



HALLIBURTON

Generation IV Single-Trip Multizone FracPac™ System

Overview

Ricki Jannise

Principal Product Champion

Multizone Sand Control

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Solving challenges.™

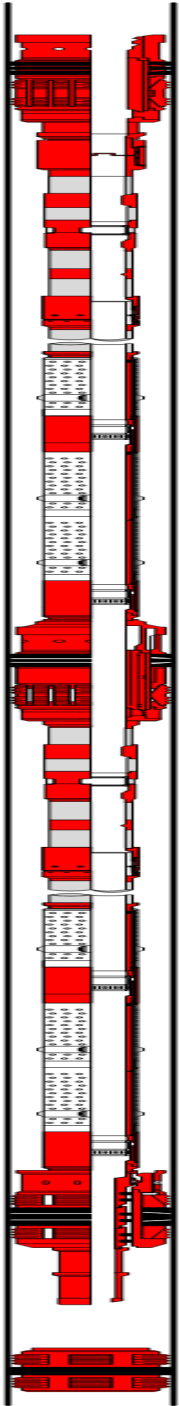
What is it?

Single-Trip Multizone FracPac™ Systems are downhole tool systems that allow the stimulation and gravel packing of multiple zones in a single trip of the work string into the wellbore.



Generation IV Features

- 10,000 psi pressure rating
- FracPac™ pump rates
- Large volume of high-strength proppant capable
- Intelligent completion capable
- Zonal isolation by system
- Zone length flexibility



2 Zone,
2 FCS, 2 MJPS

Why it Will Help

- A three-zone completion will save five round trips or 60 hours at 12 hours per trip
- A five-zone completion will save 11 round trips or 132 hours at 12 hours per trip
- Retrieving packer plugs have the highest risk of failure – eliminating the packer plug will help reduce risk



Time Savings Analysis

25,000-ft Well Depth – Three Zones

Multizone Installation

- 24-65 Rig Days
- 3 Work String Trips
- \$39,000,000* Estimated Rig Costs

Stacked Pack

- 46-144 Rig Days
- 8 Work String Trips
- \$86,400,000* Estimated Rig Costs

**Gen. IV Multizone System can
save millions of dollars**

*These are estimated figures only and costs may vary depending on many factors.

Reducing Deepwater Completion Time and Costs

ESTMZ™ System Saved Chevron an Average of 18 Days per Well in Deepwater GOM

OPERATOR CHALLENGE:

Save rig time in a multizone completion.

SOLUTION:

Halliburton's Enhanced Single-Trip Multizone (**ESTMZ™**) system was used to complete 4 zones in a deepwater well.

RESULT:

Successfully completed first cased hole **ESTMZ** system in the Gulf of Mexico by treating 4 stages in the Lower Tertiary. The fracs were pumped with **DeepQuest®** fluid and high strength proppants with Halliburton's two frac vessels using offshore fluid transfers to increase the completion efficiency.

VALUE ADDED:

In Chevron's three wells, the **ESTMZ** system saved a total of 24 round trips to more than 25,000 feet. Chevron estimates it saved 18 days per well compared to conventional completions. The first well tested in excess of 13,000 BOPD.



- Treat and pack multiple zones in one trip
- Isolate zones from each other
- Access zones for treatment
- Open zones for production

