

Probabilistic OOIP Assessment and Reservoir Characterization Workflow used for Lianzi Development, Angola/Congo 14 / K A IMI Unit

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The Lianzi development lies on the border of Angola Block 14 and Republic of Congo within the 14K / A-IMI Unit. Chevron as Unit operator along with participants; Total, ENI, SNL P&P, SNPC, and Galp have been exploring and appraising the region since the unit agreement was signed in 2002. Lianzi field was discovered in 2004 by drilling the Lianzi-1 discovery well followed by successful delineation in 2005 with the Lianzi-2 appraisal well.

The Lianzi base case development comprises a Miocene CN3 F1B channel-levee system with two separate oil pools. Lianzi Central and West F1B are combination structural and stratigraphic traps. Lianzi F1B reservoirs are 6000-7000 feet below mud line in 2000 feet of water and contain 37° API oil. The reservoir has been evaluated using both 2-D map-based and 3-D model-based probabilistic OOIP assessments to finalize the Reservoir Basis of Design.

Subsurface uncertainties are prioritized using design of experiments and mitigation plans are developed to reduce associated risks with deepwater development. Advanced modeling techniques are used to capture the range of subsurface uncertainties and understand of development risks associated with fluid contacts, channel deposition, velocity, net to gross, reservoir fluids, rock properties, etc. Multiple models are built using reservoir properties from 3-D seismic to represent subsurface uncertainties and define probabilistic ranges of hydrocarbon volumes, recoveries, and forecasts. Improved reservoir characterization workflows are streamlined to quickly update models with new data. This improved workflow builds upon ten years of work efforts by Chevron and Unit Participants in the Lower Congo Basin.