DEmonstrate Production Enhancement with LOw Cost SIde Track Drilling

Publieke samenvatting / Public summary

Aanleiding

Geothermal wells need to be drilled more cost-effectively to reduce the reliance on subsidies of the geothermal industry and to improve their pay-back time. Multilateral wells can deliver the required improvement of production per reservoir and per surface location. However, drilling stable multilateral legs can be costly and new technologies are needed to bring the costs down. Abrasive jetting is such a technology that has the potential to deliver a substantial cost reduction. This technology has been under development for several years for the drilling of vertical wells and now the technology can be tested to add enhanced steering of the drilling unit to drill multilateral horizontal wells. The full functionality, including the steering functionality is ready to be tested in scale experiments, the last step before field tests can be undertaken.

Doelstelling

The goal of the proposed project is to mature a novel directional abrasive drilling technology which enables the drilling of long horizontal wells from a vertical well through the reservoir. This technology could contribute significantly to the cost effective drilling of geothermal wells.

Korte omschrijving

This project aims to mature and demonstrate a new directional drilling technology under actual downhole hydrostatic conditions at the RSCG. The technology is based on directional abrasive drilling with down hole re-use of abrasives. A scoping in WP

Projectinformatie / Project information

Projectnummer / Project number
TKITOETKI2020-01-GE
Subsidiebedrag / Grant amount
€ 350.000,00

Algemene informatie / General information

Penvoerder / Secretariat
TNO

Publicaties en materialen / Publications and attachments

- **23.08.2022**

  Eindrapport DEPLOI (TKI2020-01-GE)

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1 investigates the system and will compare it to alternatives. The first step to get to a fully operational system is the investigation of the (magnetic) control of the concentration and transport of the abrasives in the cutting flow loop (WP2). Secondly, the existing 50T hydrostatic drill test facility needs to be prepared and tested (WP3). In WP4 a directional abrasive steering sub prototype is to be hydraulically mounted downstream of the abrasives injection system and an electronic interface will be built. The actual directional testing is taking place in WP 5, comprising the testing of the steering sub functionality and the directional response of the drill bit inside the pressure vessel on rock samples (cement, sandstones, carbonates). WP 6 will evaluate the potential for field application and draws up a plan for field tests on potential field test locations in Europe. Work Package 7 is dedicated to the overall reporting.

Resultaat

The project will deliver experimental results of a full-scale prototype with steering capabilities for optimized well trajectory control of abrasive drilling for horizontal wells. A plan to initiate pilot projects will be delivered as part of this project. A consortium of partners will contribute to defining how the system should work under pilot conditions as well as follow the results of the experiments to understand the technology and understand the advantages that can be gained in a full-scale implementation in the field. It is critical that the steering capabilities directional drilling technology match the field requirements of the future Geothermal operators.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.
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