

## CASE STUDY

# BlastIQ™ Control Solution, Addressing Drill & Blast Challenges at Newmont Goldcorp Akyem

Newmont Akyem, Ghana

### Site Profile

Newmont Golden Ridge Ltd (NGRL), Akyem is an open pit gold mine located in Birim North District in the Eastern Region of Ghana. The Akyem Mine has operated from one main pit since production started in October 2013. The average annual production is 140 kilo ounces. The Akyem Mine is responsible for all its mining and milling processes with Orica as the explosive supplier. As the business partner of choice, Newmont has worked with Orica to find solutions to any drill and blast challenges that are encountered.



Figure 1: The Main Pit of the Akyem Mine

### The Situation

Newmont Golden Ridge Akyem relied on the outdated motorolla DIPPlus™ units for all QAQC records for weekly drill and blast reviews. This system does not have the capability to give alerts when any out of tolerance blasthole data was captured. Over-drilling into a berm below the blast could therefore not be effectively controlled ahead of loading and firing and this usually would result in losing the crest of the berm or the entire berm.

The Engineers also needed a tool for modelling predicted fragmentation to be able to compare any new blast designs. There was therefore the need for a more effective and efficient system to help improve on the QAQC data collection and analyses in line with the mine's commitment to continuous improvement initiatives.

### Technical Solutions

Following a site scoping study conducted by Orica for the Akyem operations, BlastIQ™ control solution was proposed and through a collaborative effort of NGRL and Orica, a trial was conducted in March 2019.

Two BlastIQ™ Mobile licenses, for the two MMU's, and ten BlastIQ™ user accounts were issued. Good network coverage along with the in-pit WiFi connection ensured the full benefits of the system could be realized, allowing users to access up to date field records anytime and anywhere. It was expected that near real time functionality would allow the Engineers at the office to adjust the design of new blast wirelessly and direct to tablets within the pit.

The system would also allow them to view the loading, stemming and water levels status and compliance for any blasts being worked on within any period specified in BlastIQ™ Insights.

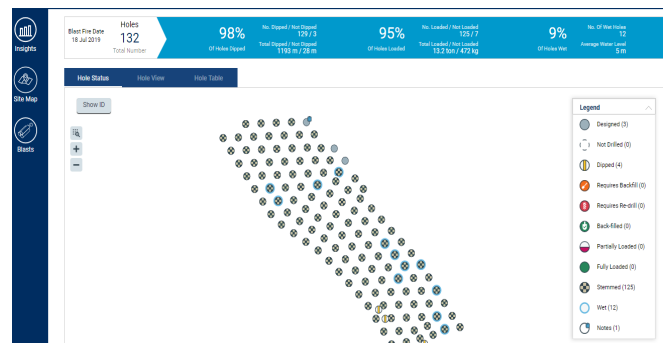


Figure 2: A BlastIQ™ Insights Dashboard screen

### The Result

The analysis of the data compiled during the trial period relative to those before the trial has indicated the following direct benefits to the operations.

- A 6.14% reduction in under drills which reduces the pit floor toes.
- Significant improvement in average digging rates were recorded due to improved drilling accuracy and ensuring re-drills were completed.



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- The 'Backfilling and Re-drilling Required' alert on BlastIQ™ Mobile resulted in unprecedented achievements of target pit floor elevations.

The following are other unspecified indirect benefits reported.

- The Engineers are now able to model predicted fragmentation of blast designs ahead of implementation.
- Increasing efficiency as it has become easier and faster to access blasthole data or blasts information through wireless data transfer.
- Enhanced efficiency - at a point when a design already loaded on the tablet had to be adjusted, the Engineers loaded the adjusted pattern wirelessly without anyone having to drive from pit to the office for the update as would have been before the trial period.
- Field Operators are now able to use the BlastIQ™ Mobile display function to reconcile explosives used.

### Testimonial

"The real time capability of the BlastIQ™ for me is its strongest attribute, because it allows for real-time short term interval control which facilitates on bench corrections".

*Elvis Kyeremeh, Snr Short-Term Planning Engineer – Newmont Goldcorp, Akyem*

"BlastIQ™ is an essential tool in monitoring, evaluation and analysis of our blasting activities. Makes it easy to live track and monitor charging of drilled holes".

*Daniel Boateng Moyab, Mining Engineer – Newmont GoldCorp, Akyem*

### Acknowledgements

Orica wishes to thank the Akyem Mine Management, the Mining Engineering and the Bench Crew for their support and the permission to publish this case study.

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**Date:** November 2019

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