

Onshore Thailand

PROJECT SUMMARY

Name

4-1/2" 4039 CONNEX® XDP
Part number EC2-40A3922-RC
5 spf /60 degree

Dynamic Surge Vent

Region

Onshore Thailand

Formation

P

Well Type

Deviated oil producer

Depth

1900 ftMD (approx.)

Casing

7 inch, 23 lb/ft, P-110

CASE STUDY

Dynamic Underbalance Perforating Improves Well Productivity in Thailand

Dynamic surge vent provides a cost-effective and reliable method of generating a dynamic underbalance.

THE CHALLENGE

Clear perforation tunnels are needed to improve productivity or as an initiation point for further stimulation. Perforating in an underbalanced condition is generally recognized as an effective method for clearing perforation tunnels at the time of perforating. However, perforating dry or with a reduced hydrostatic head can lead to well control challenges and as a result operators may resort to unsuitable through tubing perforating systems. Under these circumstances dynamic underbalanced perforating may provide the necessary short term underbalance without well control risks and also enable the use of an optimized perforating system.

THE SOLUTION

Dynamic underbalance perforating is a method of disrupting the compacted region and clearing perforations through the development of a short duration underbalance. The underbalance is created from the perforating carrier or using additional chambers above or below the perforating carrier. The chambers serve to increase the volume available to create the underbalance. A dynamic surge vent placed between the loaded perforating carrier and the empty chamber provides a method of opening the chamber at the time of perforating. Unlike with punch charges, the vent allows maximum chamber volume and is reuseable.

THE RESULTS

Wells in this field in Thailand were normally completed with through tubing perforating systems run in relatively large casing due to concerns over well control. Several intervals were completed using the dynamic surge vent as part of the perforating system. A 4-1/2 inch 4039 CONNEX® XDP perforating system conveyed on wireline was used. Fluid level and density was adjusted to provide a balanced condition over the perforating interval.

Wells using this optimized perforating system in combination with the dynamic surge vent exhibited overall superior and long term productivity.

