IMDEX MUD AID™ delivers accurate real-time data that leads to increased penetration rates

CASE STUDY

IMDEX conducted controlled trials of the IMDEX MUD AID™ at an iron ore mine. Over the course of the trial, the IMDEX MUD AID™ provided mud data that allowed drilling crews to be more responsive to changes in lifting capacity and solids content.

IMDEX compared rheological properties observed by an experienced drilling fluid specialist against the MUD AID™ (Automated In-field mud Diagnosis).

The IMDEX MUD AID™is a unique system that automatically monitors drilling fluid and guides drillers to complete drilling fluid programs.

Exploration holes at the mine include percussion, air, NQ and HQ drilling, through a collection of shale, clays, sand, BIF through to iron bearing formations. Conditions in these iron rich formations range from broken and caving to very competent.

Rock density is extremely hard and loss of drilling fluid is typical through large voids and fractures.

Results

During the trial, the IMDEX MUD AID™ was shown to:

- Allow crews to respond quicker to changes in lifting capacity and solids content, minimising wear and tear on metal components and maximising rate of penetration (ROP).
- Respond faster and more accurately to fluctuations in 300rpm and 600rpm rheology, plastic viscosity, yield point and solids content.
- Increase productivity, save time and overhead costs.
- Provide intelligence that minimised challenges related to ROP, bit and component life, as well as torque, which increased productivity.

IMDEX MUD AID™

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Solution

IMDEX compared the observations of an experienced drilling fluid specialist against the IMDEX MUD AID™ to measure the accuracy and response time to the fluid test results.

Plastic Viscosity and Yield Point Comparisons

During the study, viscosity recordings between the IMDEX MUD AID™ and drilling fluid specialist were similar, however, the IMDEX MUD AID™ was more accurate in calculating yield point.

A liquid polymer system was used on the trial hole to produce viscosity and the desired lifting capacity. Liquid polymers break down more rapidly under shear stresses, which was detected faster by the IMDEX MUD AID™ than the drilling fluid specialist.

Plastic Viscosity Graph

** Data indicates close trends between IMDEX MUD AID™ and drilling fluid specialist data collation*

Yield Point Graph

** Data indicates close trends between IMDEX MUD AID™ and drilling fluid specialist data collation*

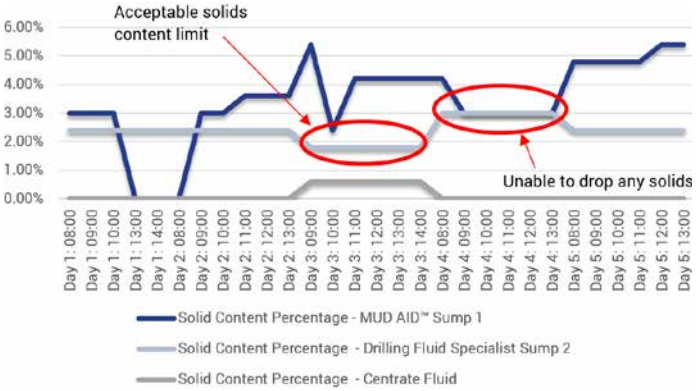
Drill Solids Content Comparison

The abrasive properties of drilled solids are the main cause of wear and tear on all equipment that comes into contact with the drilling fluid.

Based on readings from the IMDEX MUD AID™, crews were able to respond appropriately to ensure sufficient solids transport and extend the life of drill components.

The graph below demonstrates a significant difference in recordings between the drilling fluid specialist and the IMDEX MUD AID™. The solid content calculated by the IMDEX MUD AID™ corresponds with the density and volume of solids that are being produced from these formations.

Drill Solids Percentage



Project Outcome

From the comparison, the IMDEX MUD AID™ was able to identify anomalies, critical change requirements and solids properties faster than a drilling fluid specialist.

Real-time data provided by the IMDEX MUD AID™ meant that personnel (whether on site or remote) could respond faster and recommend adjustments.

Results in this particular trial meant that drilled solids could be intercepted, productivity increased, and time and money could be saved through improved efficiency.

Negative impacts on productivity, rate of penetration, bit and component life as well as torque can all be avoided using intelligence delivered by the IMDEX MUD AID™.

The IMDEX MUD AID™ empowers resource and drilling companies to enhance drilling performance, on and off site.

Further Information

For more information please contact your nearest IMDEX representative, or visit one of our websites:
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