

A discussion about the new methodology to test downhole tools for geothermal well applications

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Geothermal is considered one of the continuous forms of renewable energy being able to supply heat or heat and electricity. The extraction of the heat from the underground is done through a heat carrier that heats up in contact with the surrounding rock. Since heat extraction highly depends on the volume of the fluid pumped to the surface, many of these wells require an artificial increase of the naturally occurring fractures. Since the process is very sensitive to the location of performing reservoir enhancement, isolation systems or tools are needed to correctly locate the stimulation zone. One such isolation tool are packers. The use of packers in oil and gas wells is not new but given their impact on well integrity the testing and qualification of such products has been highly intensified recently.

However, geothermal well conditions as well as the geothermal well integrity needs a clear redefinition of the isolation tools and equipment. With a lot of long-term exposure to elevated temperature, these tools may degrade differently, and thus new qualification methodology may be needed.

This paper is proposing an overall survey of geothermal well related failures observed on packers and described the current efforts to design and build a novel testing facility with a focus on geothermal well qualification process.