

Managed Pressure and Underbalanced Gas Extraction while Drilling

GeoMPD provides an innovative solution to extract mud gas from managed pressure and underbalanced drilling operations. Extracted gases are no longer compromised from the effects of the rig mud gas separator; affecting gas response and accuracy of the analysis. Results from gas analysis are now able to be delivered accurately and consistently during diversion through a degassing system.



Benefits

- Real-Time reservoir characterization
- Accurate hydrocarbon composition is preserved for advanced gas analysis services
- Precise identification of hydrocarbon changes with lithological variations
- Improved absolute peak readings (better compositional analysis)
- Background gas effects are minimized

Challenges and Solutions

Drilling rig mud gas separators affect the accuracy of services designed to evaluate hydrocarbons while drilling. In reservoir well sections, gases are separated out prior to reaching the mud logging gas extraction at the shale shakers. This causes the overall quantity of gases to be reduced, affects the gas composition and resolution. In non-reservoir drilling, mud gases tend to have a higher background gas reading when measured at the shakers resulting in unreliable gas analysis.

The solution developed by GEOLOG continuously samples mud from the pressurized flow line before reaching the separator. By isolating part of the mud flow prior to the rig degassing system, GEOLOG is able to then offer a variety of quantitative hydrocarbon services; G5 (DualFid), G8 (DualFidStar), GeoLightGas and GeolSotopes. The mud is delivered at a constant flow, pressure and temperature ensuring that the hydrocarbon analysis results in improved time depth precision and with improved gas ratio analysis.

Applications

It is an essential service to deliver reliable gas data during managed pressure drilling operations. It positively impacts on all the mudlogging services that analyze gas content on offshore and onshore operations.

A comparison of gas analysis values obtained using the GeoMPD service vs readings acquired after the drilling rig mud gas separator.

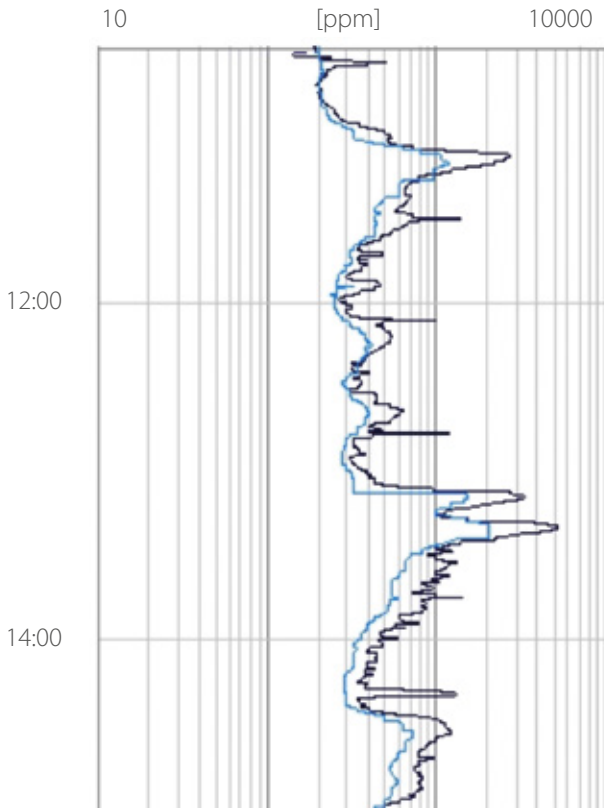


Figure 1. Observed from formation were 2 to 4 times higher while using the GeoMPD service (black curve).

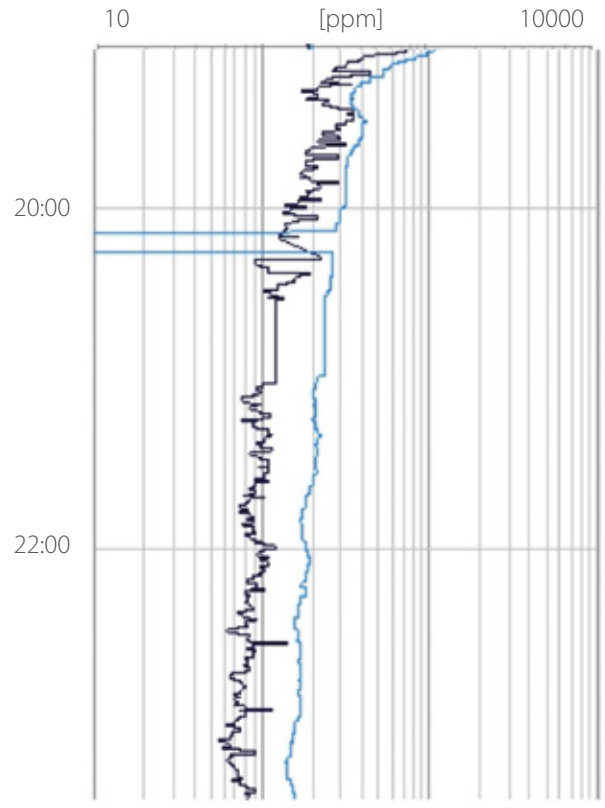


Figure 2. Hydrocarbon values shown are from the mud while circulating bottoms up. Data obtained with GeoMPD (black curve) are not affected by background gases as the one sampled after the separator (blue curve).

- C1 Measured from GeoMPD
- C1 Measured after separator

Specifications

Working pressure @ separator	0- 300 PSI (0 - 20 bar)
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GEOLOG around the World

