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Brown Field Well Placement Optimisation using NMR

S Williams* (Statoil)

SUMMARY

This is a case study describing how the well placement challenges in a brown field environment were successfully overcome by using NMR while drilling.

As fields age continual drilling is often required to keep production up and the field economics profitable. Such older fields have many technical challenges. One of those is water flooding as the oil water contact rises and in addition injection water floods certain geological horizons. The mix of different water types present creates variable water resistivities rendering conventional saturation measurements useless. The use of NMR can provide resistivity independent water saturation measurements. Until recently saturation measurements with NMR while drilling tools were not readily available and of high enough quality.

The case study shows how NMR while drilling was successfully used to optimise the well placement and identify pay in this partially flooded complex mature field.