

A pressure reading of 14.19 ppg was obtained in the M56C Sand (17,700' MD) using logging while drilling (LWD) real-time Geotop tool. During formation evaluation testing, MDT pressure readings in this sand failed to seal. The geotop test of 14.19 ppg was deemed acceptable and can not be disregarded. The OBMII image suggests that the sand is very thinly interbedded (Figure 32). The thin sand stringers are below density log resolution so the evaluation of porosity,  $S_w$  and fluid type is compromised.

There are several more thin ( $<1\text{ ft}$ ) sand or silt stringers, characterized by slightly decreased density and slightly increased resistivity values such as those at 17437.5', 17460', 17474' md. The stringers properties are below conventional log resolution and their lithology and fluid type are uncertain.

Sand M56B is interpreted to be a thin, low porosity water-bearing sand. Sand M56C is interpreted to be a thin, low porosity sand of uncertain saturation.



Figure 32: Logs over sand M57D.

#### Reservoir and Fluid quality

Despite limited core data availability, the integration of the core, log and pressure data suggests that:

- Both M56D and M56E sands have good reservoir quality and reservoir fluid.
- Based on XRD data, the M56D and M56E sand lobes have similar mineralogical content with Quartz content averaging 83% and with only minor amounts of clay and secondary minerals (Figure 13).
- Sorting, grain size and sand content are the main controls on reservoir quality.
- From Core data, two rock types have been identified: M56E comprises mainly Rock type 1 and is differentiated from Rock Type 2 by improved sorting. The rock Types are also

associated with a more homogeneous sand package; Rock Type 2 in the M56D unit may be associated with some thin bedded pay as evidenced by increased anisotropy from the tensor resistivity data and the CMR bin porosity distribution. There is a better match between the core and log data for Rock Type 1 of the M56E sand than exists for

CONFIDENTIAL

BP-HZN-BLY00062907  
BP-HZN-BLY00062874

TREX 003533.0034