

SMART Sens™ Case Study: Plug Setting Assurance in Multi-Stage Completion Well

Background

- Client planned a multi-stage “plug and perf” operation with more than 50 stages per well.
- There has been a history of plug setting problems in previous operations.
- Missing or faulty plugs have resulted in sub-optimal fracturing performance for the associated stage.
- Conventional surface and downhole measurements do not provide a reliable indicator of successful plug setting.



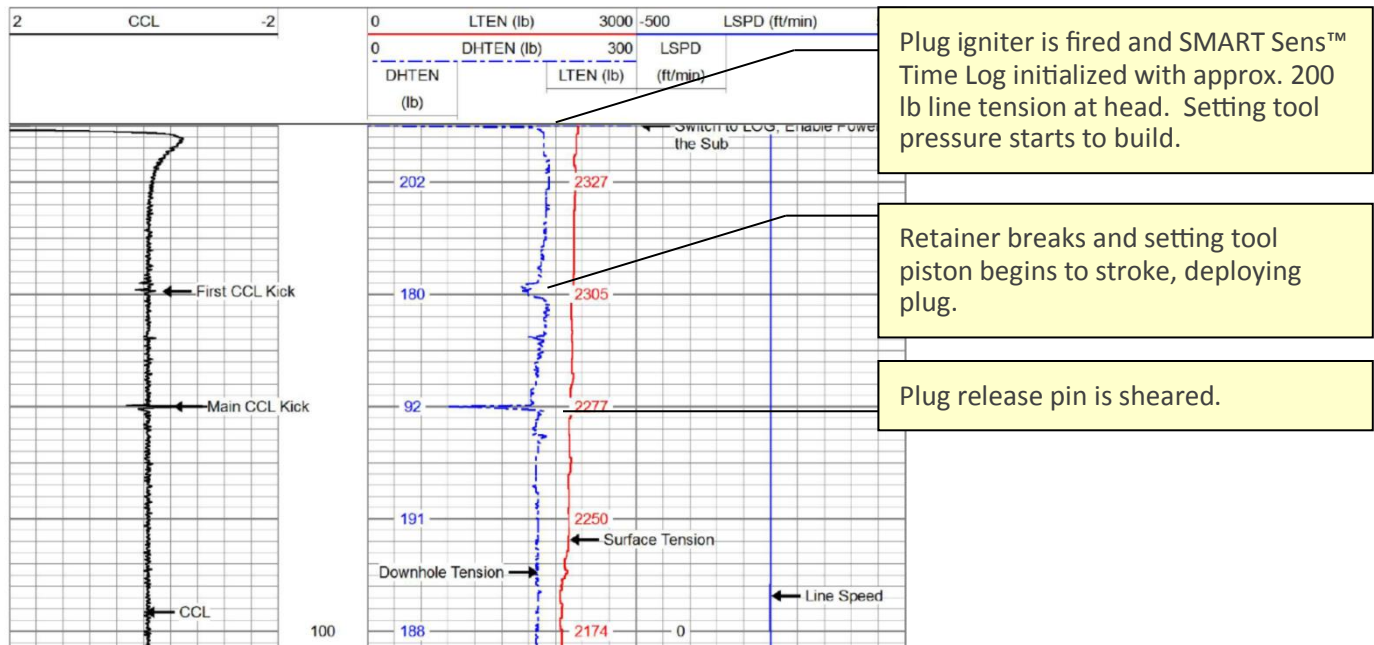
SMART Sens™ Tension Sub

Project planning

- Two Smart Sens™ real-time tension monitoring tools were deployed to the location.
- Experiments were conducted to verify that the system could deliver real time downhole tension log while the plug setting process is in operation.

Results

- 110 Plugs were set in two wells while being monitored in real time using the SMART Sens™ system.
- Downhole logs showed characteristic tension pulls when both the plug deployment pin and the plug release pin was sheared.
- Campaign successfully completed with zero tool maintenance, zero tool failures, and zero lost time.
- Service Company representative commented that SMART Sens™ was “as easy to operate as a CCL”.



Plug igniter is fired and SMART Sens™ Time Log initialized with approx. 200 lb line tension at head. Setting tool pressure starts to build.

Retainer breaks and setting tool piston begins to stroke, deploying plug.

Plug release pin is sheared.

SMART Sens™ Plug Setting Log