

SPM[®] EdgeX[™] Valve and Carbide Seat

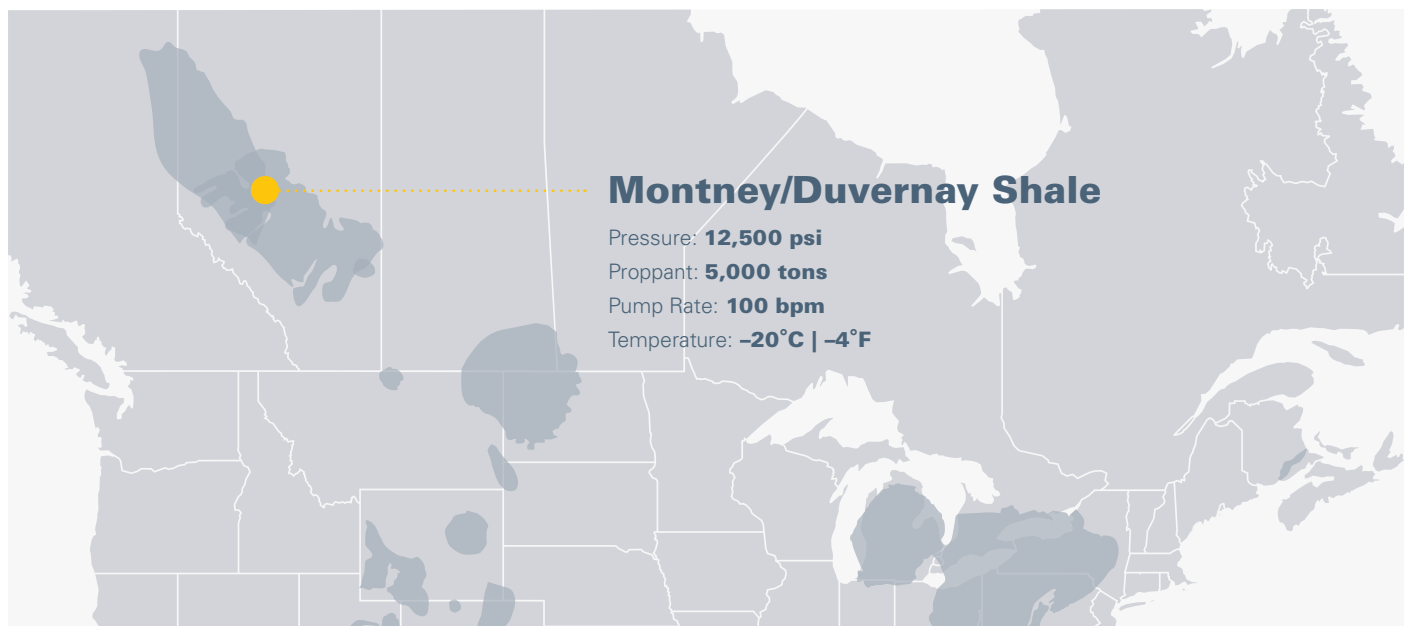
515 Hours of Seat Life with Trican Well Service, Ltd. in Western Canada

SPM[™] Oil & Gas

A Caterpillar Company

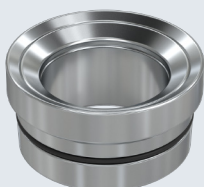
Case Study

Trican Well Service Ltd., an oilfield services provider in Western Canada subjects its frac equipment to some of the most challenging conditions found in the industry. It routinely pumps high volumes of proppant at pressures up to 12,500 psi during harsh winter operations (-20°C | -4°F). Standard seats typically have an average life of 80 hours. During a three-month field trial with the SPM[®] EdgeX[™] Valve and Carbide Seat, the engineered seats ran a record-breaking 515 hours—a 540% increase compared to previous seats—dramatically increasing safety and nonproductive time.



