling and operation of the day-to-day activities of site operators and local fire fighter personnel; and Honeywell's Industrial Security integrated facilities management applications suite. The suite provides a holistic overview of the enterprise from a single networked PC and includes tight integration with the business processes.

The installation included all necessary field devices, including detectors, notification devices, pull stations and I/O modules. Together it ensures a fully protected site, as well as a comprehensive management system for reporting and alarm management.

Working closely with the Minera Chinalco's team, Honeywell implemented the entire system to meet the plant's requirements, and to enable the plant to begin operations in May 2014 as scheduled.

The complete fire system is now remotely operated through a VPN network.

For More Information

Learn more about how Honeywell Fire and gas Solutions, visit <http://www.honeywellprocess.com> or contact your Honeywell Account Manager, Distributor or System Integrator.

Honeywell Process Solutions

1250 West Sam Houston Parkway South
Houston, TX 77042

Honeywell House, Arlington Business Park
Bracknell, Berkshire, England RG12 1EB UK

Shanghai City Centre, 100 Zunyi Road
Shanghai, China 200051

www.honeywellprocess.com

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