

SPM[®] Edge Services Optimize Shale Operations

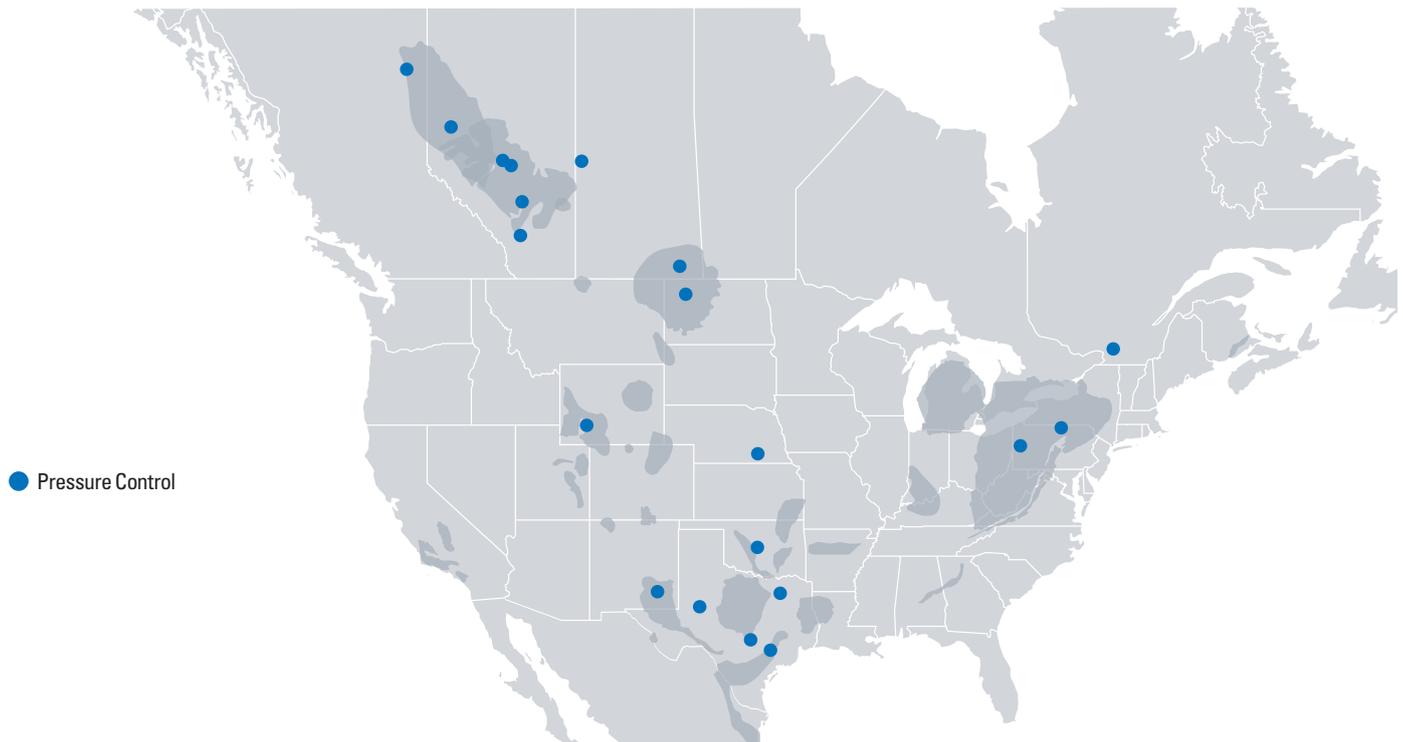
Specially engineered solutions reduce NPT, risk, and costs for North American operators

SPM[™] Oil & Gas

A Caterpillar Company

Case Study

Operators across North America partner with SPM[®] Edge for pressure control tailored, engineered solutions that address their pain points and break down barriers to productivity. Unprecedented collaboration helps customers save time and costs by optimizing liner drill-thru operations, taking cementing offline, reimagining shale wellhead designs—and more.



