Integrating Real-Time LWD Acoustics Technology with Managed Pressure Drilling Operations to Improve Drilling Efficiency

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ROP
INCREASED BY 30%
3 OPERATIONAL DAYS =
200,000.00 USD
Real-Time Technology: Sonic

LWD Azimuthal Sonic
Technology Integration: MPD
Enhanced Drilling Optimization

<table>
<thead>
<tr>
<th>Mechanical Properties</th>
<th>ROP</th>
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</thead>
<tbody>
<tr>
<td><strong>Bad Correlation</strong></td>
<td><strong>Low ROP</strong></td>
</tr>
<tr>
<td><strong>Good Correlation</strong></td>
<td><strong>High ROP</strong></td>
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</tbody>
</table>

Real-Time Semblance

Real-Time vs Memory Velocity

Reliable and Precise Real-Time Acoustics
Integrated Approach

Pore pressure Eaton indication of a variation from the normal compaction trend – Overpressure section

Resistivity indicates the variation from the normal compaction trend – Overpressure section

Pore Pressure evaluation using acoustics compaction trend analysis. PP, FPMW, OBMW

UCS vs CCS vs MSE
Conclusion

- The real time integrated workflow demonstrated the increase of the drilling efficiency and the optimization of operational time based on a solid drilling engineering and formation evaluation pre-drill model that leads into a cost-effective, efficient and safe drilling operation.

ROP Increased by 30%

200,000 USD
Acknowledgements

I would like to thank Davide Di Tommaso for working with me on this presentation and for giving me the possibility and trust to present it here today.

Thanks to DEVEX and all of you!

Any Questions?