

INCREASED RELIABILITY OF THE MINING PLAN

Operation:
Doña Inés de Collahuasi Mining Company

Owners:
Glencore
Angloamerican
Japan Collahuasi Resources B.V.

Location:
Tarapacá, Chile

Annual production:
559 ktons of **COPPER**

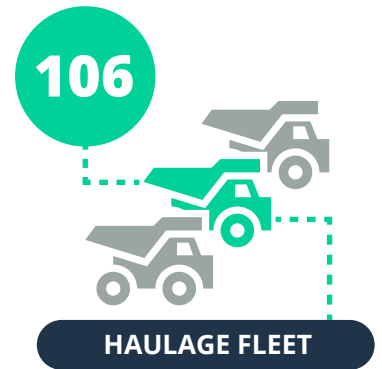
OVERVIEW

The Collahuasi mine is a large copper mine located at high altitude in the north of Chile in the Tarapacá Region. Collahuasi mine represents one of the largest copper reserves in the world. The mine management team at Collahuasi wanted to improve its short-term mining plan reliability from 2018. In particular, they required a method to model the variability of the loading and hauling process to deliver more accurate plans. In addition, the mine management wanted to identify alternatives to the plan that would add greater value to the operation.

THE SOLUTION

The Collahuasi short-term planning team implemented a simulation step to all the short-term plans in order to assess the reliability and to identify improvement opportunities. The simulations were carried out using TIMining Orchestra, which is a fit-for-purpose loading and hauling simulation software. The methodology was as follows:

- TIMining Orchestra was automatically connected to the FMS database.
- A historical data analysis of the loading and hauling process was carried out to create the inputs for the simulation models.
- Simulation models were created using real data from the operation.
- Short-term plans i.e. weekly and monthly, were simulated and alternatives were assessed to identify performance gaps and risk mitigation.
- The models are being updated and the mining plans are undergoing rigorous assessment in order to verify their reliability, find alternatives and optimisations.



THE IMPACT

Today, the Collahuasi short-term mining plans have become more accurate by using simulations. The short-term planning team is able to estimate the accomplishment of the mining plan with a deviation under 2%.

Additional benefits include:

- Identify and implement better alternatives for dumping locations.
- Identify alternatives for faster hauling routes and cycle time reductions.
- Asses different strategies for fleet allocation and major equipment maintenance.
- Update inputs for the long-term plan.
- Quantify the impact of geotechnical events on the operation.

A **1% INCREASE IN PLAN COMPLETION**
IN LARGE SCALE MINING



+\$5 - \$30

MILLIONS OF DOLLARS