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SPE/IADC International Drilling Conference and Exhibition 2025 - SPE-223735-MS

Design and Qualification of a Purpose-built 3,000,000 Lb Landing String System Enables 20k Exploration

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Abstract

One of the first 20,000 psi Paleogene development projects is located in the Green Canyon area, approximately 140 miles (225 km) off the coast of Louisiana, in water depths of approximately 5,000 feet (1,524 m). The subject well will be drilled to approximately 30,000 feet and will require six drilling casings plus production liner and tieback. A purpose-built drilling landing string with 3-million-pounds capacity will be needed to land the 16" and 14" casing strings and the 10 1/4" by 11 1/4" production tieback string.

This paper documents an extensive development effort spanning over seven years. Initially, 6 5/8", 7" and 7 5/8" solutions were considered with landing capacities of up to 4-million-pounds. A 6 5/8" 3-million-pounds design was selected for qualification testing. The development of the landing string's design configuration and performance specifications are presented.

Qualification testing of the landing strings included: friction weld qualification, FEA to optimize the connection pressure sealing capability, FEA of elevator shoulder/upset region for cross-sectional and elevator shoulder yielding, shear testing of the pipe body and slip-proof sections, combined load testing of the landing string assembly, and slip-crush testing of the pipe body and slip-proof sections. Test procedures and results are presented.

This 6 5/8" landing string has the highest capacity at 3-million-pounds of any purpose-built landing string manufactured.

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