Advanced Data Analytics Deployed At Rig Fleet Scale

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Abstract

Objectives/Scope: Real-time data Analytics is playing a major role in monitoring various rig activities to enhance drilling efficiency, minimizing drilling cost, reducing Non-Productive Time (NPT) and Invisible Lost Time (ILT). To track rig performance trends, an advanced data analytics solution was deployed that captures the operational Key Performance Indicators (KPIs) in real-time. In this paper, the author will discuss the methodology and processes that enables rigs to optimize daily drilling operations and well delivery.

Methods, Procedures, Process: A performance analytics tool has been designed and developed with the objective of analyzing historical and real time data to establish performance benchmark across the rig fleet. The project commenced with monitoring a set of rigs to evaluate their performance against established benchmarks, and identify performance gaps which can be transparently tracked via real-time KPI analysis. This paper presents the process utilized by the drilling operation teams to improve KPI performance by utilizing the Advanced Analytics solution. In addition to gaining essential insights that enabled them take timely necessary actions to improve rig performance.

Results, Observations, Conclusions: The independent drilling analytics platform has been deployed across a wide range of drilling activities, and hence tested in various drilling and operational challenges. A wide range of generic and defined KPIs have been applied appropriately to each well construction activity, section and condition. This approach is comprising of monitoring a cumulative of 6,000 hours of actual rig time within a 6-months’ time period and contributed to around 10% reduction in flat time. Providing real-time data analytics of intangible value to the office and field, identifying performance gaps against the target KPIs to ensure that performance efficiency is maintained consistently. This solution is now embedded as an integral core component of the drilling ecosystem, which is within the broader IR4.0 digitization strategy.

Novel/Additive Information: This novel integration of performance optimization initiative, as well as cultural awareness, has led to a community of practice approach based on transparent and real-time data analytics platform that enables drilling operations to make timely and targeted decisions that enhance performance and efficiency.