DGMK/ÖGEW Frühjahrstagung 2023

A-159

Drilling Geothermal wells, challenges, and solutions

F. Zapata Bermudez, F. Zapata Bermudez
Archer Oiltools AS, Oiltools, Stavanger, Norway

In addition to new geothermal wells construction, well re-entry on existing geothermal steam producers or injectors is one of the strategies for cost optimization (workover), including cut and pull casing to reline them with new completion strings that extend the life expectancy of the well. For drilling, completion, or intervention operations the geothermal industry is bridging the gap with cutting edge technologies in reservoir barriers, slot recovery, sidetracks, annular barriers, stage cementing tools and wellbore cleaning solutions that are considered “groundbreaking” in the geothermal project’s optimization.

The objective of this abstract is to address the process of drilling a Geothermal well for steam production, including annular barriers that can be installed to seal possible annular leaks to maintain well integrity. Since Annulus integrity and fluid losses are one of the biggest challenges facing the geothermal industry, the cementing operations play a critical role on the success of a geothermal well. The plans for future adaption in the Geothermal industry for high-performance primary and multistage cementing operations are in place to improve the annular seal integrity in each geothermal well. This abstract will demonstrate tangible case studies from the more than 200 high-temperature geothermal wells drilled in Iceland and the global learnings from drilling wells with depths reaching 4630m and 450degC. This current geothermal drilling knowledge and the future to improve the drilling process are a perfect match for this forum.
Knowledge transfer with more than 200 high-temperature geothermal wells drilled in Iceland and the global learnings from drilling wells depths reaching 4630mt and 450degC around the world in New Zealand, Nicaragua, Dominica, Montserrat, Philippines, Azores, Germany, Denmark, Switzerland, Djibouti, and St. Vincent.