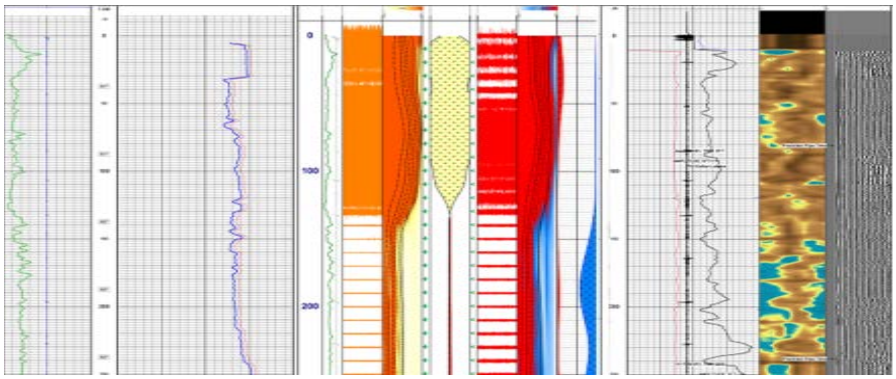
GAPS® Identifies Gas Source to Diagnose Crossflow from Nearby Well, Saving $150,000



A Weatherford wireline crew obtained well logs to evaluate vent-flow problems in a gas-storage well. The GAPS geophone array production survey log showed a strong crossflow entering the wellbore above the surface casing shoe.

Objective

- Identify the source of gas to enable effective remediation of leaks in an onshore gas-storage well.

Our Approach

- The Weatherford team met with the operator to discuss the extent of their potential vent-flow problems and their remediation plans, which initially involved perforating and squeezing multiple intervals along the length of the wellbore.
- Weatherford wireline logging personnel ran the vent flow repair service to accurately diagnose the downhole source of gas migration. Their suite of logs included: the C-THRU compact through-casing evaluation service to identify fluids behind casing; GAPS geophone array production survey for acoustically locating gas or water leaks: and the SBT sector bond tool, to measure the quality of the cement bond.
- The team showed the operator where GAPS logging measurements revealed that the source of gas migration was actually crossflow from a nearby well. Gas from the offset well was entering the adjacent gas-storage wellbore above the surface casing.
- To confirm the source of the gas, the wireline crew ran the vent flow repair service in the offset well. The resulting logs showed a deep gas source feeding a shallow sand that cross-flowed over to the original well.

Value to Customer

- Identification of the gas source enabled the operator to perform a single intervention in the offset well, which solved the gas migration problem for both wells.
- Quick economical identification of the vent-flow source allowed efficient remediation and abandonment of the well.
- The vent flow repair service saved an estimated $150,000 by preventing additional repair attempts in the wrong well.

LOCATION
Kentucky, USA

WELL TYPE
Gas storage well

DEVIATION
Vertical

CASING SIZE
4-1/2 in.

TOTAL DEPTH
574 ft (175 m)

PRODUCTS/SERVICES
- Wireline services
- Interpretation and evaluation services
- C-THRU compact through-casing evaluation service
- GAPS geophone array production survey
- SBT sector bond tool

Weatherford®