READ | ANSA

Leak Detection through downhole deployment of Multifinger Caliper, Acoustic, Temperature and Pressure sensors

Joseph Guyan / 21 Sep 2020

Client objective

- Design an intervention to locate and remediate a known leak between the tubing and annulus.
- Identify factors which will support completion of the objective leading to accelerated wellsite decisions: -
  - Correct tool choice
  - Logging programme design
  - Fast data analysis

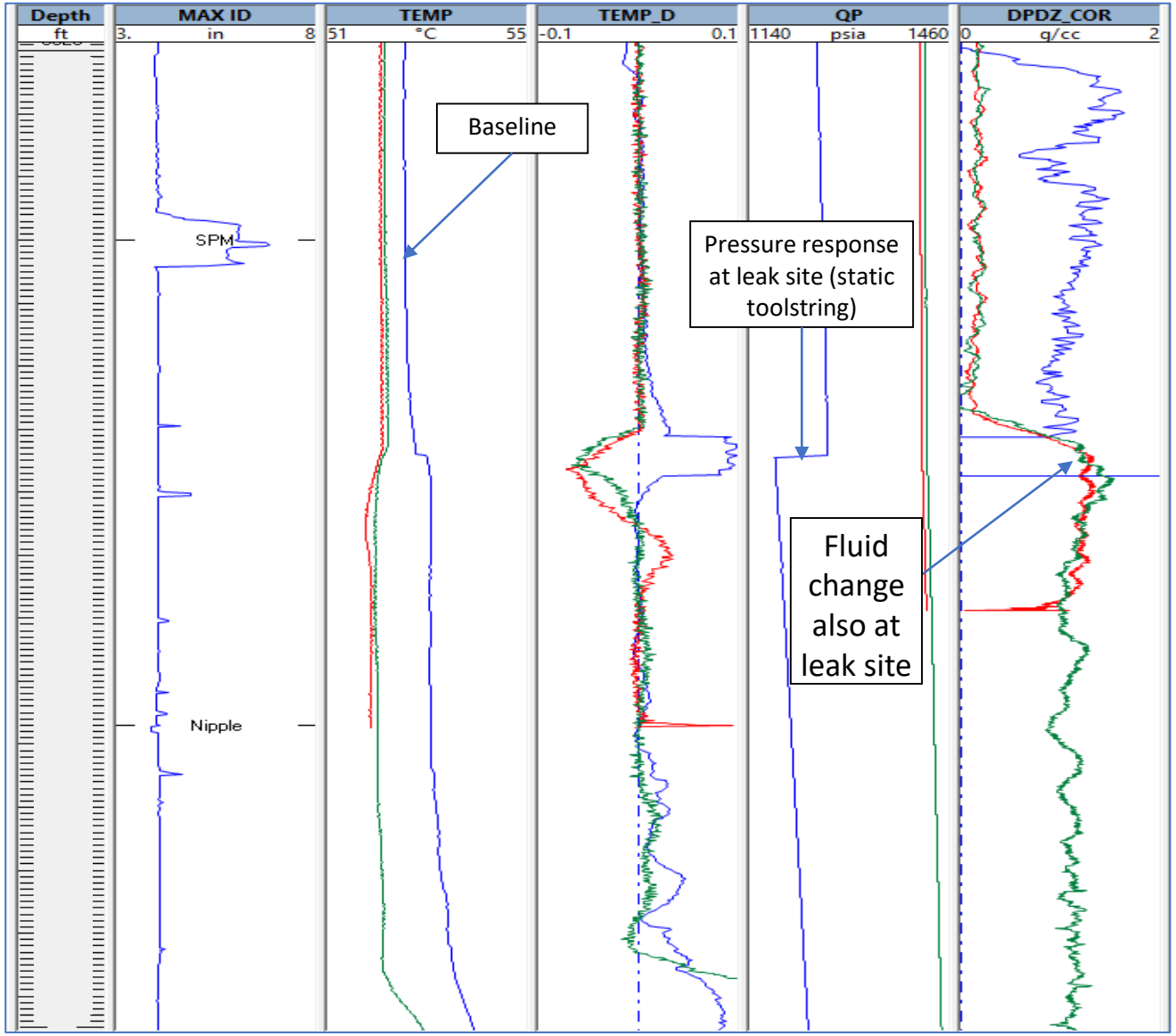
Pre job - Tool choice / Logging programme / Fast Turnaround Analysis

