

Petrophysical Evaluation – A case from the Knowhere field

Stark Oil is seeking to set up production in a block from the **Knowhere** field, covering an area of approximately 8 sq km.

The company acquired this block from **Pym Petroleum**, which had drilled four vertical exploratory wells in the field and acquired limited well log data in them.

Stark Oil has received the well logs and needs to evaluate the feasibility of production from this field.

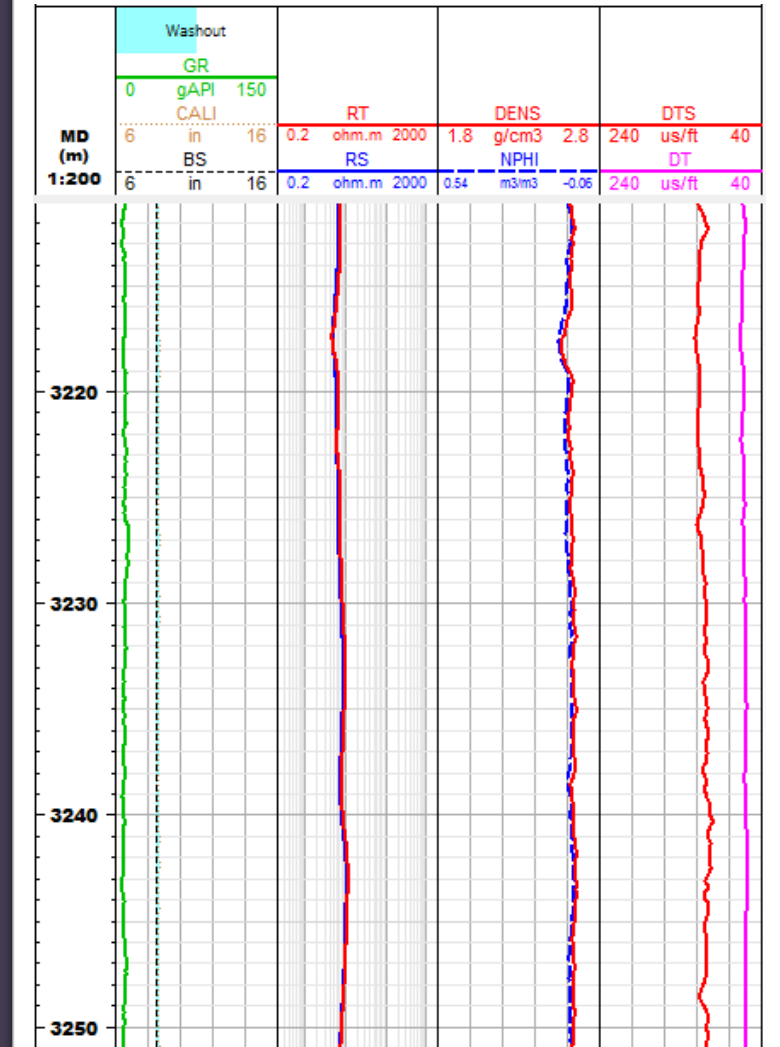
Avengers Assemble!

Stark Oil has approached your team of Avengers for petrophysical evaluation using the well log data for 4 exploratory wells. The field is known to be a light oil reservoir.

The data received from Pym Petroleum includes measurements such as

- Gamma Ray (**GR**)
- Neutron Porosity (**NPHI**)
- Bulk Density (**DENS**)
- Compressional and Shear Slowness (**DT** and **DTS**)
- True and Shallow resistivity (**RT** and **RS**).

Based on these measurements, the objective for your team is to perform a petrophysical evaluation of these wells and present your results to Stark Oil.



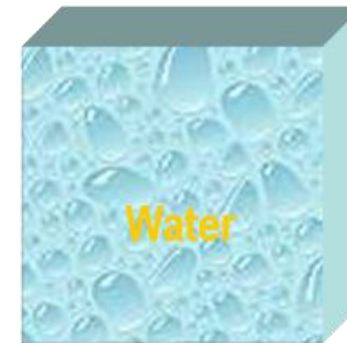
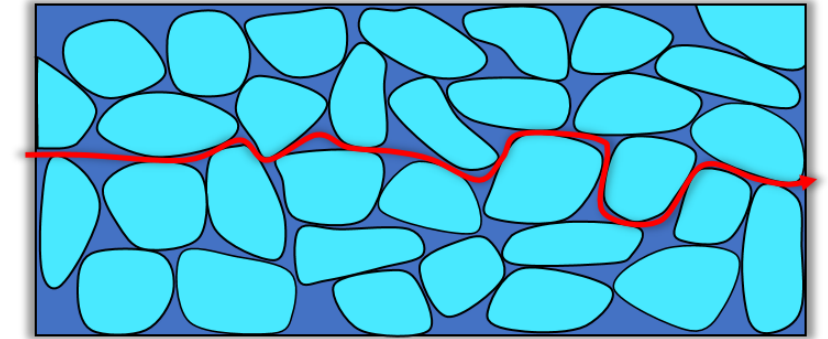
Objective

The following estimations are to be made

- Total and Effective Porosity
- Permeability
- Approximate number of facies based on porosity-permeability relation
- Water saturation
- Net and Gross Pay thickness, and Net-to-Gross ratio

You can use any of the industry-recognized equations/parameters/figures to compute these results from the well logs. All computations are to be done in MS-Excel only.

Based on these inferences, your team must estimate the **hydrocarbon volume in-place** and suggest the optimum **production strategy** to make the project feasible.



$$S_w = 100\%$$



$$S_w = 70\%$$

Presentation Guidelines

- A team should comprise of 3 members.
- Data will be shared on 22-Oct-2018
- The teams will present their final results on 27-Oct-2018.
- The final PowerPoint presentation should shall have a time limit of 10 minutes, followed by a Q&A session of 10 minutes.
- Please focus on the workflow, assumptions and limitations, along with the results which you have estimated
- For any query, please feel free to contact Anindya Nandi (anandi@slb.com; +918828217177) or Vibhu Kumar (vkumar37@slb.com; +918436267544)

