Benefits

- Increased production rate with use of optimized casing size to enter production zone
- Saved casing cost and rig time by reaching production zones with planned casing program

Background and challenges

- Plan and drill deeper wells with larger hole sizes at the reservoir
- Allow operator to set casing across problem zone
- Continue wellbore construction without sacrificing hole size
- Arkoma, Oklahoma, USA

Baker Hughes solution and results

- Introduced linEXX solid expandable system, allowing the expansion of liner by 18% to achieve 8⅜-in. nominal ID and 8½-in. drift ID
- Completed incremental expansion by applying drill pipe pressure to expansion tool to expand 1,514-ft length of liner
- Retrieved expansion assembly and verified post-expansion drift, confirming that linEXX system delivered well with 8½-in. drift

Baker Hughes achieved an industry milestone with the installation of the world’s first true monobore expandable liner extension system in a commercial well in Oklahoma. The 8-in. (pre-expansion) linEXX™ solid expandable system was successfully installed and expanded below the 9⅞-in. parent casing. This successful installation opened a new opportunity for operators to apply solid expandable tubulars for planning and drilling deeper wells with larger hole sizes at the reservoir.

A 12¼-in. vertical hole was first air-drilled to approximately 4,100 ft (1250 m) and then filled with an oil-based mud before running and expanding the tubulars. The 9⅞-in. parent casing, together with the contingency recess shoe installed on the casing, was run to a depth of 2,588 ft (789 m). The 1,514 ft (461 m) of 8-in. outside diameter (OD) expandable liner was then run in hole and the expandable liner hanger packer was made up to the last joint of the liner.

The expanded liner was pressure-tested, the circulating sleeve in the recess shoe was shifted open and then the expanded liner was cemented in place using a K-1™ cement retainer. After successfully pressure testing the expanded liner, the retainer and excess cement were drilled out. Drilling continued with rotary steerable directional tools below the linEXX shoe at 4,020 ft (1225 m). The liner extension system was isolated with the production casing before completing the well.

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