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Mitigating Collapse issues in Geothermal wells through appropriate Tubular selection

Minimierung von Kollapsproblemen in Geothermiebohrungen durch eine gezielte Auswahl von geeigneten Rohren

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Collapse is one of the major issues encountered by geothermal operators during the drilling, completion and operation phases of their assets. A well may collapse when the external pressure is higher than the pipe resistance, leading to an inward crushing of the casing which can seriously compromise well integrity and productivity. In most severe cases, collapse failure can render the well useless, calling for the need to drill new wells. Most of collapse cases in geothermal wells are caused by badly-managed cementing process, leading to remaining liquid against the casing. This fluid will heat up and boil when the well is producing, causing external pressure to increase, and potentially leading to collapse of the well.

This can be mitigated by choosing thicker - and thus heavier - casings and connections to ensure that the well will sustain those efforts. However, this is done at the detriment of the useful section of the well and thus limits production flow.

A cost-effective technical solution is to use "high-collapse" grades in the design of the well. This paper will explain how "high-collapse" grades can sustain higher loads than their API counterparts and explore through concrete examples how this solution can mitigate efficiently collapse risks while maintaining a "light" and optimized well design.

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