

## **Reservoir Optimisation Inspection and the Gains in the “OGBO” Field of the Niger Delta Basin, Nigeria**

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### **Abstract**

In order to improve our understanding of the stratigraphic distribution and better define the pattern of hydrocarbon distribution within reservoirs of the Middle to Late Miocene sediments in “OGBO” Field in the Coastal Swamp Depobelt of Niger Delta Basin. Seismic data, well logs, and biostratigraphic information have been used in an integrated approach together with the use of sequence stratigraphic, geostatistical and structural analytical tools. Based on sequence stratigraphic studies, stratigraphic bounding surfaces such as Maximum Flooding Surfaces - MFS's, Sequence Boundaries -SB's and Transgressive Surface of Erosion – TSEs, were delineated and dated. The surfaces were correlated across various wells and mapped along dip and strikes lines on seismic sections, thus providing a good understanding of the stratigraphic distribution. In addition, genetic system tracts which include Lowstand System Tract – LST, Transgressive System Tract – TST and Highstand System Tract – HST, were recognized with the aid of sediment stacking patterns (progradational, retrogradational and aggradational stacks). This gave insight into reservoir, source, and seal rock distributions across the study area. Geostatistical analysis and petrophysical studies were carried out across reservoir tops of interest to determine variations in parameters such as porosity, permeability, water saturation, net to gross, etc. These studies have unraveled the existence of by-passed prospects which in no small measure has led to an upward review of hydrocarbon reserves in the field. Structural analysis indicates the occurrence down to basin faults, deep seated rollovers, anticlinal structures, and dip fault closures at deeper intervals. This study has led to the generation of a better and more reliable geological model for use in the reservoir modeling studies of “OGBO” field.