

Seaboard™ Unitized™ Lock-Ring Improves Safety and Saves Cost

Speed head designed to reduce non productive time while improving safety

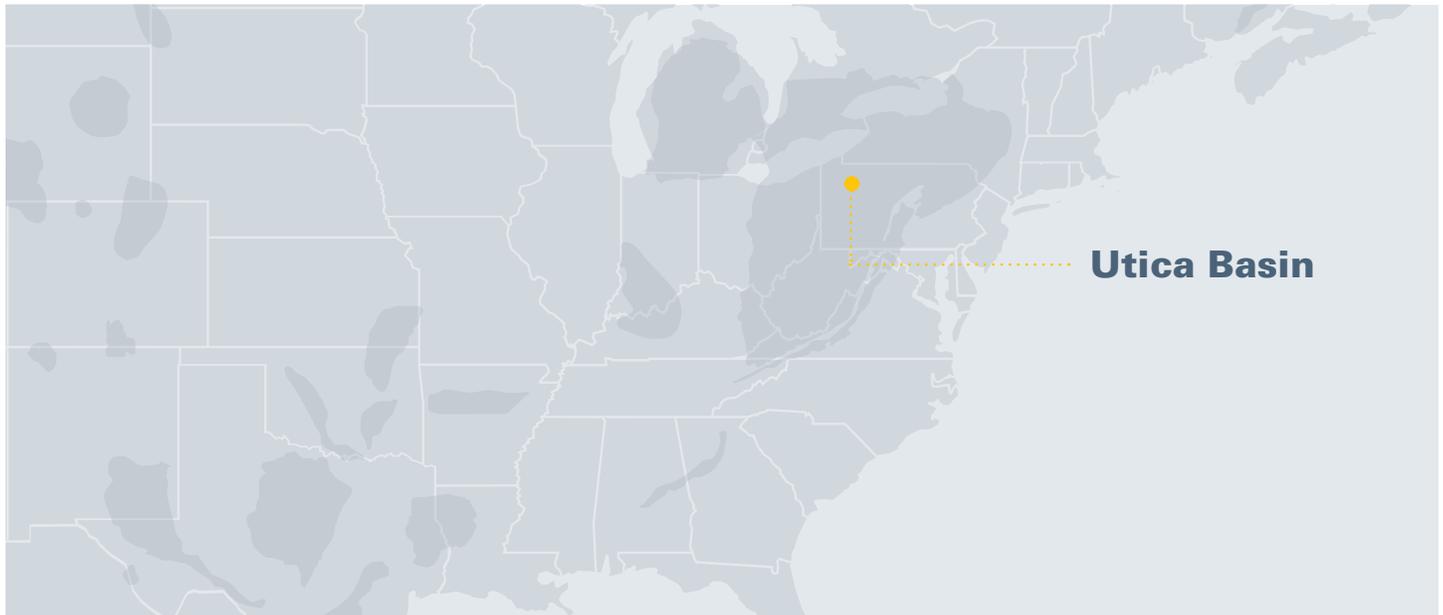
SPM™ Oil & Gas

A Caterpillar Company

Case Study

Utica Basin

A premier operator that operates 1,000s of wellheads in the Utica Basin and has named SPM Oil and Gas as its sole wellhead provider.



TOTAL SAVINGS:

An infographic with a yellow top half and a blue bottom half. It features two white chevron symbols pointing downwards. The top section says "Reduce Hazards" in white text on a yellow background, with "Internal Lock Ring for a safer site" in smaller white text below it. The bottom section says "\$500,000 Saved" in white text on a blue background, with "in potential equipment damage" in smaller white text below it.

Reduce Hazards
Internal Lock Ring for a safer site

\$500,000 Saved
in potential equipment damage



Seaboard™ Unitized™
Lock-Ring Wellhead

BENEFITS:

- Improves safety at the wellsite
- Casing head with internal lock down hangers with positive engagement, eliminating leak path risk due to lock screws penetration
- Offers greater HSE benefit compared to externally biased lock-rings
- Protects equipment beyond the wellhead from catastrophic events
- SPM Oil and Gas' Unitized™ Lock-Ring technology is available with Gen 1, Gen 2 and S-29 Wellheads

CASE STUDY

THE CHALLENGE

A premier operator operates 1,000 wellheads in the Utica basin and runs several SPM Oil and Gas' Unitized™ Lock-Ring wellheads with three strings of casing; 13 3/8", 9 5/8" and 5 1/2".

Recently, after the operator had finished the drilling process and ran all of its casing, it rigged up to begin the fracing process. As they began to pressure up to test its equipment, unbeknownst to its crew, the 5 1/2" casing downhole had parted. The pressure burst the 5 1/2" and 9 5/8" casings and filled the 13 3/8" casing, generating 8,500 psi that pushed against the 9 5/8" casing that was secured by SPM Oil and Gas' internally biased Unitized™ Lock-Ring technology. The extreme pressure caused the weld on the bottom of the casing head to fail and the wellhead to jump several feet in the air, removing it from the well.

Upon inspection, it was determined SPM Oil and Gas' equipment sustained 600,000 lbf of force. However, SPM Oil and Gas' equipment was intact and able to be pressured up on its 9 5/8" pack off to test the pressure of its seals; a testament to the enhanced safety of its internally biased Unitized™ Lock-Ring technology.



"...sustained 600,000 lbf of force... SPM Oil and Gas' equipment was intact..."

THE APPROACH

While the current industry norm is to utilize externally biased lock rings, SPM Oil and Gas purposefully engineered its Unitized™ Lock-Ring to be internally biased. Internally biased lock rings stay in place for the duration of the well, which provides the greater protection for personnel in the event of a catastrophic event like the one this operating company experienced.

THE RESULT

The most important outcome for the operator was the safety of its workers; no one was harmed. This was a direct result of SPM Oil and Gas' internally biased lock-ring technology's ability to reduce leak paths.

The Unitized™ Lock-Ring technology not only protected its workers but it also prevented other equipment on the site's surface from being damaged, saving the company \$500,000 minimum in potential repair and replacement costs.

SPM Oil and Gas' internally biased Unitized™ Lock-Ring essentially acted as a 'bulletproof vest' for personnel on-site that day. Due to the protection this technology provided to the crew, SPM Oil and Gas' engineering expertise and responsive partnership over nearly three years, the large operating company has named SPM Oil and Gas its sole wellhead provider. As the company upgrades its wellheads to the next generation, using SPM Oil and Gas' Unitized™ Lock-Ring technology will be a constant.

THE INNOVATION

Improving the safety of the frac site is SPM Oil and Gas' primary concern and its reason for being an innovator in internally biased lock-ring technology. While externally biased lock-rings can fail to snap securely in place, which puts crews at risk, SPM Oil and Gas' internally biased lock-ring technology is superior due to its drive ring which locks the lock-ring in place. This allows for a positive lock indication, due to the number of rotations needed, and prevents the lock-ring from collapsing during extreme wellbore pressures. SPM Oil and Gas' internally biased lock-ring and drive ring are rated for 1.4 million pounds of force. Additionally, elastometer retention seals in the wear bushing replace numerous lock screws, which eliminates labor as well as potential leak paths. This limits workers exposure to a dangerous environment while mitigating the need for multiple assemblies and wellhead penetrations.

SPM Oil and Gas' Unitized™ Lock-Ring technology further enhances safety with a casing head featuring internal lock down hangers with positive engagement to further reduce leak risks.

With SPM Oil and Gas' Unitized™ Lock-Ring technology, operators can dramatically improve site safety.



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