

# OPERATOR REACHES ~23 HOURS OF CONTINUOUS LIMITED ENTRY PUMPING OPERATIONS

LOCATION: OKLAHOMA



## CUSTOMER OBJECTIVE

A USA-based oil and gas operator was looking for a limited entry multistage sleeve system that was reliable, cost-efficient, and capable of high-rate pressure treatments. The operator had encountered operational inefficiencies with their plug-and-perf wells in Oklahoma, such as requiring a minimum of two wells to be efficient and requiring several on-site services like wireline, cranes, and coiled tubing. Additional stimulation challenges included perforations eroding, leading to poor stimulation efficiency, and plug slippage that prevented zonal isolation.

## RPG UNLIMITED™



## TECHNOLOGY HIGHLIGHTS

- Eliminates intervention from install to flowback.
- Unlimited stage count and unrestricted lateral length.
- Built-in screenout recovery feature.
- High-pressure and high-temperature capabilities.
- Large bore ID, no rate restrictions.
- Increase cluster efficiency with customizable, limited entry erosion-resistant nozzles.
- Fully dissolvable WFP options.
- Reduces frac time with continuous pumping operations.
- Reduces costs and improves safety while requiring fewer services on location.
- Millable seats.

## SOLUTION

The operator deployed Interra Energy's RPG™ (Replace Perforating Guns) Limited Entry System. This system comprised 36 cluster stages, with each cluster consisting of 5 MultiPoint Sleeves and 1 Solid Seat Sleeve for a total of 216 RPG Sleeves.

The RPG System utilizes wireless frac plugs (WFPs) pumped down the well. The WFPs count the installed frac sleeves positioned throughout the casing string. Once the desired number of counts is achieved, the WFP activates and shifts open multiple sliding sleeves, simulating a perforation cluster. The WFP lands on a solid seat at the bottom of each stage, providing reliable zonal isolation. The sleeves contain engineered frac-hardened nozzles to maintain desired cluster efficiency and reduce erosional effects. After the stimulation, the WFP is designed for immediate flowback and dissolution, allowing quick production and removing the requirement for millouts.

## RESULTS

The RPG System was installed and cemented into place, and the toe sleeve was opened before the frac crew arrived on location. Each cluster was stimulated with roughly 689,000 lbs (312.5 tonnes) of proppant using a combination of 100 mesh and 40/70 sand at a rate of 80 bbls/min. The total sand pumped was more than 24 million pounds.

The system's wireless design allowed the operator to continually frac, preventing them from switching wells to gain efficiencies. Once a stage was completed, the following WFP would be pumped down the well to open the subsequent stage. Due to this efficiency, the frac company was able to get up to 22 hours and 55 minutes of pump time in 24 hours.

Acoustic monitoring and pressure resonance equipment supplied the supporting evidence qualifying each stage as successfully activated.