BHP CHALLENGE - MINERA ESCONDIDA

BHP-22-2020 "Control and optimization of rock fragmentation in drill and blast operations"

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Aim and scope

Solutions are sought to control and optimize rock fragmentation in drilling and blasting operations to avoid oversize rocks and facilitate the load / haul / crush stages. The solutions must meet the following requirements:

- It must be compatible with the HSE standards and operational conditions of the mine.
- Minimize or eliminate the operational interference and the direct presence of operators.

Excluded solutions

Engineering or consulting services and granulometry or particle size prediction systems are not sought.

Operation and processes involved

Minera Escondida – Mine Operations Area – Drill, Blast, Load, and Haul operations.

Current problem

The rock blocks present in the production bench, particularly in the fault zone (expansion PL1), do not achieve a correct fragmentation by blasting. This causes operational difficulties in electric shovels and extraction trucks (CAEX).

The fault zone has a size of 100 x 300 m. (approximately)

Current problem

Consequences

The main challenges caused by the presence of this type of material are: risk for workers and equipment, operational interference, decreased productivity of shovels, truck fill factor reduction and additional tasks (re-handle) that increase the operational expenditures.

When does the problem occur?

It occurs when massive fault zones must be exploited by drill & blast where it is not possible to obtain a rock fragmentation that meets the requirements of subsequent loading and hauling operations.

How is it currently resolved?

Drilling fluids are being used to control the presence of oversized rock blocks to maintain the shape of blast holes.

Tested technologies

Different industrial tests have been carried out with new designs of drill pattern, powder factors and blast sequences.

Supply innovation BHP

Supply Innovation aims to promote the development of projects between the Company and the Suppliers with an associative approach, where the design and construction of the solution for the "Challenge" detected by an area of the Operation is addressed jointly. In this way, the generated projects develop solutions that add value to the Company and suppliers the build capacities and competencies that translate in more and better business opportunities.

Expande Program

The Open Innovation in Mining Program, Expande, is a public-private initiative designed and carried out by Fundación Chile. The purpose is to drive innovation and make possible a better future for global mining, promoting the mining ecosystem in Chile along with building a collaborative model that enables the best solutions for the high complexity challenges of mining today and tomorrow.

Confidentiality

The delivery of personal information to register in the database, such as details related to technological solutions to apply for Expande's open innovation processes is strictly confidential; as is the information contained in the contact forms with information of these processes subsequent stages.

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https://fch.brightidea.com/BHP222020 ControlFragmentacionBloques

Required documents

- 1. Indicate relevant skills of the team members who will solve the challenge.
- 2. Previous experience in similar solutions or in the technological field of the challenge.
- 3. Description of the technological solution and degree of maturity (under development, tested, implemented or in operation).
- 4. Success stories.
- 5. Ability to provide operational and maintenance services in the field.
- 6. International companies/suppliers must mention availability to operate in Chile or through technical /commercial representatives.



Milestones