

Petrophysical Methodology

- Calculated total porosity from Haliburton Energy Services Density Neutron cross plot chart CPdsnII-1b
RhoF = 1.0 g/cc.
 - PHIA curve
- Calculated shale volume from GR with Steiber correction.
 - $V_{shl} = (GR - GR_{cln}) / (GR_{shl} - GR_{cln})$
 - $V_{shl} \text{ Steiber} = 1.7 - (3.38 - (V_{shl} + 0.7)^2)^{0.5}$
- Calculated Effective Porosity from following equation.
 - $PHIE = PHIA * (1 - V_{shl} \text{ Steiber})$
- Calculated porosity using Modified Simandoux
 - SwMS curve
- Calculated Permeability with Coates Equation.
 - $K_{coates} = (70 * PHIE^2 * (1 - Sw_{lrr}) / Sw_{lrr})^2$
Where; Sw_{lrr} is 40%
- Cut off used were as follows:
 - V Shale (Shale Volume from GR) cut off was 40%
 - Effective Porosity PHIE (Effective Porosity) cut off was 9%
- Constant Parameters;
 - $R_w = .05$ at formation Temperature
 - $A=1, M = 2, N = 2$
- Hierarchy is as follows for nomenclature;
 - Gross Sand ($V_{shale} < \text{Cut Off } 40\%$)
 - Net Sand ($V_{shale} < \text{Cut Off } 40\%$ and $PHIE > \text{Cut Off } 9\%$)