



Weatherford®

REAL RESULTS

Renaissance™ System, Optimax™ Safety Valve Restore Chemical Injection for Key Sour Well, Eliminate Need for Workover

Objectives

- Re-establish chemical injection without having to incur the costs of moving in a workover rig, killing the well, and pulling tubing and chemical-injection line. The operator's capability to inject chemicals into the bottom of the well to assist with production had become compromised.
- Restore shut-down well to production. This sour well, with 34-percent hydrogen sulfide (H₂S), was key to the field. When the well went offline, all other wells in the field had to be shut in because of issues with surface equipment at partial production rates.

Results

- Using Weatherford's *Renaissance* technology, a chemical-injection valve was run to 15,275 ft (4656 m) while attached to the 7-in. Weatherford Chemical System (WCS) *Optimax* wireline-insert-retrievable subsurface safety valve via a 3/8-in. injection line. This valve provides positive shutoff protection in case of catastrophic loss of well control.
- The *Optimax* valve was landed into the profile of the existing tubing-retrievable subsurface safety valve, enabling the use of the existing control line to function the flapper of the new safety valve.
- The chemical injection line was then continued from the safety valve to surface using a wet-mate connector attached to the control-line hanger, which seated in the existing tubing hanger. All equipment was installed using only a slickline unit and capillary-line unit.
- Normal chemical injection activities were restarted.

Value to Client

- Using Weatherford's *Renaissance* system, the operator was able to run a new chemical injection line and resume injection in a cost-efficient manner, the full functionality of a safety valve was maintained and controlled using the existing control line. This avoided the cost and time to kill the well and completing a conventional workover.
- Without chemical injection the well would experience elemental sulfur forming and blocking off the tubing, when the ability to inject was lost they were forced to shut in the well to prevent plugging and subsequently the whole field. With this key well back in production, the other wells in the field were brought back online after being shut-in.



Weatherford's *Renaissance* technology and *Optimax* safety valves provided an integrated, single-source approach to restore chemical control to a key well in a Canadian field, enabling the operator to restore production in all the wells and avoid killing the well.

Weatherford managed all aspects of the operation and supplied all the required equipment, including the artificial-lift deliquification, saving the operator additional costs.

Location
Canada

Well Type
Onshore, sour gas

Formation
Leduc formation

Depth
15,275 ft (4656 m)

Products/Services

- *Renaissance* WCS system
- *Optimax* safety valve
- WCS control line hanger
- WCS well-control safety sub
- WCS chemical-injection valve
- Wellhead spool piece

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