CASE STUDY

HALLIBURTON

Gulf of America

Perforating system supports frac-pack success in deepwater, high-pressure Gulf of America well

Custom-engineered MaxForce® Flow Ultra-Kleen™ system enables clean perforation with zero NPT and full string integrity

CHALLENGE

- Operate within pressure and dynamic load limits
- Maximize flow area for frac-pack
- Minimize debris to avoid NPT

SOLUTION

- MaxForce Flow Ultra-Kleen system with dynamic transient control
- Rated to 25,000 psi and 425°F
- Industry-leading flow area and low debris output

RESULT

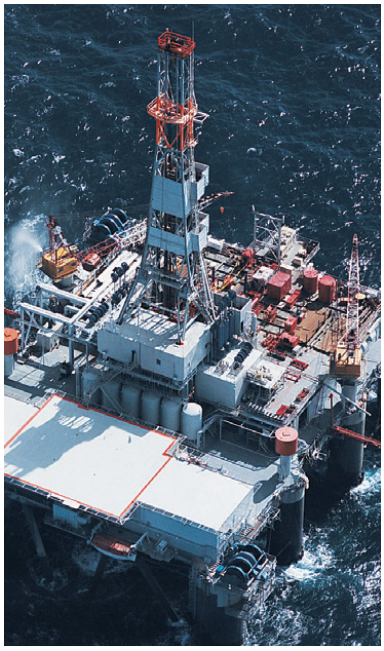
- Delivered clean perforations with no debris
- Protected completion and TCP string
- Eliminated NPT and safety incidents

Overview

A Gulf of America operator faced extreme downhole conditions in a deepwater well that required perforating at bottomhole pressures exceeding 21,000 psi (1448 bar) and true vertical depths greater than 30,000 ft (9144 m). Standard perforating systems were not viable due to the risk of dynamic transient loads compromising the completion string and other downhole tools. Halliburton collaborated with the operator to deploy the 6¾-in., 18-SPF, big-hole MaxForce® Flow Ultra-Kleen™ gun system, engineered for high-pressure environments and minimal debris output.

Challenge

The operator required a perforating solution that could meet several critical criteria. First, the system needed to operate within the pressure and dynamic loading limits of all downhole equipment to avoid compromising the completion string. Second, it had to deliver maximum flow area to support a successful frac-pack operation. Finally, the solution was expected to minimize debris to eliminate non-productive time (NPT) and maintain operational integrity throughout the job.



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The big-hole MaxForce® Flow Ultra-Kleen™ gun system is designed to perforate intervals in extreme conditions. This makes it well-suited for deepwater operations in the Gulf of America.

Solution

The Halliburton team designed and modeled the MaxForce® Flow Ultra-Kleen™ gun system with dynamic transient control. Rated to 25,000 psi (1,724 bar) and 425°F (218°C), the system was optimized for deepwater, high-pressure wells. Its design mitigates shock loading during perforating, which helps protect the completion and tubing-conveyed perforating (TCP) string. The system delivers a large hole size and low debris output, supporting clean perforations and favorable conditions for frac-pack completions.

Result

The perforating interval spanned from 30,710 ft (9,360 m) to 30,815 ft (9,392 m) measured depth, with a temperature of 245°F (118°C), and pressure of 21,174 psi (1,460 bar). The MaxForce Flow Ultra-Kleen system fired successfully, and post-job monitoring confirmed no debris on the shakers. The sump packer was retagged precisely, and the completion and TCP string were retrieved without incident. All shots were confirmed fired with minimal lost debris. The operation was completed without NPT or safety issues, fully meeting the operator's expectations.