

REFLEX solution increases productivity, accuracy and saves money

CASE STUDY

A project in Senegal resulted in a significant increase in productivity, accuracy and time saving. Using the latest in rig alignment and downhole surveying technology, the tools combined with the award winning cloud-based IMDEXHUB-IQ™ defined a new process for onsite real-time data collection and interpretation.

Randgold Resources Project

Randgold Resources were involved in a drilling campaign in Senegal, Africa, where they were drilling through highly magnetic intrusive rocks and compounded by inconsistent drill rig alignment, lengthy rig set-up times and unreliable or inaccurate survey data.

Randgold was facing challenges with the inaccuracy and reliability of their downhole survey data. The traditional rig alignment by compass method was impossible to do in the time required, and due to the $\pm 2^\circ$ accuracy of a compass needle was not providing accurate enough results.

Randgold required reliable and consistent drill rig alignment, especially for the 15m x 10m Reverse Circulation (RC) drill spacing, and accurate downhole survey results for resource modelling.

Solution

REFLEX's solution was tailored specifically to address the issues highlighted by Randgold Resources. The solution had three components.

The REFLEX TN14 GYROCOMPASS™ was used to accurately align drill rigs to within $\pm 0.02^\circ$ accuracy. The accuracy is ten times higher than the traditional compass method. This provided the confidence in the drillhole orientation data, a vital aspect of the close-spaced Massawa Central Zone advanced grade control drilling.



Results

The REFLEX solution proved successful in the Massawa project with these results:

- Reduced rig alignment time by 50%
- 10 times the accuracy of rig alignment over traditional methods
- Drilling time was reduced by enabling critical real-time decision making by the geologist on where to move the rig
- Increased integrity of data through the QA/QC of IMDEXHUB-IQ™
- Increased data accuracy from REFLEX EZ-GYRO™ results.

“Using the REFLEX TN14 saw the rigs aligned to a much higher level of accuracy and in less time, saving money over the program.”

– Exploration Manager - Senegal

REFLEX™ CASE STUDY

The REFLEX solution increases accuracy and saves money



IMAGE: Traditional measurement of dip and dip direction on structures method at Massawa site.

The Exploration Manager - Senegal, from Randgold Resources said "The TN14 was easy to attach to the drill rig allowing for real-time monitoring of the rig set-up through an easy to understand display".

The REFLEX EZ-GYRO™ provided accurate and reliable downhole survey traces that Randgold were able to use as a framework for resource modelling and for placing mineralized intersects from exploration drilling into context. This downhole survey data was verified by the IMDEXHUB-IQ™ and viewed in real-time, allowing information to be verified prior to the drill rig moving off the hole.

When the IMDEXHUB-IQ™ was utilised with the REFLEX TN14 GYROCOMPASS™, drillhole coordinates were entered directly into the hand-held device on site, or could be pre-loaded from any location worldwide. The practice of pre-loading coordinates significantly reduces the risk of human error and ensures drill collars are accurate.

Project Outcome

In comparison to using traditional rig alignment methods the REFLEX TN14 GYROCOMPASS™ provided a number of operational efficiencies on site, proving to be highly cost effective and saving time. The REFLEX TN14 GYROCOMPASS™ average time to align the rig was half of the compass method, reducing costs and increasing productivity.

The implementation of the REFLEX EZ-GYRO™ and IMDEXHUB-IQ™ reduced the time of the drilling process as accurate survey data was accessible to view in real-time.

This ability to view the downhole survey data in the field allowed for information to be verified prior to the drill rig moving off the hole. If an error or discrepancy was present another survey could be performed immediately instead of re-entering the hole at a later date.

Finally, along with the increased integrity in the data was the added confidence you could rely on the data that was collected. Each step in the use of any REFLEX product requires approval of the data prior to incorporation, protecting the integrity of the site database. Any potential errors are automatically flagged within the IMDEXHUB-IQ™.

"The initial effects of using these products had a direct impact on the reliability of the drilling and the results derived from it" – Exploration Manager - Senegal

Significance for Industry

New technologies, like the REFLEX TN14 GYROCOMPASS™, providing accurate rig alignment in modern mining practices are assisting our industry to enhance productivity, reduce costs and increase safety. A rig that is misaligned could result in a drill hole entering areas of activity, or have other adverse impact on the drilling program.

Accurate rig alignment data and accurate survey data are not mutually exclusive, often one relies on or is effected by the other. Poor QA/QC processes can compromise the accuracy. IMDEX is addressing this industry challenge with its award winning IMDEXHUB-IQ™. The cloud based HUB has in-built QA at the time of data collection and provides a secure chain of custody for data and its secure transfer between the field and office. Users can make critical decisions anywhere, anytime, with data they can trust.

Further Information

For more information about this case study, please contact reflex@imdexlimited.com or your local REFLEX representative.

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