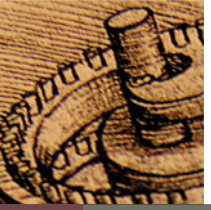

Providing interpretations and evaluating incremental oil potential

Client: Petrobras

Location: Peru

Objective: Determine the best production strategy from a naturally fractured dual porosity reservoir

Petrobras, the Brazilian energy giant, boasts some of the most advanced technology in the oil industry in such areas as deepwater development and reservoir engineering. Petrobras engaged Knowledge Reservoir to do a study of the complex dual porosity Mogollón Formation in its operating area in the Talara Basin in Northern Peru.

The study objectives included:

- Estimating original oil in-place (OOIP).
- Providing geologic and engineering interpretations, a complex challenge given the dual porosity nature of the reservoir.
- Formulating field development alternatives.
- Estimating incremental oil production from each field development alternative.
- Selecting wells as re-fracturing candidates.

A simulation sector model was used over a representative portion of the reservoir with the objective of understanding fluid flow and oil recovery dynamics. The model was used to show the benefits of incremental field development projects. There were 30 wells selected as re-fracturing candidates based on formation-specific technical and operating criteria. Despite the complex nature of the reservoir, good IOR and EOR potential was identified for both water injection and gas injection.

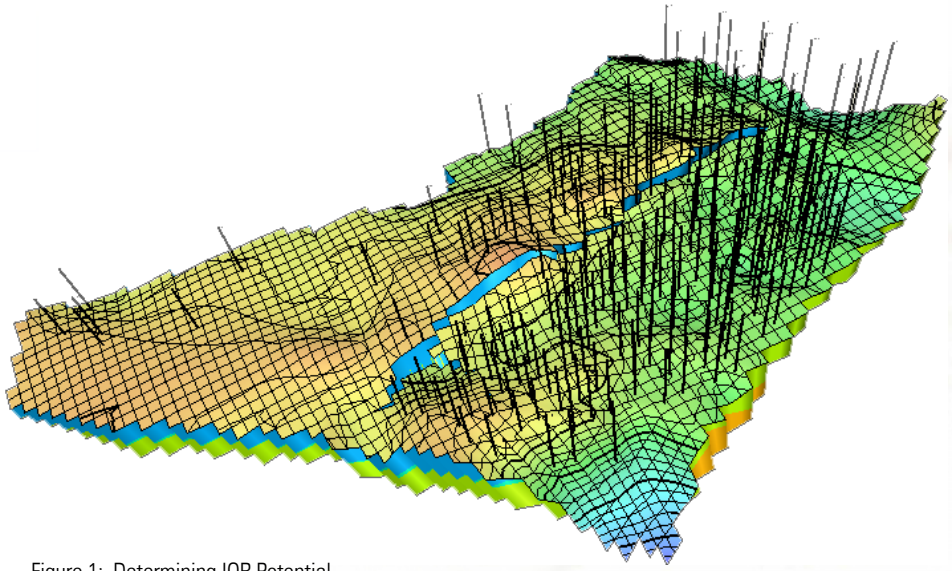

Figure 1: Determining IOR Potential