

## COILED TUBING & PUMPING REAL TIME COIL TUBING UNLOCKS VALUE

Country: UK  
Year: 2016  
Technologies: **Array Production Logging Tools** ● **Real-time Coiled Tubing**

MAKING INTERVENTION  
**SMARTER**

Hydrocarbons and water inflows are identified and located in a horizontal gas well via the deployments of Altus Intervention's array production logging tools on real-time coil (RTC).

- PLT Logging provides quality data removing the need for a saturation log

### CHALLENGE

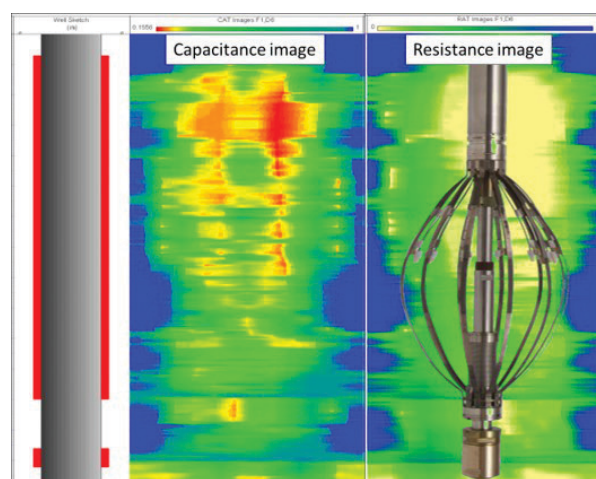
A horizontal gas well showed decreasing production rates, a sharp increase in water-gas ratio and inferred water breakthrough in the formation. The well was completed with upper and lower perforated intervals in 7" and 4.5" liner, respectively. The challenge was to obtain high-quality production logs to allow determination of down-hole production rates and identification of hydrocarbon and water entry locations in the variable internal diameter horizontal well.

### SOLUTION

Cerberus modelling confirmed the safe conveyance and access of the PLT (and a contingent saturation logging tool) to the horizontal completion using Altus Intervention's Real Time Coiled Tubing (RTC). The RTC also supplied real-time data that informed early decision-making. Spinner, capacitance and resistivity array tools were deployed with fluid density, temperature and pressure probes to calculate downhole hold ups and flow rates. Due to anticipated flow variance and hold up from low-side to high-side in the liner, array tools were utilised.

### RESULTS

Shut-in and flowing PLT passes at two rates were obtained across the upper and lower perforations. The array sensors provided measurements of spinner velocity, capacitance and resistance around the pipe. Log data was rapidly processed by Emeraude software to determine flow rates, hold ups and water inflow locations in both liners and the shut-in survey confirmed no cross-flow. The quality of the data gathered by the PLT informed the client that the deployment of a saturation tool was not required, resulting in considerable cost savings.



Array capacitance and resistance images showing (blue) on low-side of liner and hydrocarbon above

