

Dual Pool® 626 vs. MONGOOSE® PRO™

- 35% drier cuttings discharge
- \$1855 daily drilling fluid cost savings

Objective

To compare the performance of the Derrick® Dual Pool® 626 shaker to the M-I SWACO® MONGOOSE® PRO™ shaker and evaluate the cost savings benefits.

Test Procedure

The Derrick Dual Pool 626 shaker and the M-I SWACO MONGOOSE PRO shaker were installed on a rig in Canada with a Derrick Flo-Divider™ to ensure equal distribution of flow. Testing commenced when the well displaced from water-based mud to oil-based mud (OBM; 8.0 PPG) at a depth of 7457 ft. Discard samples were taken per formation interval and averages were calculated from multiple samples. Sampling of the shaker discard was collected to determine the following:

1. Oil on Cuttings (OOC) of samples from each shaker
2. Total discard volume rate over time from each shaker
3. Discard rate of cuttings from each shaker

Oil On Cuttings Test

Unweighted Drilling Conditions:

Depth: 7457 ft **Bit Size:** 7-7/8" **ROP:** 9.8 ft/hr

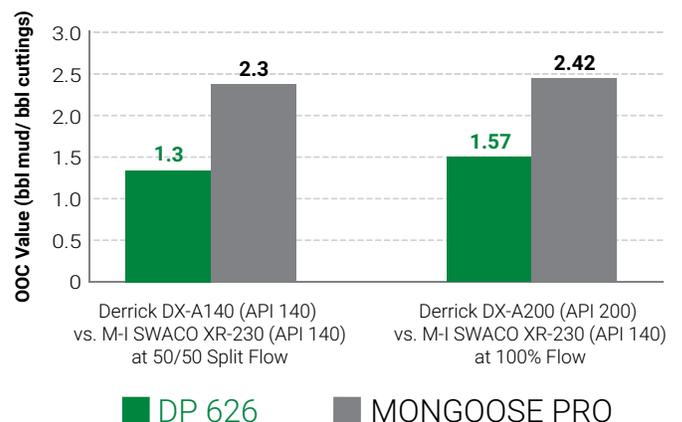
MW: 8.26 PPG **Circulating Rate:** 520 GPM

The first series of shaker discard testing consisted of MI-SWACO XR™-230 (API 140) screens placed on the MONGOOSE PRO and Derrick DX™-A140 (API 140) screens placed on the Dual Pool (DP) 626. Rig flow was split equally between both shakers and the deck angles of both shakers were set to give the same dewatering distance of 23 inches. The MONGOOSE PRO produced an OOC value of 2.3 bbl mud/bbl cuttings while the DP 626 produced an OOC value of 1.3 bbl mud/bbl cutting, reducing bbl mud/bbl cuttings by 43% by volume.



Rig flow was then adjusted to allow 100% flow to each shaker. The 100% flow test yielded 2.42 bbl mud/bbl cuttings value for the MONGOOSE PRO, while the DP 626 produced a 1.57 bbl mud/bbl cuttings value, reducing bbl mud/bbl cuttings by 37%. It was determined that the MONGOOSE PRO had reached its maximum capacity with the XR-230 screens while the DP 626 had additional deck angle availability. With this determination, DX-A200 (API 200) screens were placed on the DP 626 with 100% flow producing an OOC value of 1.57 bbl mud/bbl cuttings, reducing bbl mud/bbl cuttings by 35% by volume.

Oil on Cuttings Unweighted Drilling Conditions



Weighted Drilling Conditions:

Depth: 11,234 ft **Bit Size:** 7-7/8" **ROP:** 87 ft/hr

MW: 11.76 PPG **Circulating Rate:** 528 GPM

During the lateral section of the hole in the Montney formation, drilling rates reached in excess of 300 ft/hr with weighted mud. Consistent with operator specifications, 50/50 split flow was distributed to M-I SWACO XL™-165 (API 140) screens on the MONGOOSE PRO and Derrick DX-A170 (API 170) screens on the DP 626 with optimum deck angles to produce an equal drying distance. The MONGOOSE PRO produced an OOC value of 2.08 bbl mud/bbl cuttings while the DP 626 produced an OOC value of 0.82, reducing bbl mud/bbl cuttings by 61% by volume.

Capacity

During the test with an 8.26 PPG OBM, the maximum capacity of the MONGOOSE PRO with XR-230 (API 140) screens was determined to be 520 GPM at its maximum screen angle of +8°. The DP 626 was able to process the same flow of 520 GPM with DX-A200 (API 200) screens at a screen angle of +4.5°, leaving the capability to increase flow by increasing the deck angle another +2.5°.

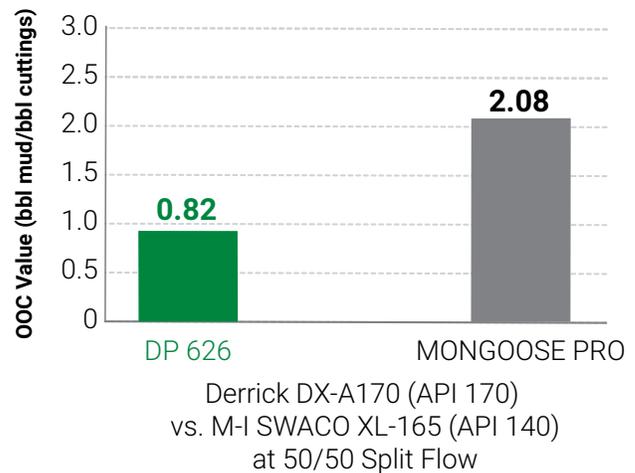
Cost Savings

An average savings of \$1885/day in discarded drilling fluid was seen throughout the OBM section of the well when using the DP 626. Savings were calculated with the cost of OBM drilling fluid at \$190/bbl and the OOC value difference between the MONGOOSE PRO and DP 626 collected above.

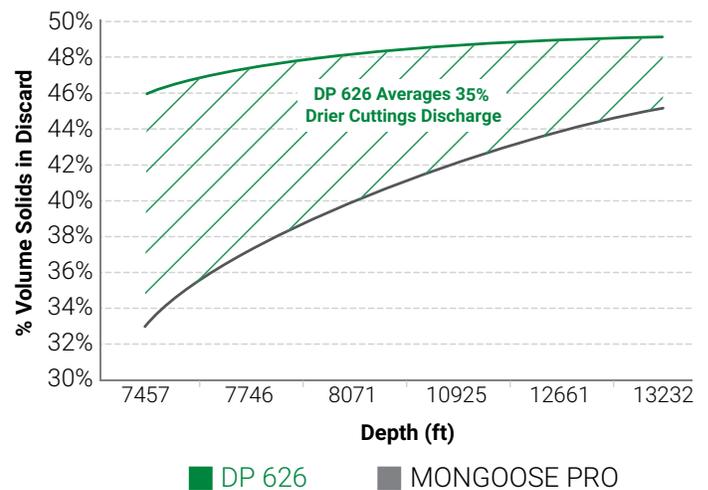
Conclusion

The Dual Pool 626 provided an average of 35% drier cuttings discharge while running one API screen size finer and provided \$1855 daily in drilling fluid costs.

Oil on Cuttings Weighted Drilling Conditions



Cuttings Dryness Comparison



For more information, please contact your local Derrick sales representative.

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