**Case Study: Development**

**GeoFracture Identifies Open Fractures in Real-Time using Advanced Mud Flow Measurements**

**Client**
Repsol
Margarita Field, Onshore, Bolivia

**Challenge**
Identifying natural fractures in the reservoir in rugose borehole sections that had previously been impossible to characterize with down hole wireline tools.

**Solution**
Utilize high resolution return mud flow measurements whilst drilling to identify micro-losses. This data is then integrated with hydrocarbon analyses to interpret the presence of open micro-fractures and improve reservoir modelling.

**Results**
Micro-fractures were identified in real-time while drilling. Additionally, natural large aperture open fractures and drilling induced open fractures were also identified whilst drilling.

**Value**
Previously undetectable, micro-fractures were confirmed to be the source of hydrocarbon shows, indicating that fracture permeability is the main driver in production variation within this tight sandstone.

**Services used**

![Image of detection of micro-fractured zone using advanced flow monitoring data](image.png)

**Figure 1. Detection of micro-fractured zone using advanced flow monitoring data**

**Technical Paper References**
- *Real Time Advanced Surface Flow Analysis for Detection of Open Fractures.* SPE-154927 (EAGE, Copenhagen, June 2012)

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