Managed Pressure Drilling

Delivers Well Control and Target Depth in Geothermal Lithium Exploration

MPD system deployed on the B04 land rig, integrating surface equipment and real-time control to enable precise pressure management and safe geothermal lithium drilling operations.

Objectives

- Drill, log, and test geothermal wells to confirm productive fractured zones and define reservoir production and injection performance.
- Maintain operational targets using an RCD and choke manifold while drilling in narrow pressure windows and high-temperature conditions.
- Manage thermal ballooning effects and geothermal water influxes by maintaining near-balanced drilling conditions and applying controlled annular backpressure.
- Evaluate reservoir productivity through real-time drilling and logging data, including potential small-scale production testing.
- Extend openhole crystalline reservoir sections to total depth based on intercepted fractured zone intervals.

Our Approach

- Installed managed pressure drilling (MPD) system on the B04 land rig while preserving existing flowlines and maintaining the ability to revert to conventional drilling methods.
- Enabled efficient drilling operations using 1.04-1.07 sg NaCl bring and high-viscosity polymer pills while maintaining near-balanced pressure conditions.
- Continuously monitored the well to detect and manage gains and losses throughout drilling operations.

OPERATOR
Lithium de France

LOCATION
Alsace, France

FIELD
Schwabwiller

WELL TYPE
Geothermal
Lithium

HOLE SIZE AND ANGLE
8-1/2 in
0° to 31°

CASING TYPE AND SIZE
9-5/8 in
L80 47 lbm/ft

TEMPERATURE
140 degC [284 degF]

DEPTH
2,750 m [9,022 ft]

PRODUCTS/SERVICES
- Managed Pressure Drilling
- Mining Solutions
- Land Series RCD 9000 rotating control device

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Our Approach (Cont.)

- Controlled pressure buildup during connections by closing the RCD outlet valve and managing annular backpressure.
- Maintained precise annular pressure control in fractured and overpressured zones to enhance productivity and prevent uncontrolled influxes.

Value to Customer

- Enabled drilling within extremely narrow mud-weight windows while maintaining precise control of thermal ballooning-related influxes.
- Reached planned target depth safely and efficiently by maintaining wellbore stability and continuous pressure control throughout operations.
- Reduced operating costs by minimizing the use of weighting agents while maintaining effective pressure control.
- Minimized reservoir impairment and maintained high well efficiency, with formation damage primarily attributed to cuttings losses rather than the drilling system.
- Eliminated the need for routine well kills during pipe trips, reducing operational complexity and improving rig time efficiency.
- Delivered a cost-effective managed pressure wells solution aligned with the project's technical, operational, and asset requirements.

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