

Achieve High Productivity Index with CT Perforating

Case study: Groupement Sonatrach-Agip gives FIV technique top marks in Algeria's Berkine basin

Challenge

Perforate horizontal wells underbalanced using CT. Leave formations undamaged. Achieve high productivity indexes (PIs).

Solution

Install FIV* Formation Isolation Valve to enable no-kill perforating. Apply DepthLOG* service for CT depth correlation. Use PURE* system and PowerJet* deep penetrating charges to achieve immediate flow through clean perforations.

Results

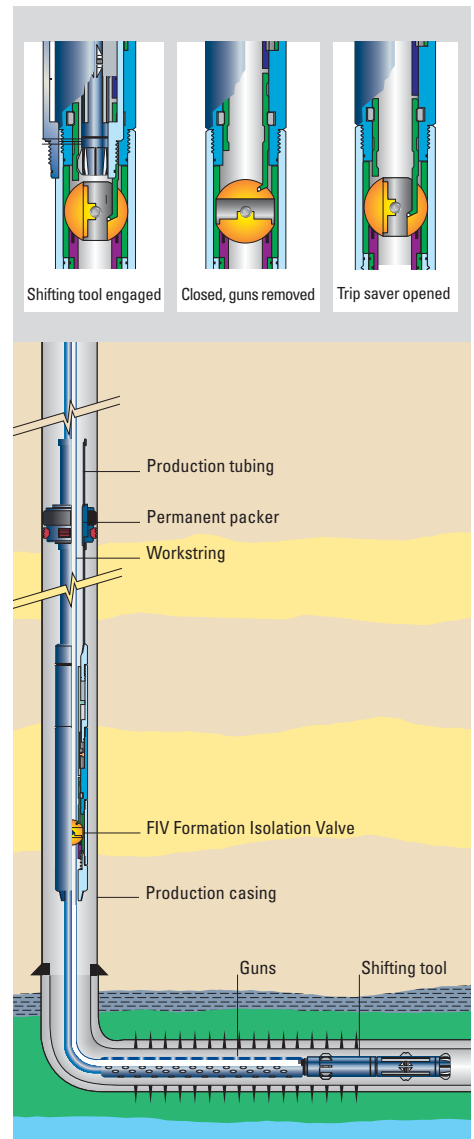
Well REC-2H's PI was estimated to be 4 times higher than achievable in a standard completion: its production rate reached 7,000 bbl/d. Well ROM-5's production reached 10,000 bbl/d. Groupement Sonatrach-Agip now considers this combination of services key to future ROM field development.

Go from completion to production without killing the well

When Groupement Sonatrach-Agip needed a cost-effective, efficient method to perforate horizontal wells underbalanced in the Berkine basin, it tested an innovative application of the FIV mono-bore completion valve. The FIV valve was installed below a permanent completion packer. The CT perforating string, including the depth correlation service, was run to depth. After the guns were fired, a shifting tool on the bottom of the gun string closed the valve. Tubing pressure was bled off, and the guns were retrieved. An underbalanced pressure differential was then created above the FIV tool and put the well on production when the valve was reopened by a programmed tubing pressure cycle.

Protect the formation and see proof in the production rates

Groupement Sonatrach-Agip has found a solution that works in the Berkine basin. The high PIs seen in both wells confirmed the Tadrart formation was not impaired by the underbalanced CT perforating operations. DepthLOG correlation ensures the gun string is on target. The PURE system and PowerJet charges achieve deep, clean perforation tunnels. The innovative FIV underbalanced perforating technique isolates the perforated interval until the well is placed on production. This cross-disciplinary Schlumberger solution protects the formation from damage, enhances reservoir production, and improves the safety of the underbalanced operation.



FIV tool enables no-kill perforating.

