

HiTech Fluid Systems

THE BALANCE IS ALWAYS IN THE SERVICE

Western Canada; Aphron Fluid Technology for Workover in Sandstone Formation

Well Information

Location:	Western Canada, RedRock Field
Spud/Completion:	Fall 2009
Formation:	Fahler "E" (sandstone)
TVD:	Original Depth = 3,392m (11,129 feet) Bridge Plug = 2,940m (9,646 feet)
Interval:	Vertical Workover

The Objective

To perform a fishing operation (remove wireline, and debris from a producing well) without damaging the Fahler "E" producing formation due to normally high losses that would otherwise be experienced. The operator wanted to remove approximately 1,330m of wireline and perforating guns lost in the well. Well had been producing for some time but required a work over. Thus, the debris needed to be fished out in order to workover the well. Top of fish was at 157.3m, bridge plug was set at 2,940m.

The Solution

The HiTech engineering group recommended the use of our Aphron ICS™ Fluid System. Aphron fluid provides excellent sealing mechanics to protect the existing perforated zones, superior hole cleaning characteristics for cuttings removal, and a safe working environment by being able to work over and complete a "dead" well, instead of the optional choice of snubbing on a "live" well.

The Results

The operator was able to kill the well using HiTech Fluid Systems Aphron ICS™ Fluid System and perform all downhole work required to complete the workover.

AphronICS™ Fluid was pre-mixed and displaced into the wellbore via a service rig. The main challenge killing the well was fluid had

The Results continued...

to be “bull-headed” into the wellbore, instead of forward circulating at TD, below the perforated zone.

In order to maximize atomization at surface and increase the concentration of Aphrons pumped initially into the well, a ½" bean choke was set in the tubing to be pumped through (creating a pressure drop and atomizing the fluid). Two (2) 3,000lb bottles of nitrogen were tied into the fluid flow at the wellhead. Bottled nitrogen was bled down to standpipe pressure and added to the first 5-10m³ of AphronICS™ Fluid pumped thus increasing the initial Aphron development.

As wellbore pressure increased, the pressure in the well was bled off. While bleeding off the pressure at the wellhead, AphronICS™ Fluid came to surface. Well was then shut in and rigged up for fishing. Well pressure was at 1,100 kPa.

Bled off remaining pressure and top filled 0.3m³ so well was static. Rig to, and wire-line fish for old wire-line and guns. The old wire-line being fishing out was coming out in 20-100m sections due to degradation from having it in the well while the well had been producing. Once fishing operations were complete, the bridge plug at 2,940m was released allowing pressure to come into the well.

Formation pressure differential after fishing and removal of AphronICS™ Fluid from wellbore was completed proved inconclusive, however, the volume pumped downhole and recovered were equal, therefore no reason to believe that formation damage had occurred.

Operator considered the work-over a success as fishing costs were on AFE as opposed to the estimated costs of alternative methods.

Additional Information

If you would like to know more about the Aphron System and how it's performed on hundreds of wells for our customers, please contact HiTech Fluid Systems Ltd.



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