Using Burst Collars in a Liner String for Multizone Completions in Horizontal Wellbores: Case Study

Jason Schoenfeld, WestFire Energy, and Natasha Kostenuk, Max Jorgensen, and Scott Sherman, Trican Well Service

Copyright 2010, Society of Petroleum Engineers

This paper was presented at the SPE Annual Technical Conference and Exhibition, held in Florence, Italy, 19-22 September 2010.

Abstract

This paper introduces a new multi-zone completion technology (MZCT) to stimulate multiple stages in a horizontal wellbore that is either cased using external packers or cemented into place. In both scenarios, a liner assembly containing specialized collars with predrilled ports that are covered by burst disks is run into the horizontal section of a wellbore. There are no restrictions on the number of collars that can be run, nor the spacing between them. After the assembly is set, coiled tubing is used to complete each interval using a cup/cup assembly that straddles each specialized collar, and then pressures up to open the burst ports. The fracture is then initiated through the coil string into the reservoir, with the coiled tubing moving along the horizontal wellbore from the toe to the heel, the process being repeating against each specialized collar.

Advantages of this new system include no limits to the number of stages that can be completed, full bore diameter available following the stimulations without the cost of milling out mechanical ports, and the ability to do re-completions on the same intervals at a later date. The liner with the burst collars can be used with packers or cemented in, additional collars can be run and stimulated at a later date, and the completion is more cost effective than current alternatives.

This paper discusses the application of the cemented burst collars on the Viking formation in the Redwater field of Alberta and Plato field of SW Saskatchewan. Comparisons are made between the burst collar system and previous completion systems used in the Viking. Recognized benefits include reduced downtime during operations after a screen-out and tighter spacing between fracs in a cemented liner application as opposed to perforating.

To order the full paper, visit https://doi.org/10.2118/134533-MS