- Tools
  - Multifinger Caliper (MFC)
  - Temperature and Pressure
  - Passive Ultrasonic Acoustic Sensor
- Logging programme design
  - Activate leak by bull heading gas
  - Acquire shut-in baseline
  - Two passes over zone of interest

- Fast analysis required
  - Analyst on standby

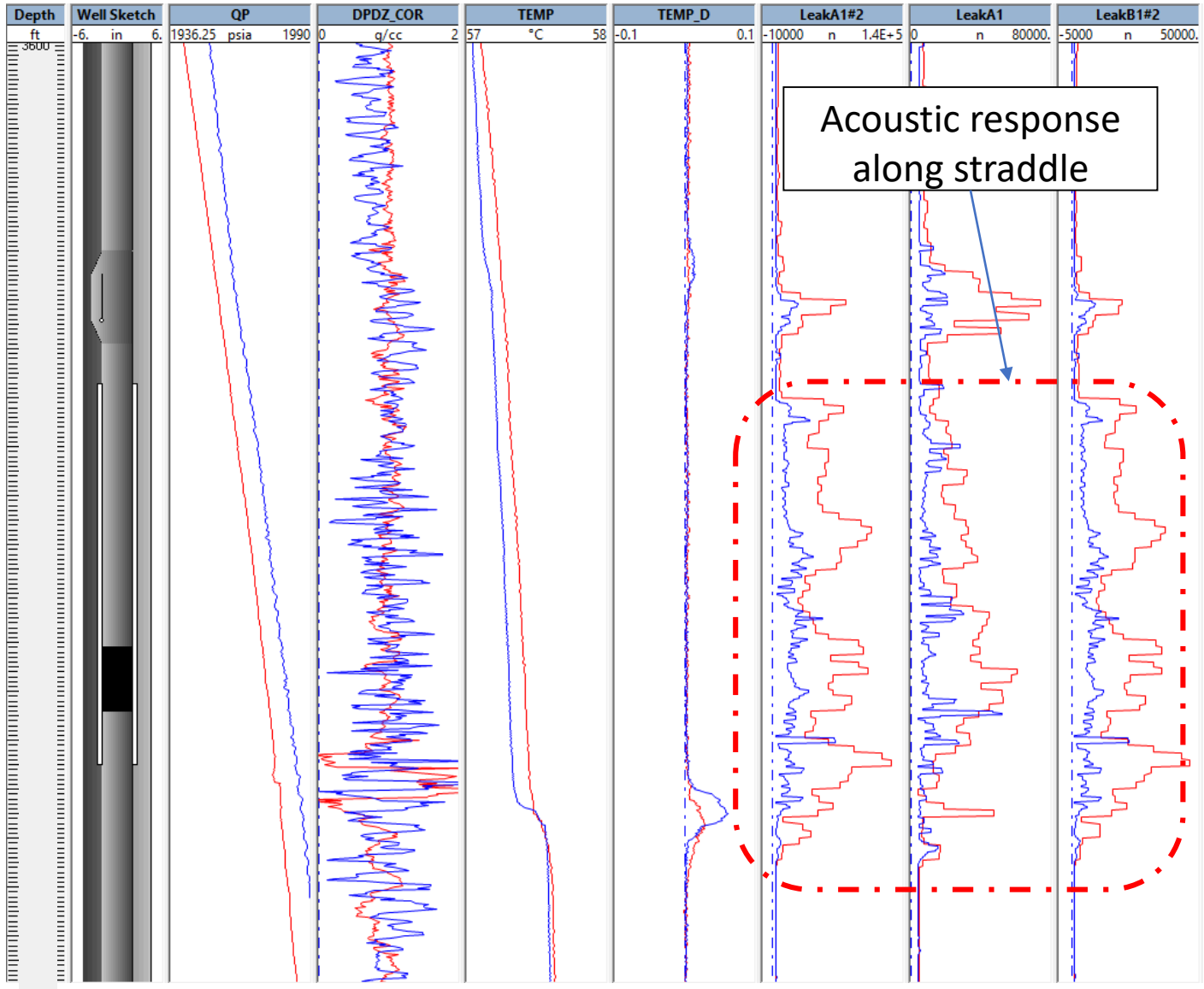
First survey results and plan ahead

- Prompt analysis to allow intervention to proceed
- Client decision to set a straddle packer across the holes
- A pressure test of the tubing shows that there is still communication between tubing and annulus.
- Cause unknown
- Plan another survey to assess



