

Petrophysics

Summary

From shows, log response and fluid samples it is interpreted that >90 feet of hydrocarbons were discovered by the Macondo well, the majority occurring in the M56D (22') and M56E (64.5') sands. Porosity averages 22%, Sw averages 10 - 17% and permeability averages in the range of 250 - 500 mD (arithmetic, log derived). Permeability was calculated using a porosity-permeability transform based on Macondo well rotary side wall core data analysis.

Three MDT multiphase fluid samples were collected; MDT sample analysis and PVT analysis

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Consistency of well logs (see Figure 16).

The close match of core and log derived porosities in the M56E sand gives a reasonably high degree of certainty around the petrophysical parameters despite the relative lack of core data in Figure 17. A greater degree of uncertainty exists in the more heterogeneous M56D sand. Further uncertainty exists in the thin minor hydrocarbon bearing intervals in M56 and M57. They were not covered by core data and are difficult to resolve with standard logging tools as they are less than 2.5 feet in thickness. The lowest M56F sand was not fully covered by logs.

Electrical properties, capillary pressure data and thin section analysis will be incorporated into the interpretation when available.

Data base

All Logging While Drilling (LWD), Wireline, Mud logging, Pressure and Core data were loaded into Geolog where formation evaluation was completed.

LWD

Halliburton was the LWD vendor. GR, Resistivity, Sonic and PWD tools were in the BHA while drilling plus Geotap formation pressure in the target section.

In the section of the hole logged with wireline tools, LWD was depth shifted to TCOMBO Gamma Ray. In cased hole section, where wireline Sonic in casing was run, LWD was shifted to it to match sonic response on LWD and wireline. From mudline to top of sonic in casing (-11,700' md) the depth shift was distributed.

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