

CASE HISTORY

HIGH-TEMPERATURE GEOTHERMAL CASING INTEGRITY INSPECTION

APPLICATION

Geothermal
Casing Evaluation
Well Integrity

TECHNOLOGY

Cased Hole Services
+ Vulcan™ MFT-40

LOCATION

Asia Pacific

CLIENT CHALLENGE

A geothermal operator suspected compromised integrity of its recently installed casing. The high temperature of the well, up to 300°C (572°F), posed a challenge in terms of the availability of casing inspection technologies owing to the operator's reluctance to quench the well to enable deployment of oilfield standard logging tools. Another requirement was the swift turnaround of the data to allow immediate remedial action planning without delay.

SCIENTIFIC SOLUTION

Scientific Drilling's Vulcan™ MFT-40 geothermal multi-finger caliper was the ideal technology for the application. The memory caliper was programmed for a repeat log pass across the interval of interest. The tool's vertical resolution of 0.12", radial accuracy of ± 0.02", and sampling rate of 50 samples per second allowed highly detailed data to be captured.

In a matter of minutes, data was retrieved from the tool on surface, checked for quality, and interpretation initiated at the remote data center. Within 24 hours, a comprehensive analysis was provided to the client. The images in figures 1 and 2 confirm the presence of damage inside the 13 3/8" casing with a minimum measured restriction of 10.513". The maximum temperature recorded by the tool was 289°C (552°F).

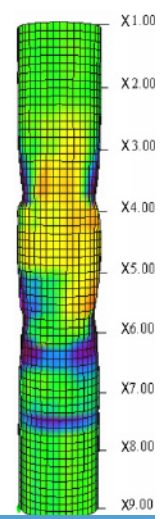


Figure 1

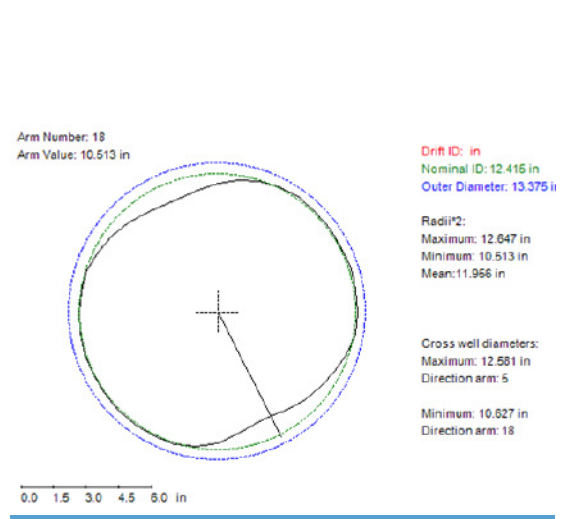


Figure 2

CLIENT VALUE

The operator was able to acquire precise information despite the challenge of temperature. Without having to quench the well for the well intervention, thermal cycling of the casing was avoided, thus preventing the occurrence of other thermally induced casing damage. Another benefit to the avoidance of quenching was the cost implication of mobilizing the necessary pumping equipment. Other high-temperature mechanical calipers cannot perform repeat passes on the same run because their fingers cannot retract once open. The fingers of the Vulcan MFT-40 can open and close multiple times, offering an added level of assurance to the data.