

DrillClean Saves Customer \$150,000 of Non-Productive Time (NPT) and a Stuck Pipe Event during Deep Water Operations



Client

Major West Africa Operator
Deep Water Offshore, Angola

Challenge

In a 40 degree deviated well being drilled in deep-water, hole cleaning effectiveness was difficult to determine. A method was needed to provide evidence of effective hole cleaning to avoid costly remedial actions if the well bore wasn't cleaned effectively.

Solution

Deploy a cuttings volume monitoring service to effectively quantify the volume of cuttings returning to surface while drilling and notify the drilling team if any discrepancies were identified.

Results

Real-Time monitoring of cuttings volume was able to determine cuttings were being left down hole and that the proposed additional back reaming procedure was not effective to remedy the problem. Real-Time monitoring quantitatively confirmed hole conditions, identified that the selected method to alleviate the issue wasn't working and showed that an alternate method was successful and in a shorter time frame than planned.

Value

From quantitative monitoring of the cuttings the operator was able to adjust drilling parameters (Flow and RPM) to prevent further problems. DrillClean service was able to save two bottoms up circulating cycles to retrieve all cuttings down hole. This resulted in \$150,000 in rig time savings and the prevention of a costly stuck pipe event.

Services used

Mitigating stuck pipe events in offshore highly deviated well.

The operator was drilling a highly deviated well with the expectation that hole cleaning would be a challenge. In order to prevent any serious non-productive time through poor hole cleaning, an effective quantitative cuttings monitoring service was needed to mitigate these risks.

DrillClean service deployed to monitor in real-time hole cleaning effectiveness.

During the drilling of the well, the operator reduced the RPM from 120 to 80 and the flow rate from 2,000 to 1,700l/min. The DrillClean specialist was able to observe, in real-time, that cuttings were being accumulated downhole. The driller's attempts to retrieve cuttings by performing additional back reaming was shown to be ineffective. A decision was taken to pump a HiVis-LowVis Pill to retrieve the missing volume of cuttings and planned to require six full annular circulations. After four circulations were completed the cuttings were observed to have been removed from the well, the DrillClean specialist was able to inform the driller that the remaining two planned circulations were therefor unnecessary. The well continued operations without issues.

As a result of the real-time monitoring from the DrillClean service, GEOLOG was able to cut back the planned number of bottom up circulations from six down to four, resulting in \$150,000 savings in rig time. Additionally, the service mitigated events that could have resulted in the requirement for a side track, potentially costing millions.

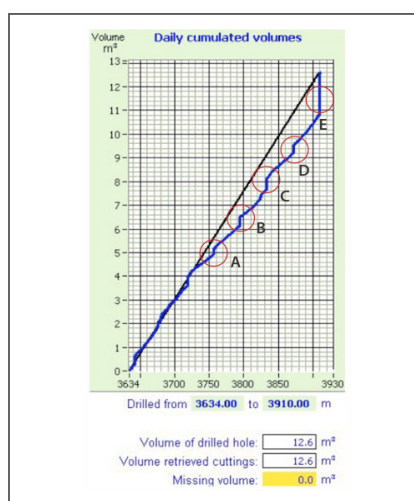


Figure 1. Back Reaming events from A to D, with final cuttings retrieval at event E.



Figure 2. Cuttings Volume Machine



Contact Sales & Marketing for more information at marketing@geolog.com



Technical Paper References

Cutting Weight Sensors to Improve Drilling Efficiency: Field Results Onshore South Italy.
(IADC, Dallas, March 2004, Eni)