

Germany

GeoESP[®] lifting pump system proves essential for geothermal plant viability testing

Well inflow performance evaluation to provide residential, greenhouse heating

CHALLENGE

Provide a complete solution to establish the geothermal project's technical and economic feasibility

SOLUTION

- Safe operation across all parameters, maintaining well integrity for future plant construction
- 2100 HP GeoESP downhole system capable of producing a wide range of 80 - 120 l/s
- GeoESP Intake minimizes scale deposition, protects against solids
GeoController[®] with easy interface for MV-VSD setup
- Intelevate platform provides 24/7/365 remote monitoring, daily health checks, and trend analysis recommendation

RESULT

- Plug-and-play 2000 kVA Box Test Container integrates PLCs, surface valves, and electric parameters; enables remote downhole equipment control
- Testing objectives achieved to confirm production rates
- Geothermal hydraulic properties assessed for surface plant sizing

Overview

A customer was evaluating the viability of a new geothermal plant in Germany that would heat urban households and greenhouses. They required a complete solution, including surface equipment for easy deployment with a minimal footprint.

Challenge

Due to uncertainty in reservoir characteristics and geothermal energy capacity, a versatile lifting solution was essential. Electric submersible pumps (ESPs) are the most effective for reservoir evaluation and managing high flow rates. They can also ensure effective testing of the project's technical viability without complications or inaccuracies.

Solution

The Halliburton team provided a GeoESP Box Test Container 2000KVA surface well test unit, which offers a plug-and-play solution integrating PLCs, surface valves, and electric parameters and allows remote control of downhole equipment. For a complete reservoir evaluation, the 2100 HP GeoESP pumping downhole system has a wide production range of 80-120 l/s; coupled with the new GeoESP Intake, the potential for pump damage from scale and solids is minimized.

Powered by the Summit Knowledge[™] digital ecosystem, the Intelevate[™] digital platform offers 24/7/365 remote monitoring, daily health check evaluations, and trend analysis recommendations. All necessary data covering well inflow performance, build-up, and pressure drawdown profiles is stored for mining authorities.



Result

This comprehensive solution enabled the operator to establish the geothermal project’s technical and economic feasibility, ensuring safe operation across all required frequencies and flow rates and preserving the GeoESP® downhole system’s integrity for future use.

It also facilitated the testing of reservoir productivity and injectivity indexes to confirm production rates for electricity generation and characterization of geothermal fluid and aquifer hydraulic properties for surface plant sizing.

Ultimately, this solution provided a reliable and cost-effective means for the operator to determine the viability of their geothermal project, meeting both technical and regulatory requirements and investment budgets.



GeoESP installation



GeoESP Box Test Container surface well test unit offers plug-and-play solution integration and allows remote control of downhole equipment

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