

## **Production & Optimization in a Mature Reservoir: Lobitos Field Z-2B Area, Basal Salina Formation Case Study**

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### **Abstract**

Lobitos Field belongs to Z-2B block located in the North of Talara basin in Peru. This field is part of strategic partnership between Ecopetrol (Colombia) and KOC (North Korean Co), called Savia.

The reservoir Basal Salina started production in May 1973. Presently there are about 116 well completions in this field. This reservoir has a 26.4 MM Bbl. of cumulative oil and 88 MMM SCF. The primary objective is the construction of Reservoir Dynamic Models in order to give solutions to low production and potential of wells and also obtain opportunities; and later, to evaluate future exploitation scenarios that will enable decision making about the possible optimization strategies of the remaining reserves production of the reservoir.

Some challenges for the analysis encountered included: reservoir static characterization, structural and stratigraphic complexity, the highest uncertainty degree the pressure history and the permeability ranges, PVT data, cores data, production and fluids history, high uncertainty of original volume calculation, recovery factors, etc. Schlumberger's task was to reduce this uncertainty on reservoir variables using the Petrel RE-Eclipse, OFM platform for the simulations execution and analytical analysis.

In agreement with the Savia, the evaluation of a gas/water injection project by pattern on the reservoir and under the pressure maintenance scheme was planned with numerical analysis.

According to voidage reservoir requirements, Schlumberger evaluated pilot zones of Lobitos field and recommended exploitation strategies to be implemented. There were many predictive scenarios considered. In this case, estimating recovery factor by reservoir was necessary, so several wells were incorporated to the model to drain the reservoir.