Compact™ Logging Technology Easily Passed Through Collapsed Section in Geothermal Injection Well, Enabled Operator to Develop Forward Plan

Objectives

- Deploy a logging tool that could pass through a collapsed section of casing, measure the inside diameter, and evaluate the cement bond in the 10 3/4-in. section of the well.

Our Approach

- Based on a strong creative technical proposal, field-proven logging technology, and bolstered by an existing presence in the region, Weatherford was selected to perform four logging operations:
  - Dummy run with gauge ring and casing collar locator (CCL)
  - A caliper run in the 10 3/4-in. and 13 3/8-in. sections
  - A run with a cement bond log (CBL) tool and variable density log (VDL) tool in both sections
  - An ultrasonic run in the 13 3/8-in. section
- Due to the collapsed casing, over-body centralizers could not be used. Calipers were used as powered centralizers above and below the collapse.
- Weatherford used its field-proven Compact logging technology including openhole logging technology and a creative application in the cased-hole environment.
- The Compact powered centralizer was chosen for its high-strength capability to centralize a toolstring in deviated wells.
- For the CBL/VDL run, Weatherford opted for the Compact compensated sonic tool.
- The Compact borehole geometry tool was the optimal choice to determine the openhole azimuth, inclination water-based mud imaging, and cased-hole inclination.

Value to Customer

- Weatherford field personnel logged up from the bottom of the 10 3/4-in. section to the surface and confirmed the collapsed section was in the 13 3/8-in. casing.
- The run also confirmed the presence of scaling in the 10 3/4-in. injection tubing, forcing the cancellation of the ultrasonic log.

LOCATION
South of Munich, Bavaria, Germany

WELL TYPE
Geothermal injector

HOLE SIZE
9-5/8 in., open hole

LINER SIZE AND TYPE
10-3/4 in. casing L-80 55.5 ppf, TC II

TEMPERATURE
258°F (126°C)

MEASURED DEPTH
14,763 ft (4,500 m)

PRODUCTS/SERVICES
- Compact logging technology
- Compact powered centralizer
- Compact compensated sonic
- Compact borehole geometry tool
Compact™ Logging Technology Easily Passed Through Collapsed Section in Geothermal Injection Well, Enabled Operator to Develop Forward Plan

Value to Customer (continued)

- The Compact borehole geometry tool (8-arm caliper) was used for multi-fingered caliper logging along the collapsed section.
- Using the Compact powered centralizers made it possible to run the CBL/VDL tool for the entire length of the wellbore.
- The collaborative cooperation between the operator and Weatherford created a unique solution to pass through the collapsed section and allowed the operator to develop a forward plan.