

RESERVOIR SIMULATION AND DECLINE CURVE ANALYSIS: A CASE STUDY OF "DER" FIELD, NIGER DELTA BASIN.

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- **Abstract:** This research project gives an insightful glimpse into reservoir simulation using the Material Balance (MBAL) software. The software was used to confirm Stock Tank Oil Initially In-Place (STOIIP) for volumetric analysis. MBAL was used to apply the material balance method, decline curve analysis method, check the aquifer size of the field, and carry out production forecasts. Data from the field was inputted into MBAL and results acquired. These results were used in simulating the reservoir in order to carry out production forecasts. The research showed the impact of MBAL in predicting reservoir performance and carrying out reservoir simulation. The predictions were made based on field data. STOIIP was estimated using non-linear regression with a plot of average reservoir pressure against cumulative oil produced. The history matching tool and the production prediction tool were used to estimate the expected STOIIP, judging from the previous performance of the reservoir and the well. With the use of the analytical tool, the predominant reservoir driving mechanism was determined. This project will focus on the use of reservoir simulation in reservoir engineering and how MBAL can be used as a tool in reservoir simulation.
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