

Revitalizing Mature Fields in the NNPC/MPN Joint Venture Offshore Nigeria through Integrated Geoscience/Reservoir Engineering Field Studies: The East Area Additional Oil Recovery Project

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The Nigerian National Petroleum Company and Mobil Producing Nigeria are partners in acreage on the eastern Niger Delta shelf known as the NNPC/MPN Joint Venture (JV), with twenty two producing fields. The focus of this project is six of these fields in the eastern JV which were discovered in the late 1960's, and have been on primary production for 20-30+ years. The fields consist of paralic deposits affected by a major Early Pliocene shelf-edge collapse. The collapse created large tilted fault blocks containing excellent reservoirs, as well as equivalent age "Disturbed" reservoirs, consisting of remobilized blocks of paralic strata and debris flows. Greater than 1 GBO has been produced from these fields and reservoir pressure has declined over the years. In order to increase recovery and extend production, a major gas injection and artificial lift project, called the East Area Project was proposed in 2000. To better define this project, an integrated geoscience/reservoir engineering field study program was undertaken to map the reservoirs with 3-D seismic data, characterize the flow units, build geocellular models, and perform reservoir simulation studies to quantify the uplift. Integrated Production Modeling combined results from the simulation studies with a surface facility model to provide overall production profiles. The facilities include a large gas injection platform with 765 MCFD capacity. Project start-up is scheduled for 2006. In addition to providing substantial near-term production uplift and improved recovery, this facility will provide infrastructure for low-cost extension to surrounding fields thereby further enhancing value to the JV investors.