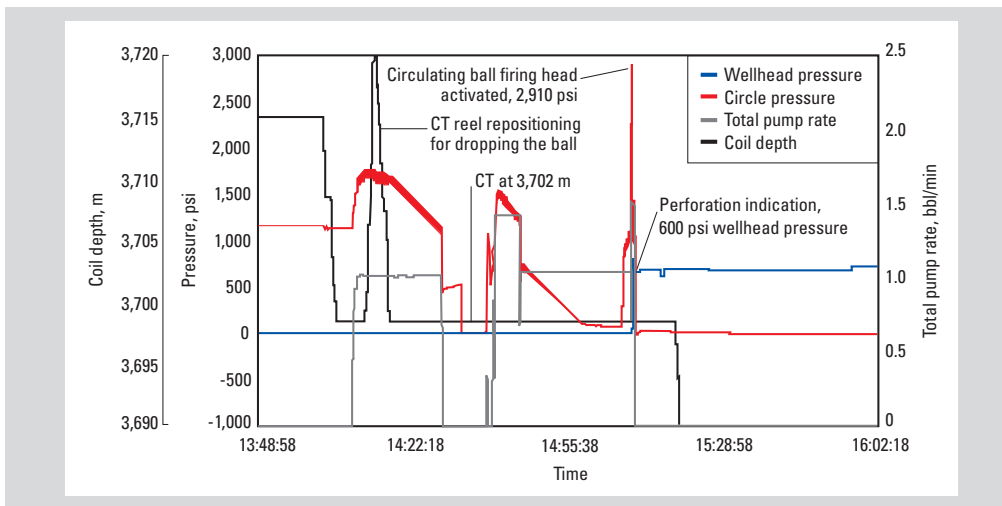
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Apply a successful solution to continue development

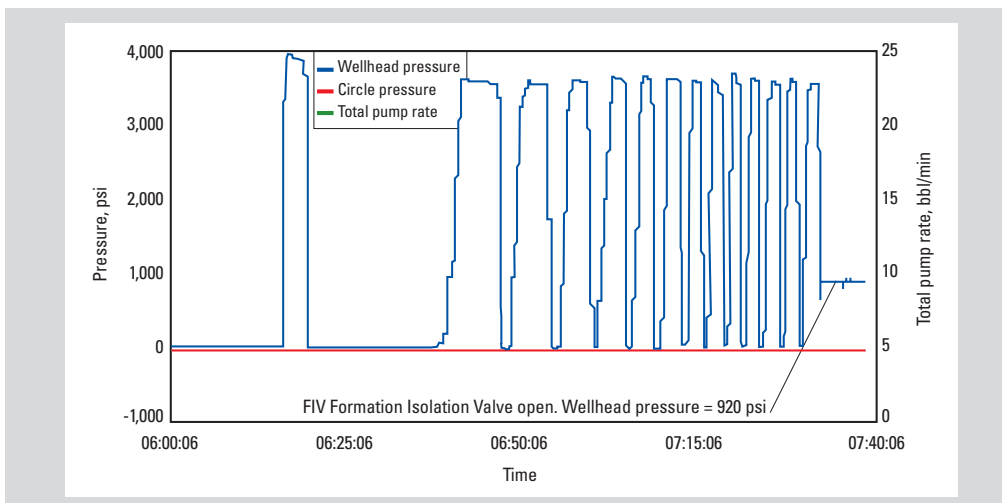
The operator now considers the FIV no-kill perforation technique key to its future development of the Berkine basin. Production from Well REC-2H, the first well perforated with the technique, reached 7,000 bbl/d. As a result of this success, Groupement Sonatrach-Agip used the FIV technique again, this time in the Rhourde Messaoud field's ROM-5 well. Production reached 10,000 bbl/d. The operator now plans to perforate a third well using the same suite of services: the FIV tool, DepthLOG correlation, and the PURE system.

E-mail wcp@slb.com or contact your local Schlumberger representative to learn more.

The innovative FIV underbalanced perforating technique isolates the perforated interval until the well is placed on production.



Real-time monitoring of the complete cycle of operations.



Opening the FIV tool by pressure-cycling the tubing.

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