



MATURE FIELDS



UNCONVENTIONALS

Surveillance Solution Provides Reliable Real-Time Data

INCREASES HYDROCARBON RECOVERY IN HIGH-TEMPERATURE CONDITIONS

NORTH AMERICA

CHALLENGES

- » Provide an effective pressure and temperature gauge that could withstand high temperature conditions created by steam stimulation
- » Develop models for real-time reservoir surveillance and for implementing extreme high temperature cyclic steam stimulation

SOLUTION

- » DataSphere® ERD™ XHT gauge for reliable data in extreme environments
- » Develop models for real-time reservoir surveillance and aid in optimizing the cyclic steam process

RESULTS

- » Provided a reliable tubing-conveyed permanent monitoring system using ERD XHT gauges
- » Developed effective steam frac and reservoir surveillance models that helped the operator avoid well interventions and eliminate NPT, thus saving time and money

OVERVIEW

A customer in North America needed to increase oil recovery from an existing heavy oil reservoir, while implementing extreme high temperature cyclic steam stimulation. The customer needed reliable, real-time surveillance in order to develop a reservoir model and optimize hydrocarbon exploitation, and asked Halliburton to provide a solution.

CHALLENGES

Traditional monitoring technologies were not suitable for this application, as conventional, electronic-based pressure and temperature gauges could not withstand the extreme reservoir temperatures, and fiber-optic sensor technology has no track record in extreme environments. Halliburton would have to provide an effective pressure and temperature gauge that could withstand the high temperature conditions in this heavy oil reservoir.

SOLUTION

Halliburton recommended its DataSphere® ERD™ XHT gauge, which is a tubing-conveyed permanent monitoring system utilizing ERD XHT sensors for thermal enhanced oil recovery (EOR) applications. The team also collaborated with the customer to develop models that would provide effective reservoir surveillance and aid in optimizing the cyclic steam process.

The ERD XHT gauge has no downhole electronics, and provides unequalled reliability in extreme environments. With its extensive track record, its electrical resonating diaphragm (ERD) technology has also proven to be highly reliable.

YOUR EYES TO THE RESERVOIR™



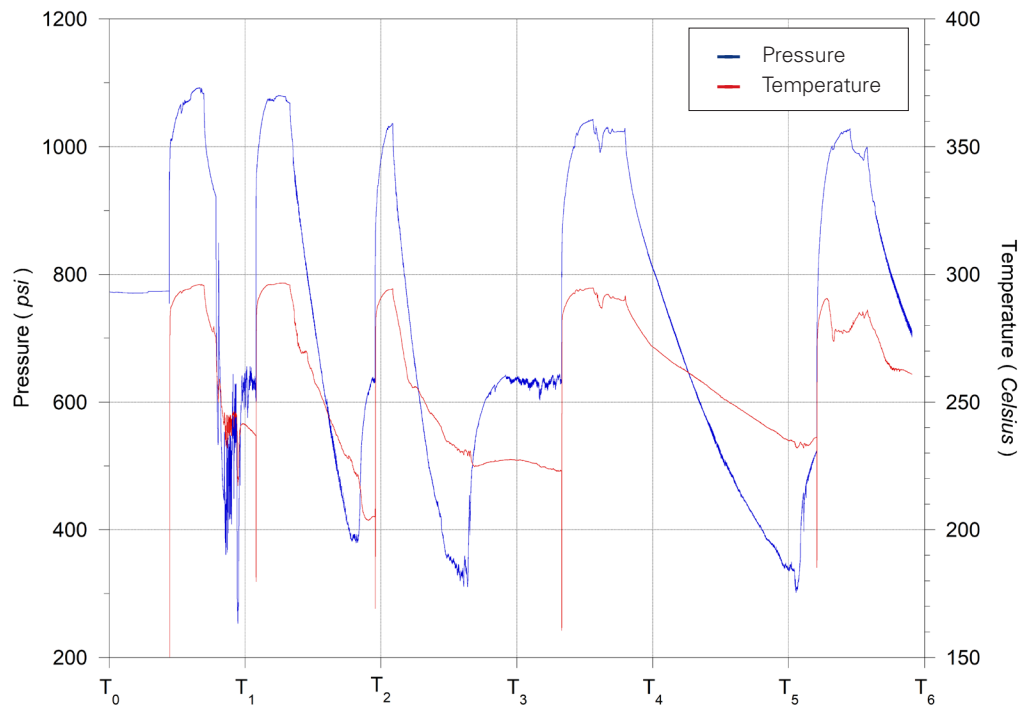
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RESULTS

In this scenario, the ERD XHT gauge was deployed as a tubing-conveyed permanent monitoring system. Once deployed, the system provided real-time data to the operator's desktop, allowing reservoir models to be developed.

The ERD XHT gauge delivered real-time bottomhole pressure and temperature data with 100 percent reliability, enabling accurate decision making and optimizing hydrocarbon exploitation.

The Completion Tools team enabled the development of effective steam frac and reservoir surveillance models – thus avoiding costly well interventions for this reservoir, eliminating non-productive time (NPT), reducing the operation's environmental impact, and saving time and money for the customer.



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