

Paradigm Reamer® Subs Successfully Eliminate NPT Associated with Tight Spots in the Wellbore, and also Improve Drilling Performance and Hole Quality.

Overview

An operator in the ME was looking for an alternative way of drilling vertical well sections in their most challenging field. They were looking for a solution which would increase ROP, help increase tripping speed and reduce non-productive time (NPT), associated with tight spots, which in some cases had led to wells being side tracked, or plugged and abandoned.

Challenge

Previous drilling was characterised by the vertical surface sections requiring constant back reaming, wiper trips and relentless control of the ROP & drilling parameters to maintain verticality.

Solution

Two 12 1/4" Reamer® subs were placed in the BHA, to replace the Roller reamers and to serve as low torque stabilisers in a stiff vertical drilling assembly. The well was drilled normally, with ROP only controlled periodically to avoid cuttings loading to prevent induced losses.

Result

The section was drilled with a programmed wiper trip at the mid-section, and at the end of the run. Neither of these wiper trips experienced any tight spots, and the BHA was POOH and 9 5/8" casing run without any problems whatsoever. The client acknowledged that, neither wiper trip was probably necessary but, regardless, the well with the BDR's had the lowest recorded trip hours of any of the previous 140+ wells drilled in the field. Paradigm were then provided offset information, from the previous best six wells, for the comparative study overpage and graph opposite. BDR's used in Well 7.

Value to Client

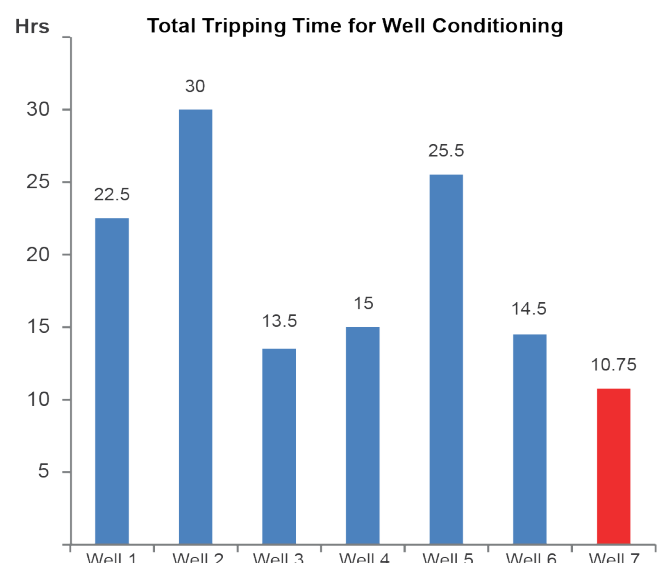
- Shortest Trip time ever recorded, saving at least 3hrs rig time.
- Minimum inclination ever recorded, saving further rig time on correction runs, second fastest field ROP.
- Fastest ROP with Inclination kept under full control
- Zero Non-Productive Time, due to no tight spots.
- Casing Run to Bottom Without Incident



The Paradigm Reamer® is designed to replace Roller Reamers and offers low torque stabilisation whilst removing micro dog legs and ledges in the wellbore. Diamond Insert Blades provide 70% less contact area than conventional stabilisers; reducing Torque, Drag and Stick / Slip.

Main Features / Benefits

- One Integral Piece: No Bearings to Fail/Fall Out
- Premium Quality Impregnated Diamond Inserts
- Increased durability over PDC or Tungsten
- Helps Maintain Wellbore Trajectory
- Improved Wellbore Conditioning
- Reduced Back Reaming



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Paradigm Reamer® Subs Successfully Eliminate NPT: Comparative Data to Previous Best Six Wells Drilled in Field

Summary

Two 12 ¼" Reamer® subs were run as a trial to improve hole conditions in a very challenging field, with the primary purpose of eliminating NPT due to tight spots.

The Reamer® subs replaced two Roller reamers, as part of a stiff vertical drilling BHA.

Indication versus ROP

Even with stiff Roller Reamer assemblies, the verticality of previous wells had only been achieved by control drilling with low WOB and reduced parameters.

The section drilled with the Reamer® subs was not constrained by controlling the drilling parameters, for inclination, and recorded the second fastest ROP of the field (>70 Ft/hr), and maintained the lowest inclination of just 0.7 Degrees.

This ROP had only been exceeded once before, with the direct result that the inclination over the quickly drilled section had risen past 6 Degrees.

Tripping Speed

The main challenge experienced when drilling in the field was encountering tight spots, and the subsequent problems that prevailed: slow tripping, stuck pipe and not getting casing to bottom.

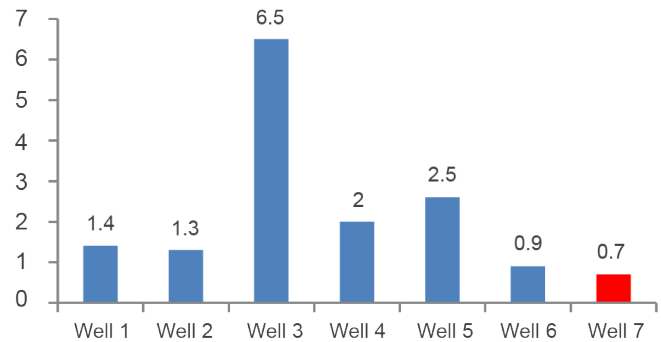
The reaming capability of the Reamer® subs helped condition the wellbore whilst drilling, and neither of the wiper trips showed any tight spots, resulting in no back reaming requirement and the fastest tripping speed recorded in the field.

Results

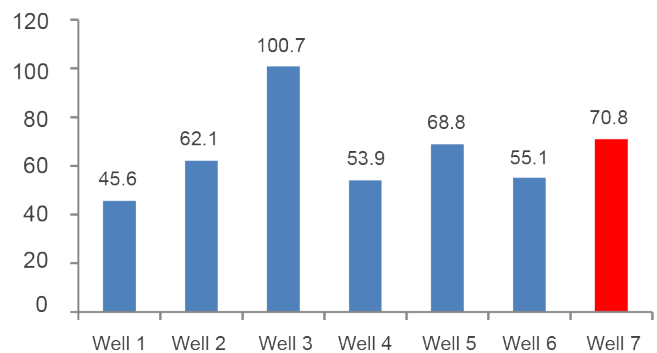
Zero NPT due to Tight Spots
Fasted ROP at Low Inclination
Fastest Recorded Tripping Times
No Back Reaming / Extra Wiper Trips
Casing Run and Cemented Without Incident

**Operator Strongly Recommend
the Reamer® for all Future Sections
in this Field**

Max Inclination (Deg)



Rate of Penetration (Ft/Hr)



KPI Tripping Speed (Stands/Hr)

