

# CASE HISTORY

## SURVEY WITH TOTAL LOSS CIRCULATION

### APPLICATION

Directional Drilling Geothermal Well with Loss Circulation

### TECHNOLOGY

EM-MWD

### LOCATION

Indonesia, West Java Island

### CUSTOMER CHALLENGE

Encountering partial or total loss circulations in geothermal is not uncommon yet it continues to be a challenge for the customer to control the direction of their wells when drilling through these zones. The plan was to drill through the zone with continuous surveys to maintain well trajectory. The deeper part of the well was expecting to reach temperatures beyond the limitations of most downhole electronic equipment on the market, yet still needed surveys.

### SCIENTIFIC SOLUTION

SDI provided a retrievable EM-MWD tool instead of the standard mud pulse MWD for the first section of the well, and a high temperature EMS system (single shot and drop multi-shot) for the last section where no EM-MWD tool could be utilized due to the high well temperature. The EM-MWD tool was designed to provide survey data during total loss circulation. The ability to survey during the connection also saved the customer valuable time. On the last section, where the temperatures increased, SDI used the high-temp EMS tool that was far more accurate than the conventional high-temp single shot film system.



### CUSTOMER VALUE

This was the customer's first time using the EM-MWD tool. They were impressed with SDI's EM-MWD performance specifically because of fast survey time and continuous survey in loss circulation conditions. SDI's EM-MWD is four to five times faster than Mud Pulse MWD. This kept the well on target throughout the loss circulation zones.

The Company Man was pleasantly surprised because he didn't realize the survey was being taken during the connection, unlike the mud pulse system which needs time after connection to get the survey. The value of the time saved and increased reliability of the EM-MWD tool was substantial enough to recommend SDI for all their future wells.