Society of Petroleum Engineers
2016-2017 SPE Romanian Section Technical Program

SPE Romanian Section Symposium: "Dry hole analysis"

Technical Presentation:
"Well engineering design in Laslau Mare based on lessons learned"
15th March 2017, Romgaz, Medias

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Abstract:

The lack of drilling operations during more than 25 years in Laslau Mare gas field supported a conservative approach in the well engineering design of the new infills. The review and analysis of the infill well design on the completion and production performance led to a revision of the proposed last infill well yet to be drilled on the structure.

Romgaz has drilled and completed more than 50 wells in Laslau Mare lean gas field from early seventies to late eighties. All these wells are completed with a 5 ½" production casing run, set and cemented in a 8 ½" openhole. When the Association Romgaz-Schlumberger for Laslau Mare rehabilitation project was created, two additional development wells were planned and the Romgaz well classic design was adopted. Majority of the existing **wells** are completed in two different packages. Because of legal requirement and the well design constrains, upper package generally flows through the tubing-casing annulus whereas the lower package produces through the tubing. As reservoir pressure declined and well water loading problems become more severe, this design was not the best to be applied for the new wells.

The association drilled two wells in 2014. The engineering input data for well design showed that for the expected gas and water flow rates corresponding to the bottom hole flowing pressures, the upper and lower packages should flow separately respectively up the casing and up the tubing for a reasonable period without any constrains.

The results are that when attempting to test the wells, the gas rates were far below the expectations and upper packages could not sustain the flow. The review of well production performance showed that the tubing-casing annulus cross section could not allow proper water lifting because of the low velocity up the casing. In addition, many problems were encountered while trying to perform a foam fracturing operation on the lower package in the first drilled well.

In order to avoid all the faced problems in the two drilled wells and be compliant with the local regulation, the design of future wells was reviewed. A slim slanted hole design was explored and well completion was optimized to achieve the well objective and fulfil the legal requirement.

The presentation will deal with the classic well engineering design shortfalls and give a new alternative for Laslau Mare drilling engineering.

Biography:

Morched Guettat graduated with Master Degree in Petroleum Engineering from Ploiesti Petroleum Institute in 1988 and PhD in 2011. He worked as production engineer in Tunisian national oil Company, and held different positions in several joint ventures in Tunisia. He joined Abu Dhabi Onshore oil Operations (ADCO) in 2002 where he was appointed Petroleum engineering coordinator the Reservoir management manager and finally Reservoir Operations Manager before he moved to Schlumberger in 2014 as exploitation manager in Laslau Mare project.

Morched has an extensive experience in well oil and gas wells production optimization, in field development planning, concept engineering design, well stimulation and well modeling. In addition he led different teams in developing oil reservoirs subject to EOR, rich gas reservoirs in recycling mode, lean gas reservoirs in depletion mode production. He also has very good experience in drilling, stimulating, logging and working over horizontal wells and dual lateral wells.

He was Team member for setting up Sustainable Annulus Pressure, drilling multi-lateral wells opportunity, clustering wells and corridoring flowlines, oil rim reservoirs development, horizontal well accessibility improvement, multi-phase metering in oil wells and gas wells, nitrogen injection in gas condensate reservoirs, design of monobore gas completions, gas tracers technology implementation in gas reservoirs etc.