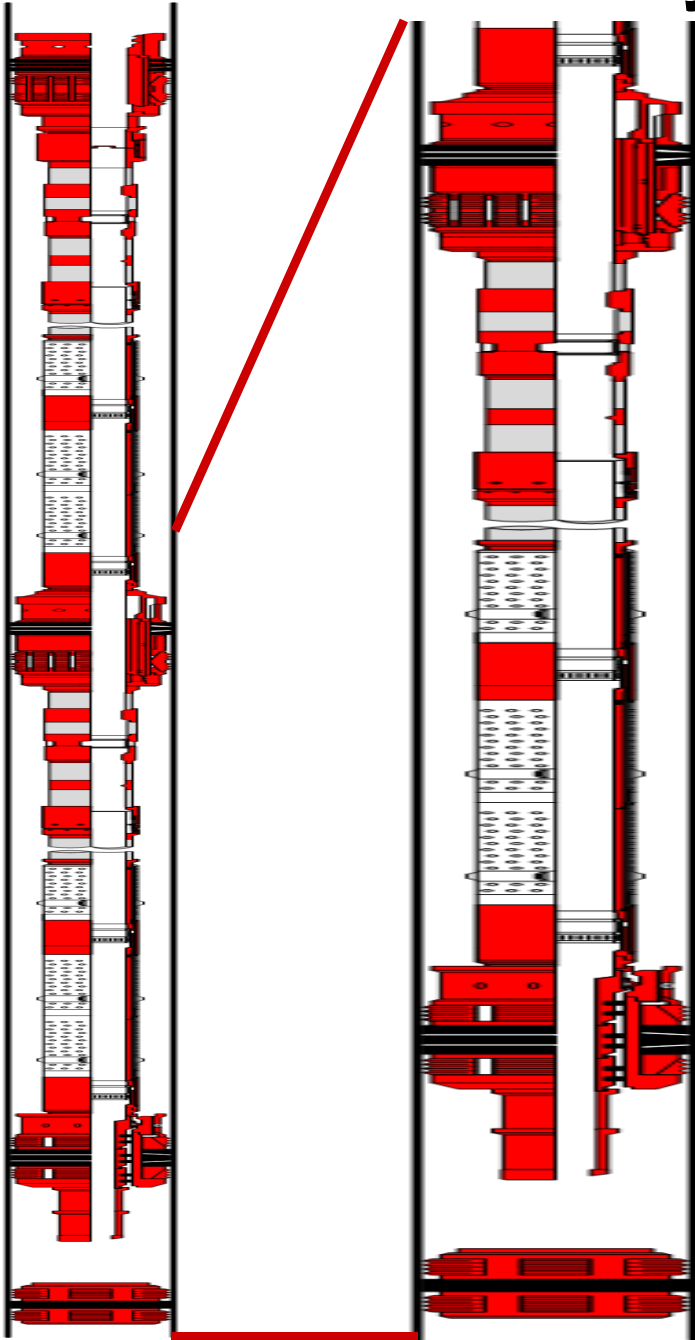
Candidate Selection

- 9 5/8" 47 – 53.5 ppf ID casing
- 7" 26 – 32 ppf ID casing
- 8-1/2" open hole - consolidated
- Multiple zones – two or more...various lengths okay
- Similar pressure gradients
- Sand / hydrocarbon influx controlled
- Zone spacing: >4,000' max and $\geq 45'$ between zones

Past Jobs (29) – As of October 2014

- 6 – SITs - 9-5/8" CH (4), 7" CH (1), 8-1/2" OH (1) – Carrollton, TX – 2007-14
- 3 – Field Trials - 9-5/8" CH (2 w/ 3 zones each) and 8-1/2" OH (1 w/ 4 zones) – GoM operator – 2008 and 2011
- 4 – (3) 9-5/8" CH and (1) 8-1/2" OH Jobs – GoM operator – 4, 3, 6 and 5 zones respectively – 2012 through 2013
- 6 – 9-5/8" Cased Hole Producer – Asia Pacific operator – 4, 3, 3, 4, 4 and 3 zone jobs – 2010 through 2014
- 9 – 9-5/8" CH Jobs – Asia Pacific operator – 6, 5, 4, 3, 4, 4, 3, 4 and 3 zones respectively – 2012 through 2014
- 1 – 9-5/8" CH Job – Asia Pacific operator – 3 zones – 2013

ESTMZ™ System Components



- Frac Circulation Sleeve – Next Zone
- Isolation packer
- Spacer pipe
- Gravel pack assembly
- Hydraulically activated shear sub
- Blank pipe
- Mid-Joint Production Sleeve (MJPS)
- Modular screen
- Frac Circulation Sleeve (FCS)
- Sump packer and seals



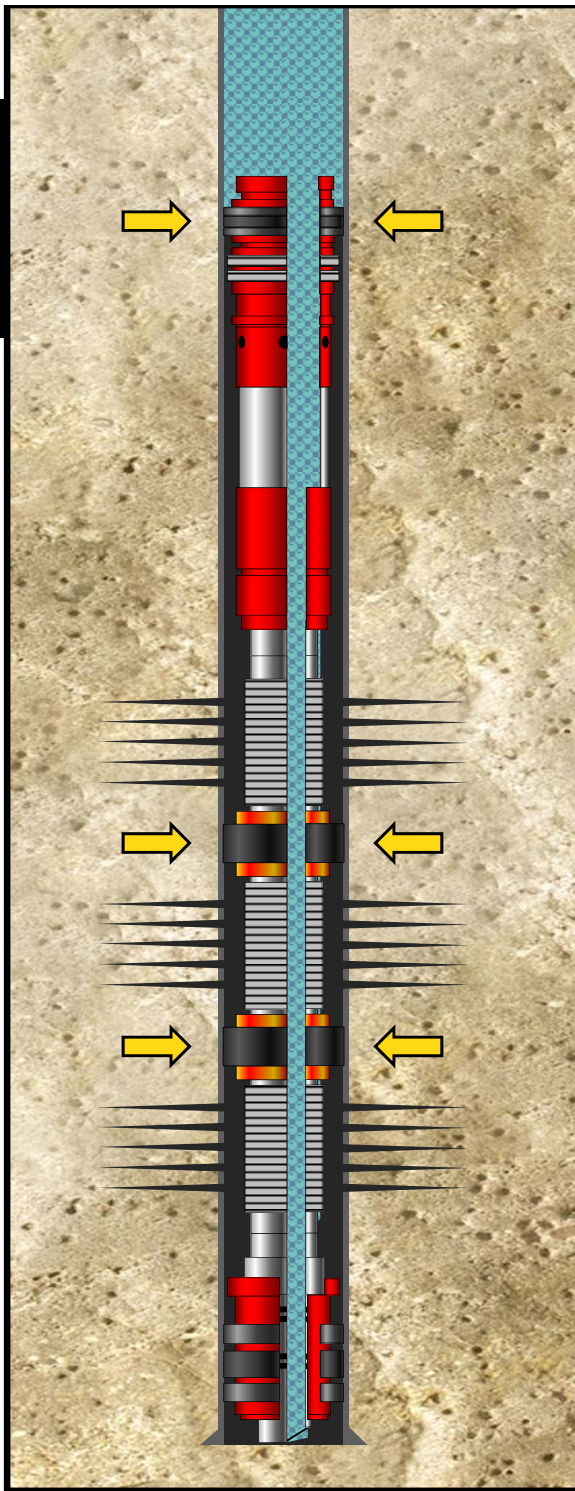
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ESTMZ™ Enhanced Single-Trip Multizone FracPac™ System

Running
Procedure

Solving challenges.™

ESTMZ™ System Installation



- Sump packer is set
- All zones are perforated
- Perforations have been de-burred and the hole clean
- Fluid loss and cross-flow are stopped
- Make-up, test and space-out ESTMZ system
- Run in the hole and sting into the sump packer
- Set the VCH (top) packer
- Set the isolation packers
- Perform work string pickle operation

Who to contact. Where to get more information.



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www.halliburton.com/ESTMZ