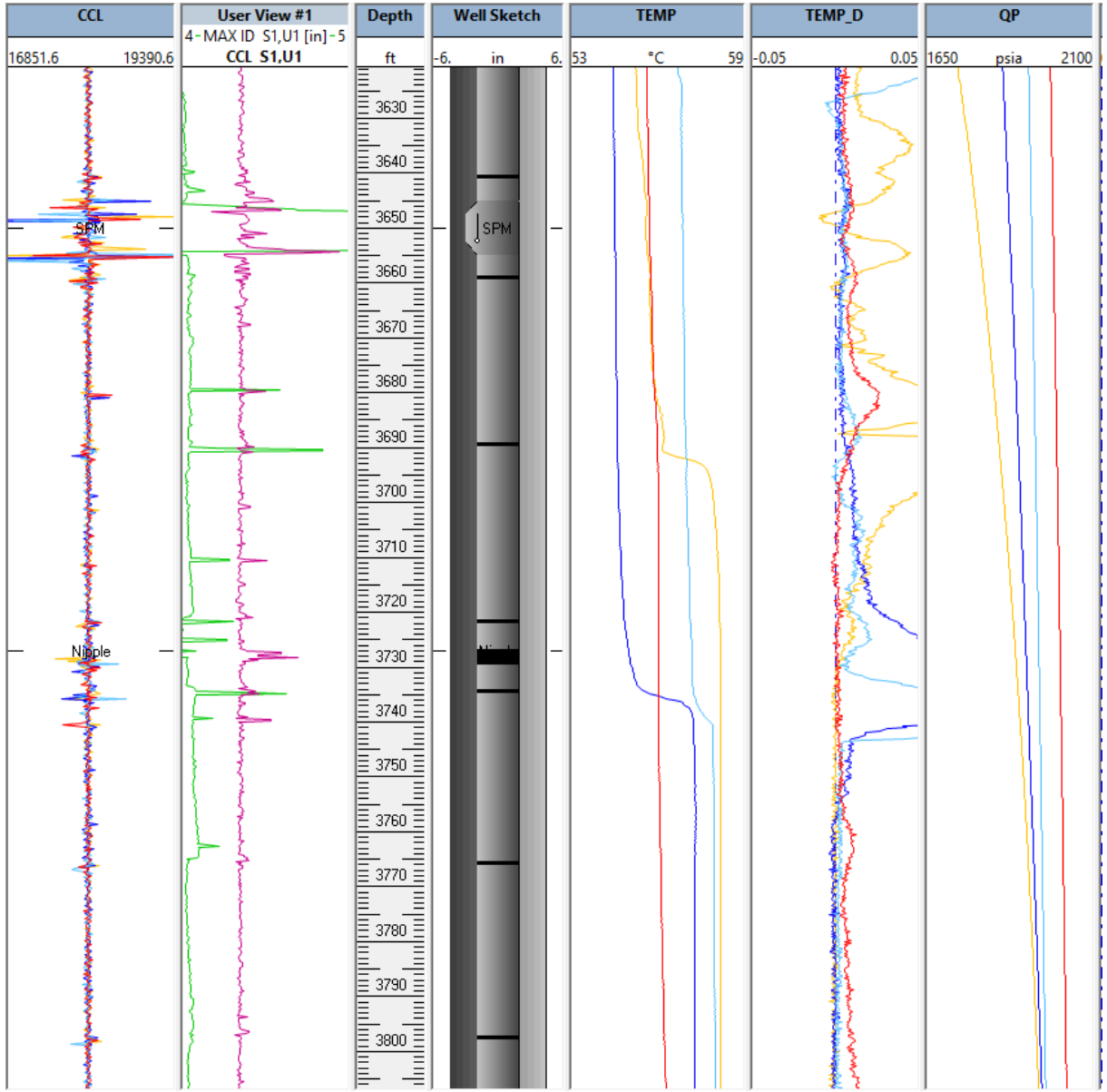
Second survey results and plan ahead

- Straddle found at a depth that would cover the leak sites.
- High frequency acoustic response recorded for the length of the straddle indicates it has not sealed properly.
- Straddle retrieved to surface
- Plan ahead is to log zone of interest again ahead of second straddle.



Third survey results

- All leak sites confirmed as per first survey
- Straddle set and good pressure tests at surface indicate that the leak was sealed.



Conclusion

- Pre job planning and understanding the well history vital to a smooth operation
- Important to understand the capabilities of each sensor, planning how to stimulate leaks, knowledge of well construction
- Fast turnaround analysis to accelerate well site decisions.

READ | ANSA

Thank You

READ-ANSA.COM