

Case study: Western Canada

# Baker Hughes expertise streamlined DTS, DAS logging recovery in SAGD well, saved \$140,000 CAD

A steam-assisted gravity drainage (SAGD) producer well in Western Canada had multiple wells retrofitted with Baker Hughes's tubing-deployed inflow control devices (ICD) as part of the completion strategy for optimizing the toe-to-heel production influx. The ICDs were installed on the toe string while a gas lift string at the heel provided the lift mechanism for the heavy oil to rise to the surface. To gain a better understanding of the ICD performance, the customer decided to log the well with distributed temperature sensing (DTS) as well as distributed acoustic sensing (DAS) simultaneously on a single trip. The existing fiber setup did not allow such activity as there was only a single fiber in the well.

A third-party instrumented coiled tubing was installed through the heel string and it contained dual 1/4-in. capillary lines that served as a fiber deployment conduit. At the end of the capillary lines, a turnaround sub (TAS) joined them together, enabling hydraulic communication between the capillary lines so the fiber can be pumped to the TAS depth. A third-party fiber-optic cable was deployed into the capillary line for an active DTS measurement.

The initial Baker Hughes requirement was to deploy only DAS fiber on the return capillary line. With this setup,

however, the customer would still require two separate fiber vendors to log both the DTS and DAS data simultaneously. Baker Hughes proposed two fibers be pumped into the same return line so that both DTS and DAS logging could be achieved simultaneously during a single logging trip.

With extensive fiber pumping experience as well as meticulous job planning and execution, Baker Hughes successfully deployed an additional two fibers into a single 1/4-in. capillary line. This challenging feat required field personnel not to damage the existing fiber within the main capillary line during the pumping operation, an action that had occurred twice.

The customer was extremely pleased that the Baker Hughes team executed the operation in a timely manner, and gathered both DTS and DAS data per the logging requirement. With this setup, the customer avoided having multiple fiber vendors on-site to acquire simultaneous logging, saving up to \$140,000 CAD. As a result of Baker Hughes's flawless execution and streamlined operation, a follow-up logging was requested by the customer with data interpretation service to follow suit.

## Challenges

- Acquire DTS and DAS data from SAGD producer
- Perform the logging in a single trip

## Results

- Pumped both DTS and DAS into the same return line for simultaneous logging
- Saved \$140,000 CAD from streamlined operation
- Demonstrated only a single vendor is required for future logging operations
- Experienced no health, safety and environmental (HSE) issues or nonproductive time (NPT)