

## CASE HISTORY

Unconventional Resources: Cemented Completions

PosiFrac Toe Sleeve™

### MULTIPLE POSIFRAC™ TOE SLEEVES INSTALLED FOR MULTI-POINT TOE STAGE FRAC

Operator Achieves 12,500 PSI Casing Integrity Test before Opening Toe of the Well for Injection

**CHALLENGES:** A customer operating in the Utica Shale in Eastern Ohio required a casing integrity pressure test prior to opening two toe sleeves for a multi-stage fracture treatment. High fracture gradients in the area dictated toe sleeves open without exceeding the pressure of the casing test. The customer also desired a solution which would allow for multiple injection points at the toe to allow for a high-rate stimulation.

**SOLUTION:** TAM provided two 5-1/2 in. PosiFrac Toe Sleeves (PTS) that allowed the operator to conduct a 9,500 psi and 12,500 psi casing integrity test, both for 30 minutes. The PTS tools were installed at approximately 9,000 feet TVD and MD of 18,000 feet. The formation breakdown pressure was to be approximately 10,000 psi. The PTS design allows multiple sleeves to be run in a single string, opening independently of each other during the pressure bleed down cycle after the casing test.

**RESULTS AND BENEFIT:** Both toe sleeves opened during the bleed down cycle and provided the operator two injection points at the toe of the well. Installing multiple sleeves provided the desired increased flow area to achieve a high injection rate when fracturing the toe stage. The customer was very pleased with the performance of the tool and intends to use the PTS technology as part of their standard completion design going forward.

