Basic Petrophysics and Schlumberger Techlog[1]

Course Synopsis

Upon the completion of this course, the participants will be able to operate Schlumberger *Techlog* software independently, providing a range of answer products in deterministic petrophysics and ELAN. Special attention is dedicated to the operations' efficiency and capability to automate and document the computational models.

The course presumes basic knowledge of oilfield geology concepts and at least one year experience with either Wireline electric logging or LWD. Prior experience with formation evaluation software and Python scripting is beneficial, but not required.

During practical exercises, participants will be required to perform an end-to-end petrophysical evaluation over *PETRONODE* sample/training dataset (including basic electric logs, pressure point data and routine core analysis). Client-provided datasets may be also considered if available (prior confirmation is required).

DAY 1

- Introductions & Safety
- Introduction of Schlumberger Techlog: installation, configuration, license models.
- Techlog data model: projects, wells, datasets, variables, properties.
- Petrophysics theory review: Gamma-Ray and Resistivity.
- Techlog plotting: layouts, cross-plots and histograms.

DAY 2

- Introduction to standalone Python scripting.
- Techlog scripts: accessing data and performing computations.
- Petrophysics theory review: Density and Neutron.
- Practical exercise: deterministic petrophysics in Python.

DAY 3

- Petrophysics theory review: Basic Acoustics and NMR.
- Practical exercise: iterative density porosity algorithm.
- Working with discrete data: well trajectory.
- Working with discrete data: RFT pressure points
- Practical exercise: build field-wide pore pressure and formation temperature model.

1 Client must provide Techlog with either educational or commercial license. As minimum, *Python*, *EnvCorr*, *Quanti* and *Qianti.ELAN* are required.

DAY 4

- Techlog zonations.
- Practical exercise: import and export zonations.
- Petrophysics theory review: Routine Core Analysis.
- Comparing data and building petrophysical regressions.
- Practical exercise: compute formation permeability.

DAY 5

- Petrophysics theory review: ELAN fundamentals.
- Practical exercise: complete pre-computations.
- Practical exercise: execute ELAN computations.
- Practical exercise: compare ELAN results to cuttings and core.
- Q&A.