

# Hammerhead Resources Sets North American Pumping Records

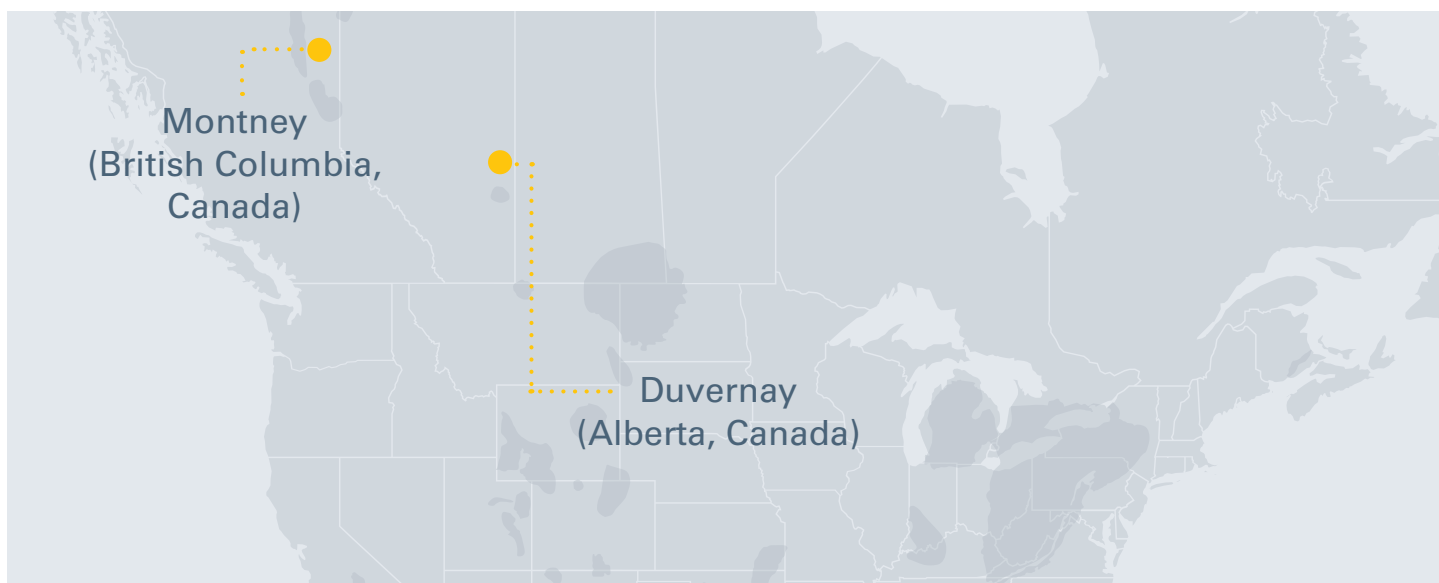
OSL Frac Connection delivers ambitious 18 m<sup>3</sup>/minute pump rate.

## SPM™ Oil & Gas

*A Caterpillar Company*

### Case Study

When another service provider failed to deliver Hammerhead Resources' ambitious 18 m<sup>3</sup>/minute pumping targets, the operator partnered with SPM Oil & Gas, for frac equipment services. The 15,000-psi SPM™ One Straight Line (OSL) Frac Connection helped Hammerhead simplify its rig site and reduce risk while breaking industry records for tonnage pumped in 24 hours.



### TOTAL SAVINGS



**\$1 Million**

in pump time



**\$640,000**

in replacement costs



**\$160,000**

in repair costs

### THE FACTS



**NEW RECORD:**

**4,500 tons**

of proppant pumped in 24 hours



**PUMP RATE:**

**18 m<sup>3</sup>**

Per Minute



**RIG-UP TIME:**

**48**

Hours



**FRAC TIME:**

Just Over

**2 Days**

## CASE STUDY

### THE CHALLENGE

With more than 200,000 net acres in each of the Montney and Duvernay Formations, Hammerhead Resources is continually looking for innovative, new ways to optimize its hydraulic fracturing operations. To maximize completion efficiency, Hammerhead sought a pump rate of 18 m<sup>3</sup>/min. After another service provider failed to deliver this high pump rate, Hammerhead hired SPM Oil & Gas, to provide frac connection technology for a total of 12 wells across two pads in the Montney Shale.

### THE APPROACH

SPM Oil & Gas recommended the 15,000-psi SPM™ One Straight Line (OSL) Frac Connection—and worked around the clock to deploy and rig it up within 48 hours.

Computational flow dynamics (CFD) simulations and predictive erosion studies helped SPM Oil & Gas and Hammerhead identify and mitigate potential hazards. Throughout the campaign, SPM Oil & Gas provided proactive erosion monitoring and equipment inspections without impacting other operations. A second SPM Oil & Gas crew helped Hammerhead meet its aggressive pumping targets as scheduled.

### THE RESULT

On the first multi-well pad, Hammerhead placed 4,500 to 9,000 tons of proppant per well at pump rates ranging from 14.5 to 18 m<sup>3</sup>/minute—setting new records for tonnage pumped within 24 hours in North America. The SPM Oil & Gas team applied lessons learned to optimize wells during the next stimulation job. On the second pad, Hammerhead cut average frac time per well from 6 days to just over 2 days and placed up to 7,500 tons of proppant per well with minimal erosion.

In addition to enabling Hammerhead's ambitious pump rates, the innovative frac connection helped the operator simplify its frac site and reduce health, safety, and environment (HSE) risk. The OSL Frac Connection reduced rig-up time by approximately 71 % compared with previous configurations, saving approximately \$1 million.

Mitigating erosion helped Hammerhead prolong equipment life and save an estimated \$800,000 in repair and replacement costs. As a result of this successful campaign, Hammerhead named SPM Oil & Gas as its preferred frac equipment provider for the next three years.

### THE INNOVATION

Engineered for demanding frac applications, the patent-pending SPM™ One Straight Line Frac Connection significantly reduces the amount of iron and connections required on the wellsite. This means a corresponding reduction in nonproductive time (NPT), rig-up time, labor costs, potential leak paths, and safety hazards.