AT A GLANCE

- Constructed of tungsten carbide and stainless steel
- Replaceable in the field
- Compatible with any tapered fluid end
- Resists shattering
- Improves safety
- Reduces NPT



THE FACTS



540%
increase in
seat life



-20°C | -4°C
operating
conditions



515 hrs.
average run
time

CASE STUDY

THE CHALLENGE

The Montney and Duvernay plays in Canada subject hydraulic fracturing equipment to some of the most challenge facing environments there are due to high pressures, high proppant volumes and the extremely cold temperatures, which can range -5 to -15°C (23 to -4°F) in the winter. These are unforgiving conditions that prevent the use of less durable frac equipment and components.

Trican Well Service Ltd. operates pumps in both shale plays and wanted to carve out greater efficiencies to further streamline their multi-well pad operations and reduce their non-productive time (NPT). Pulling valves and seats is the most labor-intensive part of fluid-end maintenance, increasing NPT when fluid ends are offline. While 80 hours is a typical life span, our customer was eager to extend maintenance intervals and wanted to eliminate seat replacement and maintenance on the pad.

Pumping 2°C (36°F) water in -20°C (-4°F) weather has been known to cause tungsten carbide fluid-end seats to become brittle or shatter, increasing consumables and labor costs. Additionally, the oilfield service provider pumped 5,000 tons of sand rather than the typical 1,200–1,400 tons of sand used in offset wells, subjecting their seats to significantly more erosion.

THE APPROACH

SPM Oil & Gas proposed a three-month field comparison, monitoring the SPM® EdgeX™ Carbide seats and tracking their performance against competitors on a single pump. The frac sites where the test took place had operating conditions as follows: 12,500 psi, 5,000 tons of sand/stage, produced water, 100 bpm, and temperatures well below freezing (-20°C | -4°F). The SPM® Edge Engineering Field Assist Team supervised the test, checking sets at regular maintenance intervals and comparing them for wear.

THE RESULT

The SPM® EdgeX™ Carbide Seat produced dramatic results for our oilfield services customer. Unlike tungsten carbide seats which can become brittle or shatter due to cold weather, the SPM® EdgeX™ Carbide Seats saw no performance impact due to the cold temperatures and lasted 6x longer than the previous seats.

Trican Well Service Ltd. ran the SPM® EdgeX™ Carbide Seats a record-breaking 515 hours compared to the 80-hour average of conventional seats—increasing seat life approximately 540%. In fact, the operator finished the job before the seats could be run to failure, which gave the crew confidence the new SPM® EdgeX™ Carbide Seats will last even longer.

Based on this successful field trial, the operator immediately ordered SPM® EdgeX™ Carbide Seats to outfit their fleet. The SPM® EdgeX™ Valve and Carbide Seat completely eliminated the need to pull seats on site, leading to longer pump time, reduced maintenance, and increased customer satisfaction.

THE SOLUTION

SPM Oil & Gas' patented SPM® EdgeX™ Carbide Seat sets a new industry standard by increasing seat life six times compared to conventional seats, which typically last an average of 80 hours. It is a timely solution for operators focused on pump utilization and reducing downtime for pump maintenance. Engineered with the nuances of the entire frac site in mind, the SPM® EdgeX™ Carbide Seat enables operators to push their frac fleets harder while significantly reducing maintenance time and costs for valves and seats. This dramatic increase in longevity enables operators to reduce the amount of time pulling seats on site while reducing expenses for a costly consumable.

The SPM® EdgeX™ Carbide Seats offer greater resistance to wear, cracking and washout, even with large particles. It fits any standard taper fluid end and eliminates sensitivity to installation errors due to its strategic design and placement of tungsten carbide and steel. Designed with field maintenance in mind, it is pulled and seated in the fluid end the same way as a standard legacy seat—requiring no special tools or special installation procedures.

Increases seat
life by **6X**,
even in the
harshest fracing
conditions

