

Costly Drilling Fluid Losses to Shakers Reduced by 26% in the Duvernay Shale

Operator achieves drilling goals and cuts costs using SCREEN PULSE fluid and cuttings separator and DURAFLO composite screens

CHALLENGE

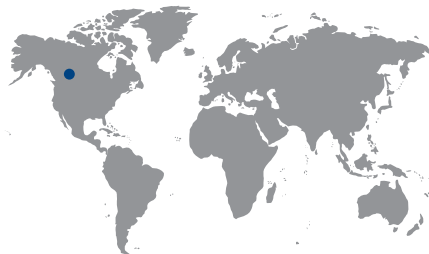
Reduce the amount of drilling fluid discharged on the drill cuttings and the volume of drilling waste produced while maintaining high-quality drilling fluid for the wells.

SOLUTION

Deploy SCREEN PULSE* fluid and cuttings separator on MONGOOSE PRO* dynamic dual-motion shale shakers with DURAFLO* composite replacement screens.

RESULTS

Saved CAD 22,000 during an 8-day trial with an average drilling fluid recovery of 20 bbl/d [3.2 m³/d].



Costly drilling fluid lost in drill cuttings at the shakers

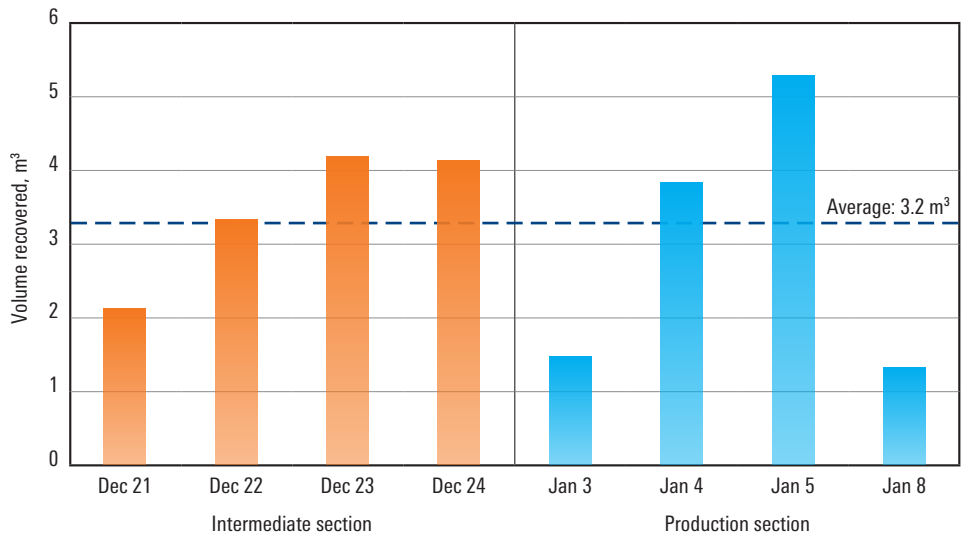
Drilling in the Duvernay Shale, an operator was concerned with the volume of VERSADRIL* diesel oil-based drilling fluid system being lost to drilled solids at the shakers. Due to the high ROP and extended length of the wells, low-gravity solids contamination needed to be mitigated at the shale shakers. The operator required a solution to reduce the amount of the VERSADRIL fluid system discharged on the drill cuttings and the volume of drilling waste produced while maintaining high-quality drilling fluid for the Duvernay wells.

Solution designed and tested for maximum performance

Based on a recommendation from M-I SWACO, a Schlumberger company, the operator selected the uniquely engineered SCREEN PULSE fluid and cuttings separator installed on two MONGOOSE PRO shakers to reduce losses of the VERSADRIL fluid system on drill cuttings. The technology was used in combination with DURAFLO composite replacement screens for maximum performance.

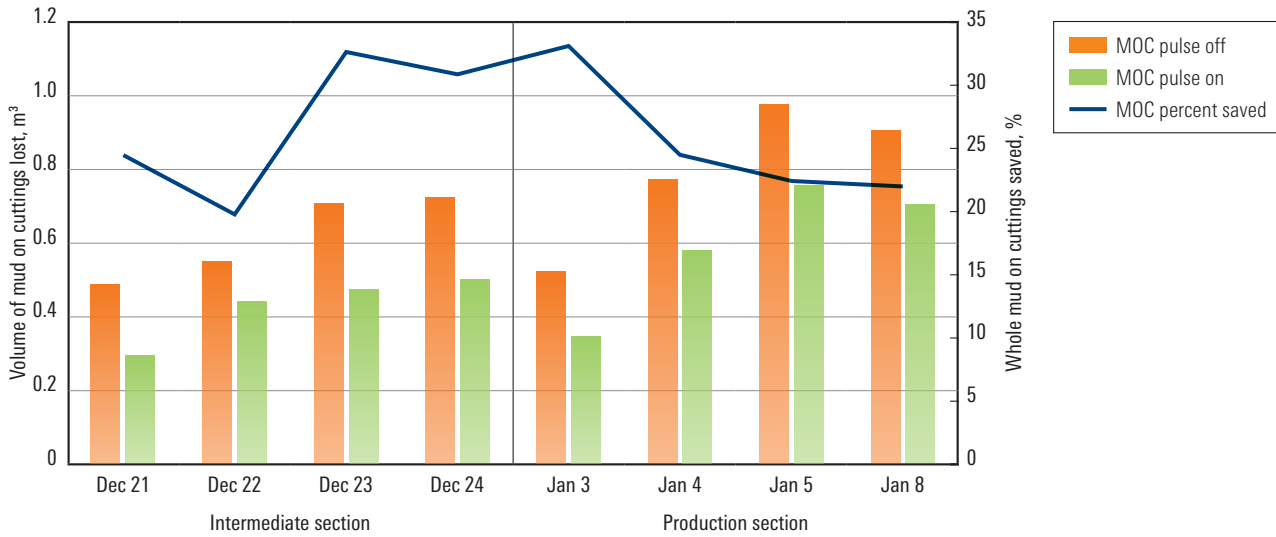
The SCREEN PULSE separators were attached to the scalping shakers beneath the last screen on the discharge end of the shaker to enhance drilling fluid maintenance and performance, reduce fluid loss at the shaker, and eliminate the residual free liquid on discarded drill cuttings.

To gauge the effectiveness of the SCREEN PULSE separators and calculate the value provided to the operator, solids analysis of the cuttings samples was conducted. Retort analyses were conducted following API standards to determine mud on cuttings (MOC) and volume of fluid recovered.



Daily fluid recovery.

CASE STUDY: Costly drilling fluid losses to shakers reduced by 26%, Western Canada



Whole mud on cuttings—pulse on/off.

Average MOC reduced by 26% and environmental impact lessened

Results for the operator were significant both financially and operationally. Notable improvements after installing the SCREEN PULSE separators on the two scalping shakers were

- average MOC reduction of 26%
- average oil retention on cuttings of 12% pulse off and 9% pulse on, representing an average reduction of 25%
- drilling fluid recovery average of 20 bbl/d [3.2 m³/d] of the VERSADRIL fluid system, resulting in CAD 22,000 in calculated savings from the recovered fluid over the 8-day trial
- reduced HSE profile and increased safety efficiency with less heavy equipment movement
- 76,150 lbm [34,541 kg] in waste reduction, plus additional savings in reduced mix-off material and haul-off costs
- no increase in low-gravity solids percent due to recovered fluid unlike other fluid recovery systems.

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