

due to small borehole (8 1/2") and fresh mud system. Estimates of R_t , R_{xo} and diameter of invasion were obtained using an interactive invasion correction routine applied to the HRI's deep, medium and digitally focussed logs in conjunction with the MSFL data.

Log quality of the pad devices was good due to excellent hole conditions.

Parameter Selection - General

Study of the core data and mud logs indicated that the principal formation components would be claystones interbedded with sandstones and siltstones. However, the data indicated that other minerals were to be expected also. Of particular interest due to their log responses were the inclusion of Mica, Zircon and Pyrite. Mica is of variable radio-active content and affects all the spectral gamma ray curves. Zircon is very dense and has a high P_e value. Pyrite is a very conductive mineral and will tend to reduce resistivity where it is present.

The saturation equation parameters were chosen as follows:

$$a = 0.65$$

$$m = 2.15$$

$$n = 2.0$$

The ULTRA minimisation technique confirmed these values as reasonable.

Parameter Selection - Formation Water Resistivity (R_w)

An initial value of 0.075 Ohmm @ 191 Deg.F was chosen from the SP and R_{wa} crossplots. However, using ULTRA's multi-dimensional crossplot technique, it soon became evident that a value of 0.06 Ohmm @ 191 Deg.F (45 Kppm NaCl equivalent) was giving less error in the minimisation. This value was used for the whole of the interpreted interval.

Parameter Selection - Clay

Selection of clay parameters was based on the Thorium versus Potassium crossplot. This suggested heavier clays and chlorites. However, clays have notoriously variable properties and the parameters used in the interpretation have been varied depending on the quality of fit between the raw and theoretical curves.