

# ACTIVE OptiFIRE System Reperforates Critical Producing Interval in 11 Hours

PEMEX deploys near-instantaneous coiled tubing technology to selectively perforate zone, eliminating deferred production

## CHALLENGE

Perform a perforating intervention on a critical producing interval inaccessible by wireline.

## SOLUTION

Use ACTIVE OptiFIRE\* CT real-time selective activation system to access the zone, accurately place perforating guns, and confirm downhole detonation in a single run.

## RESULTS

Enhanced intervention safety and efficiency by

- cutting perforating gun detonation time by 75%
- confirming downhole detonation in real time using fiber-optic technology
- cleaning and kicking off the well with the same ACTIVE\* family of live downhole coiled tubing services CT unit
- avoiding the use of working fluid that could damage the formation, thus mitigating deferred production.



*The ACTIVE OptiFIRE system was able to be deployed in an area inaccessible to wireline.*

## Deviated, high-clay well prevents conventional reperforation strategy

When a critical interval was not producing as expected, PEMEX decided to reperforate the zone. However, due to some deployment limitations, this zone was inaccessible by wireline intervention. Like many wells in this area, all efforts were made to avoid killing the well or pumping fluid into the formation, which could delay putting the well back into production.

## Real-time CT technology enables accurate, selective perforating

Schlumberger proposed piloting the ACTIVE OptiFIRE CT real-time selective activation system, the industry's first coiled tubing technology that allows perforating guns to be selectively activated downhole. Unlike most conventional perforating solutions, the ACTIVE OptiFIRE system does not require any working fluid for firing head activation. Instead, it relies on real-time fiber-optic technology to detonate the perforating string.

Schlumberger used gamma ray logging tool measurements and the ACTIVE services' downhole casing collar locator (CCL) module to place the bottomhole assembly (BHA) across the desired zone at 13,327-ft MD [4,062-m MD] and activate the firing head. At the moment of downhole detonation, the ACTIVE OptiFIRE system sent CCL, pressure, temperature, and accelerometer data to the surface in real time—safely confirming detonation within seconds.

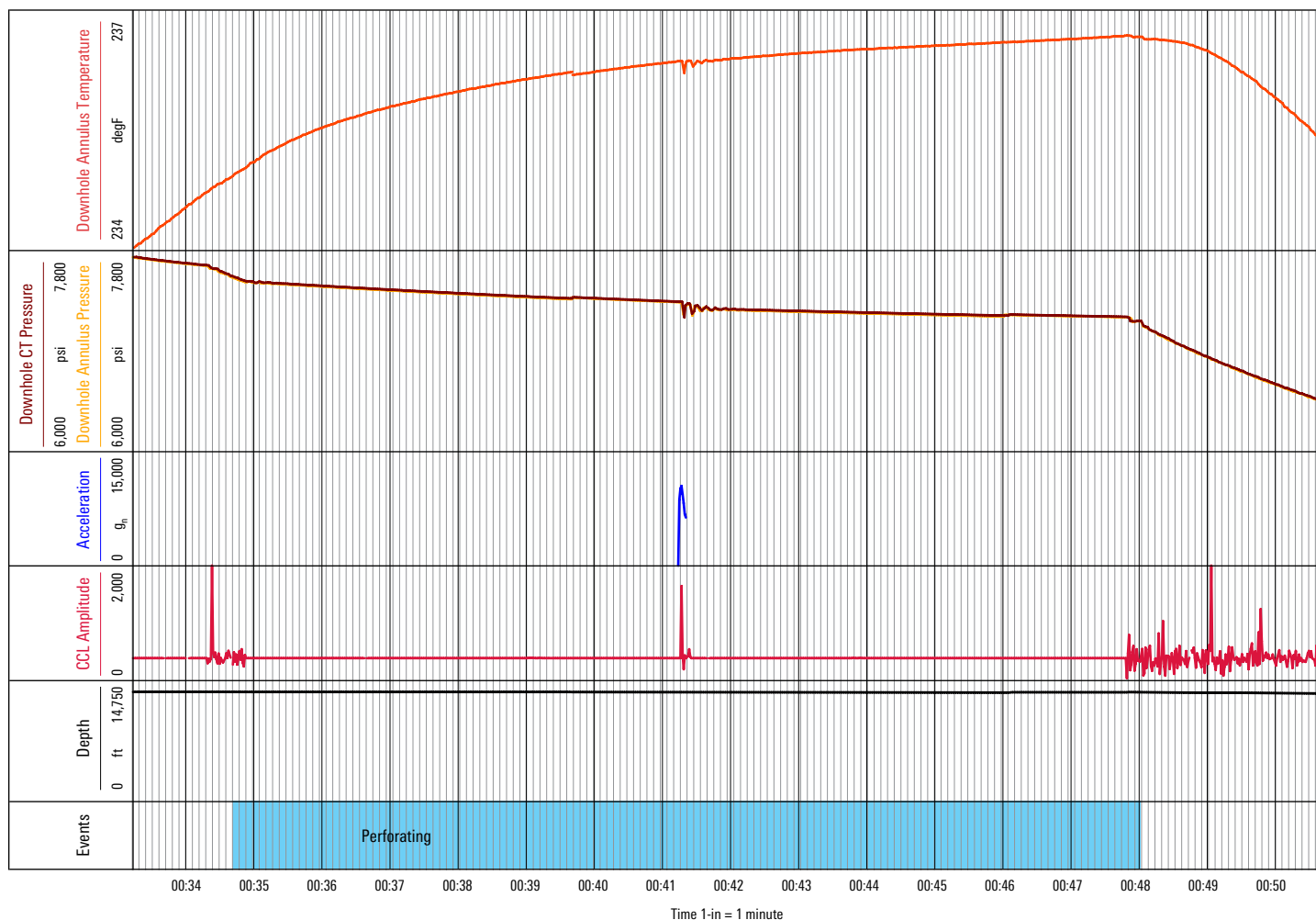
## CT intervention sets record, eliminates deferred production

PEMEX and Schlumberger used this innovative coiled tubing technology to perforate the well in just 11 hours and monitor downhole conditions in one run—setting a new record in time efficiency. Once the BHA was placed at the target interval, it only took minutes to activate the perforating head and get confirmation of detonation using fiber-optic technology. Hydraulically activated guns would require up to 2 hours to detonate the perforating guns alone. This reduced the time to detonate the perforating string by 75% compared to conventional methods.

Because the ACTIVE OptiFIRE system did not require any working fluid, PEMEX mitigated well damage and eliminated deferred production associated with wireline interventions. Following the reperforating treatment, PEMEX was also able to clean and kick off the well with the same ACTIVE services unit—avoiding the costs of having additional equipment on site.

Since this successful trial well, PEMEX has implemented the ACTIVE OptiFIRE system on three additional wells.

## CASE STUDY: ACTIVE OptiFIRE system selectively perforates zone, eliminating deferred production



Real-time confirmation of downhole detonation using the response of temperature, pressure, accelerometer, and CCL data.

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