

Digital transformation leaps forward with new IROC for Centinela

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Antofagasta Minerals marked a major milestone on 27 April with the official inauguration of an Integrated Remote Operations Centre (IROC) in the city of Antofagasta to manage operations at its Centinela mine in the northern Chilean Antofagasta region.

The \$66.2 million IROC is expected to improve safety and productivity as well as enhance the quality of life of employees who will be able to work out of the region's capital city rather than working at the Centinela site.

"It's a very important step, not only because it's our first IROC, but also because it will allow Centinela to make decisions based on the integrated management of its entire value chain, from mine to port, providing a global vision of all its processes," says Iván Arriagada, Antofagasta CEO.

The centre's location in the city of Antofagasta, as opposed to the Chilean capital Santiago, also delivers on the company's commitment to promote development in the regions where its operations are located through jobs, the use of innovation and attracting skilled workers.

Local authorities celebrated this effort to move away from Santiago and to continue growing in the communities where the operation is located.

The mayor of Antofagasta, Jonathan Velásquez, highlighted the installation of the IROC in the city: "The decision to install this centre in Antofagasta fills me with satisfaction because it represents the confidence the executives have in our city and region, generating jobs that will improve the living conditions of families in Antofagasta. In addition, the increase in female labour participation in this operation is good news, because their inclusion allows us to grow as a society, generating greater opportunities and conditions of equality, recovering the sources of employment diminished during the pandemic."

The mayor of Sierra Gorda, Déborah Paredes, applauded Centinela for being a pioneer in these initiatives. "I congratulate the company and its representatives for being pioneers in these types of initiatives, inaugurating their centre in the same region where they have their operations, which translates into decentralised management at the mining level. Sierra Gorda seeks to be a strategic partner of Centinela, to continue benefiting our neighbours and therefore we hope that as the company expands, our community will also be part of this."

The IROC has a workforce of 137 people, of whom 46% are from the region and 40% are women. They were largely recruited from Centinela's existing workforce and benefitted from upskilling and retraining programmes.

"The IROC is creating more opportunities to develop professionally and obtain better jobs, as well as developing skills and improving talent retention," says Carlos Espinoza, General Manager of Centinela.

It follows a pattern at Centinela, where its traditional mine haulage truck operators and maintainers have been retrained to manage the fleet of 11 automated Komatsu 980E trucks that are being rolled out in the new Esperanza Sur pit.

In turn, those workers have been replaced through apprenticeship programmes that have focused on training women as operators of its original fleet of mine trucks, as well as in maintenance roles. A total of 85 apprentices, of whom 81 are women, were subsequently hired after completing the 2020 apprenticeship programme.

“This high number of vacancies to fill with apprentices was possible thanks to Centinela’s work to convert employees as a result of its innovation projects,” says Espinoza.

Antofagasta Minerals’ Digital Academy, launched in 2020, has played a vital role in enabling the company to upskill its employees, improve their employment prospects and meet the requirements of future mining.

The IROC is a key part of an innovation platform that the company has been developing since 2017 when it launched its digital roadmap, an initiative led by Alan Muchnik, Vice President of Strategy and Innovation at Antofagasta Minerals.

The platform is built on the concept of knowledge transfer to enable the company’s operations to benefit and learn from each other’s experiences of implementing innovation projects.

For example, Centinela implemented automated Epiroc drill rigs at its Esperanza Sur pit in 2021 taking advantage of the learnings from the deployment of the technology at the Los Pelambres mine in late 2019. Los Pelambres now has five drill rigs that operate autonomously from a control room located more than a mile away, and there are now two rigs at Centinela.

Likewise, Los Pelambres is using the same knowledge transfer process to install its own IROC in Santiago, which is expected to go live in the second half of 2022. “The studies and decision making for the Los Pelambres IROC has been quicker benefitting from the experience and knowledge gained at Centinela,” says Muchnik.

In a similar vein, the company’s Antucoya and Zaldívar mines are now evaluating the installation of IROCs and the use of autonomous equipment. Antucoya is expected to complete feasibility studies on these opportunities in 2022 and Zaldívar in 2023.

Located over eight floors covering 1,710 m², Centinela’s IROC has the space to expand as the world-class Centinela Mining District develops. Centinela currently operates six open pits, a concentrator to process sulphide ores and two hydrometallurgical plants to process oxides.

The IROC is already monitoring and managing Centinela’s mine operations, concentrator and port in Michilla from where it ships concentrates, with the remaining installations scheduled to be integrated into centre in the second half of 2022.

Likewise, the autonomous operation of Centinela’s Esperanza Sur pit is expected to be fully functional at a similar time and will also be eventually controlled from the IROC.

Innovation is one of Antofagasta Minerals’ five strategic pillars and has two main objectives. The first is to introduce best-in-class existing digital technology – such as that deployed in the current automation and IROC projects – as well as advanced analytics to improve operating performance.

The second objective is to develop the next generation of mining practices to enable growth and reduce the company’s environmental footprint. In this respect, Antofagasta Minerals is actively participating in initiatives that seek to replace the diesel used by mine haulage trucks with green hydrogen as well as testing its own proprietary primary sulphide leach technology known as Cuprochlor®-T.