TOTAL SAVINGS

EMPOWERMENT TOOLS



11 HOURS
saved NPT



6 HOURS
saved crew time

**Latch Back-
Pressure Valve[™]**

\$400,000
reduced in NPT costs

**Unititized[™]
Lock-Ring**

\$500,000
reduced in NPT costs

**Offline Cementing
Solution**

\$380,000
saved operating
expense

CASE STUDY

THE CHALLENGE

Unconventional oil and gas operations demand unconventional solutions. Success in shale plays requires strategic focus on productivity and efficiency. To maximize well economics, operators are continually seeking new ways to reduce nonproductive time (NPT), optimize processes, lower costs, and minimize risks to people and the environment.

Working closely with operators, SPM Oil & Gas found common issues during drilling and completions, including: damaged equipment, time-consuming cementing practices, unplanned workovers, and pressure integrity issues.

THE APPROACH

SPM® Edge partnered with shale operators to begin the process of evaluating key challenges, understanding the root causes behind their problems, and co-creating innovative, problem-solving solutions.

During liner drill-thru work, SPM Oil & Gas discovered that operators kept experiencing equipment damage and severe nonproductive time (NPT). Almost all back-pressure valves are threaded, which are more susceptible to damage when drilling through the ID bore. In addition, drill bits were at higher risk of getting stuck in the back-pressure valve, generating significant NPT. To address these issues, SPM Oil & Gas designed a Seaboard™ Latch Back-Pressure Valve System for drill-through operations. The engineered latch technology is easier to install than traditional H-type valves while maintaining pressure integrity and minimizing NPT.

To bring new efficiencies to multi-well pad and cube drilling, SPM® Edge engineers developed the Seaboard™ Offline Cementing Solution, which takes cementing off the critical path during surface and production cementing—enabling simultaneous drilling and cementing operations. Now, instead of waiting on cement (WOC), operators are able to maximize their valuable rig time.

As a leading wellhead provider, Weir worked closely with operators to engineer a wellhead specifically for shale plays. The Seaboard™ Unitized™ Lock-Ring (ULR) wellhead features a straight-bore design, lock-ring technology in a multi-bowl Seaboard™ Unitized™ wellhead. It can save up to 35 hours of rig time compared to conventional systems and its compact design accommodates 95% of casing configurations.

THE RESULTS

The Seaboard™ Latch Back-Pressure Valve System enabled operators to improve safety, drill deeper, and improve overall well design cost. The latch and design elements are rated to 15,000 psi, withstanding potential damage and preventing pressure-integrity issues associated with threaded profiles. For one operator, the Seaboard™ Latch Back-Pressure Valve saved an estimated \$400,000 in NPT compared to a conventional H-type back-pressure valve.

Seaboard™'s Offline Cementing Solution helped a MidCon operator reduce NPT by 11 hours from surface cementing to production cementing—saving \$38,000 per well. With 10 wells in the basin, the company lowered its operating expenses by approximately \$380,000 and added nine hours of drilling time. The operator also saved five to six hours per crew.

When an operator in the Utica Shale experienced an extreme pressure burst, their Seaboard™ Unitized™ Lock-Ring sustained 600,000 lbf of force while remaining intact. The ULR wellhead ensured that no workers or on-site equipment were harmed during this potentially catastrophic event, saving a minimum of \$500,000 in repair and replacement costs. As a result of the success of this SPM® Edge partnership, the operator named SPM Oil & Gas as its sole wellhead provider.

THE INNOVATIONS

SPM® Edge Services is everywhere customers need to be, offering the largest global network of service locations to provide service repairs and upgrades, rapid delivery expendable equipment as well as field technicians and engineering technical experts in every major basin around the world. In North America service centers and teams are never more than three hours away.

SPM® Edge Services supports pressure control operators with a comprehensive approach:

An engineering team focused on developing wellheads and ancillary equipment to create efficiencies for drilling operations. Our team of experts will work along side customers to develop systems based on their completions plans and can join onsite for testing to ensure seamless operations.

- Dedicated and thoroughly trained service technicians to meet customer expectations in proper management of change and communications.
- 24/7 access to our engineering hotline available to both our technicians and customers to answer questions immediately.

 **This was the best wellhead experience we've ever had from any wellhead provider.** 