

CASE STUDY

FRAGTrack™ Shovel Fragmentation Measurement: Performance & Reliability

Gibraltar - Taseko (Canada)

Site Profile

Gibraltar is an open pit copper-molybdenum mine located in south-central British Columbia, Canada. The site is owned by Taseko and it operates 24 hours a day in an ambient temperature range of +20 to -30 degrees centigrade. Its annual production exceeds 100 million tons per year and rock hardness ranges from weak to strong with unconfined Compressive Strength (UCS) ranging from 25-90 Mpa.



Figure 1 – Gibraltar site

The Situation

Gibraltar were seeking a reliable fragmentation measurement to baseline their shovel productivity versus powder factor and fragmentation. They had tried tablet-based systems in the past but were not satisfied with the performance.

Solution – FRAGTrack™

When Orica reengineered their shovel-mounted FRAGTrack™ equipment to operate in an ambient temperature range of +50 / -40 degrees, Gibraltar expressed their interest in field-trialing the technology ahead of its release.

Gibraltar installed FRAGTrack™ on a BE 495 HR shovel that uses a Wenco Fleet Management System (FMS). The shovel works on a bench height that is typically 50ft (15m) but swells to 65ft (20m) at times. The muck pile is usually 12-13m away from the FRAGTrack™ camera during operation.

The camera is aligned to focus on the bottom third of the muck pile and takes images that are approximately 3m x 4m. The minimum particle size for the installation is configured at 5cm based on the installed camera geometry and distance to the dig face, with a SWEBREC© function used to fit the distribution within the lowest reported bin of 0-5cm.

Measured particle sizes down to 2.5cm are achievable with minimal installation geometry and distance-to-face adjustments.

Matt Graham, Mine Engineering Superintendent - Gibraltar, describes the FRAGTrack™ installation and configuration process:

“The camera installation was easily performed within a standard 12-hour maintenance window with the assistance of the site welders & electrical team.”

Once the shovel was operating, Orica spent a day on site checking the camera and its ability to connect to the remote systems they use for monitoring and configuration.

After leaving site, the Orica team have maintained and optimised the image processing performance of FRAGTrack via remote access to the software.”

The Outcome

In the first 12 months of operation alone, the FRAGTrack™ unit collected over 100,000 images. This is a testament to the reliability of the FRAGTrack™ system in an extreme mining environment. The system's design of storing and processing the data locally on the device ensured that the entire dataset was retained; even during periods of in-pit network outages.

Matt Graham, Mine Engineering Superintendent - Gibraltar, describes the FRAGTrack™ system reliability:



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“Overall, the reliability of FRAGTrack has been excellent. We have been very impressed with the reliability and availability of the system.

We installed in November 2018 and it has run almost continuously. Orica have proactively notified the site if they find any issues and redesigned/reinstalled the shovel mount to reduce vibration. We have had no issues with data capture at night, sunrise, sunset etc.

The only routine maintenance of the system is a regular lens wipe – which is managed by our operators with a cloth on a stick – and the frequency depends on atmospheric conditions. The best results are achieved by setting a daily cleaning cadence and ensuring a daily check of the dashboard on the web application.

We have also tested the data stored locally on the FRAGTrack processing unit and have found that no data was lost.”

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Testimonial - Operation & Reliability



“FRAGTrack™ reliability has been excellent”

**Matt Graham – Mine Engineering Superintendent,
Gibraltar**

Acknowledgements

Orica wishes to thank Gibraltar for their support and permission to publish this case study.

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Date: February 2020

