

# Distributed Temperature Sensing Provides High-Resolution Thermal Profile of Multiple Zones in Low-Production Wells

## Objectives

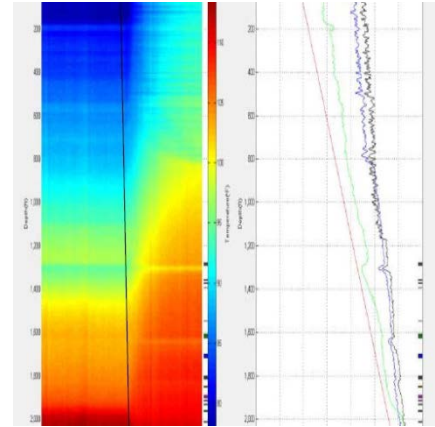
- Provide accurate temperature profiles across production zones to monitor and analyze production from multiple intervals in single-string well completions that are using progressing cavity pump (PCP) as the primary form of artificial lift. A major concern for the client was that low production rates would not allow clear visibility of minimal temperature differences and would result in inaccurate well parameters.

## Our Approach

- Weatherford proposed use of a distributed temperature sensing (DTS) system with a turnaround U configuration (also called the double-ended configuration) to obtain graphic resolution and more accurate temperature data for evaluation.
- As required by the client, Weatherford performed DTS drive-bys, which reduced the client's initial capital expenditure for purchasing a surface DTS unit.

## Value to Client

- The Weatherford DTS system provided the client with graphs for qualitative analysis of the thermal profile of the production wells that have PCP systems. Despite the client's concerns about the effect of low production rates, the DTS system provided enhanced graphic resolution and more accurate temperature data for evaluation.
- The analysis clearly identified the zones with the most productivity. The DTS system also monitored and verified the use of existing surface fluid-level tools.
- Data from the Weatherford DTS system enables the client to optimize pump speed for dewatering of a well and helps to identify productive coal seams in a field.



The Weatherford DTS system provided thermal profiles of the wells over time that enabled the client to identify producing zones. In the graphs above, red indicates the hottest area and blue indicates the coolest area. Deflections in the lines indicate cooling effects of gas entering the well.

### LOCATION

Queensland, Australia

### WELL TYPE

Onshore coal seam gas (CSG) production

### CASING SIZE

5-1/2 in.

### TUBING SIZE

2-7/8 in.

### WELL DEPTHS

2,133 to 2,756 ft (650 to 840 m)

### DTS OPTICAL CABLE DEPTHS

2,067 to 2,690 ft (630 to 820 m)

### PRODUCTS/SERVICES

DTS system

