Integrating Perforation Technologies Maximizes Productivity and Saves 23 Hours of Rig Time

PURE clean perforations system and MAXR anchor provide optimal solution for Eni Australia

**CHALLENGE**
Reduce the formation damage and extended rig time associated with conventional perforating operations.

**SOLUTION**
Combine the PURE® clean perforations system with the MAXR auto release gun anchor to create a dynamic underbalance that minimizes perforating damage and to enable a perforation-to-production process that does not expose the formation to kill fluids.

**RESULTS**
Delivered a negative perforation skin and near-zero overall Darcy skin; the completing-without-killing perforating technique saved an estimated 17 h of perforating run time and 6 h of cleanup time.

**Eni Australia sought a perforating solution that would maximize productivity and minimize rig time**
Conventional perforating requires a large static underbalance for effective damage cleanup. However, underbalance pressures large enough to clean damage from wells perforated with wireline can blow the guns up hole, leading to damaged cable and broken weakpoints.

As a result, wells are usually perforated with little or no underbalance when wireline is used, which can induce formation damage and cause diminished productivity. Also, cable strength limitations restrict the size and length of guns, so producers can be forced to perforate using time-consuming, multiple runs with undersized guns, further increasing skin.

Eni Australia needed a more efficient perforating solution to maximize productivity and minimize rig time during operations on its Blacktip Well-1 in the Blacktip gas field.

**The PURE system and MAXR anchor were the ideal fit-for-purpose solution**
Schlumberger proposed a first-time combination for Eni Australia—the PURE system with a MAXR gun anchor.

---

**CASE STUDY**
Integrating Perforation Technologies Maximizes Productivity and Saves 23 Hours of Rig Time

**PURE clean perforations system and MAXR anchor provide optimal solution for Eni Australia**

Eni Australia sought a perforating solution that would maximize productivity and minimize rig time
Conventional perforating requires a large static underbalance for effective damage cleanup. However, underbalance pressures large enough to clean damage from wells perforated with wireline can blow the guns up hole, leading to damaged cable and broken weakpoints.

As a result, wells are usually perforated with little or no underbalance when wireline is used, which can induce formation damage and cause diminished productivity. Also, cable strength limitations restrict the size and length of guns, so producers can be forced to perforate using time-consuming, multiple runs with undersized guns, further increasing skin.

Eni Australia needed a more efficient perforating solution to maximize productivity and minimize rig time during operations on its Blacktip Well-1 in the Blacktip gas field.

The PURE system and MAXR anchor were the ideal fit-for-purpose solution
Schlumberger proposed a first-time combination for Eni Australia—the PURE system with a MAXR gun anchor.
Unlike conventional perforating, which relies on a large static pressure differential between the wellbore and the formation to remove perforation debris and crushed-zone damage, the PURE system fully exploits the transient underbalance that occurs immediately after perforating. It creates a large dynamic underbalance, then absorbs perforation debris into the gun chambers, minimizing skin and leaving an obstruction-free path for flow from the reservoir to the wellbore.

The MAXR system anchors the optimum-sized gun string in the well prior to completion, enabling underbalanced perforating of the entire pay zone simultaneously and leading to a perforation-to-production process that does not expose formations to kill fluids.

**Minimal skin and 23 h of rig-time savings were achieved**

Separate and independent postjob well test interpretations by Eni Australia and Schlumberger confirmed the near-zero overall Darcy skin predicted with the SPAN* Schlumberger perforating analysis. A perforation Darcy skin of –0.6 and an overall Darcy skin of 1.5, which includes geometrical effects, were confirmed.

The combination of the PURE system and MAXR anchor and the completing-without-killing perforating technique saved an estimated 17 h of perforating run time and 6 h of cleanup time.

*Mark of Schlumberger
Other company, product, and service names are the properties of their respective owners.
Copyright © 2014 Schlumberger. All rights reserved. 14-TS-0171