CASE STUDY

Mongoose Pro outshines predecessor shaker in direct field comparison: Oklahoma

The Mongoose* Pro shaker, the latest upgrade to the Mongoose line of shale shakers, outperformed an earlier generation shaker in both flow capacity and cuttings discard rates while maintaining the same cuttings dryness.

Well Information

Location ..... Elk City, Oklahoma

Spud ..... February 19 – March 15, 2011

Fluid type ..... Invert oil-based

Density ..... 9.92 lb/gal (1.19 s.g.)

The Situation

The new generation Mongoose Pro shaker was engineered to operate in both the Capacity and Efficiency modes of operation. The Efficiency mode is a Progressive Elliptical (PE) motion that produces 6.5 G, while the Capacity mode is a Balanced Elliptical (BE) motion producing 7.5 G. A direct comparison with an earlier generation M-I SWACO shaker was conducted to verify the ability of the Mongoose Pro shaker to provide improved performance to meet the ever demanding requirements of today's drilling operations. M-I SWACO identified three critical criteria to assess overall shaker performance: flow capacity, cuttings discard rate, and cuttings dryness.

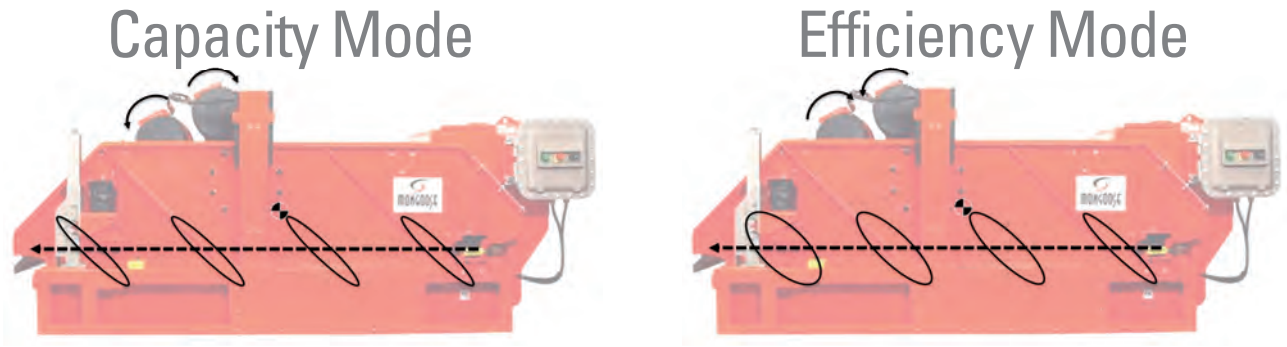

Figure 1

Two modes of operation on the Mongoose Pro

The Solution

A rig in Oklahoma was selected for the head-to-head comparison. In February 2011, the Mongoose Pro was installed next to the control shaker, with the two connected to a manifold that would carry 9.92 lb/gal oil-based drilling fluid evenly to both units.

Three objectives were outlined with the subsequent performance data to be captured during the drilling of this well. During the operation, the Mongoose Pro was operated in the PE mode while the control shaker was operated in the BE mode, under the same drilling conditions. Real-time comparative data on flow capacity, cuttings discard rate and cuttings dryness were collected from both the Mongoose Pro and the control shaker during the drilling operation.

The Results

Test results from the well confirmed the superior performance of the Mongoose Pro shaker. To maintain comparative control, both shakers were installed with the same parameters: deck angle (0°), screen mesh (API 140), and fluid pond coverage (75% screen coverage). During the 8 ½ in. section at a depth of 3,300 ft (1,006 m) with an ROP of 100 ft/hr (30.4 m/hr), the Mongoose Pro processed a maximum flow rate of 410 GPM, or 70% of the overall circulating flow rate. Meanwhile, the control shaker processed a maximum flow rate of 293 GPM, amounting to only 50% of the overall circulating rate. Compared to the control shaker, the Mongoose Pro, while running in the Efficiency mode, averaged an overall 28% increase in maximum flow rate, but 20% on the well volume.

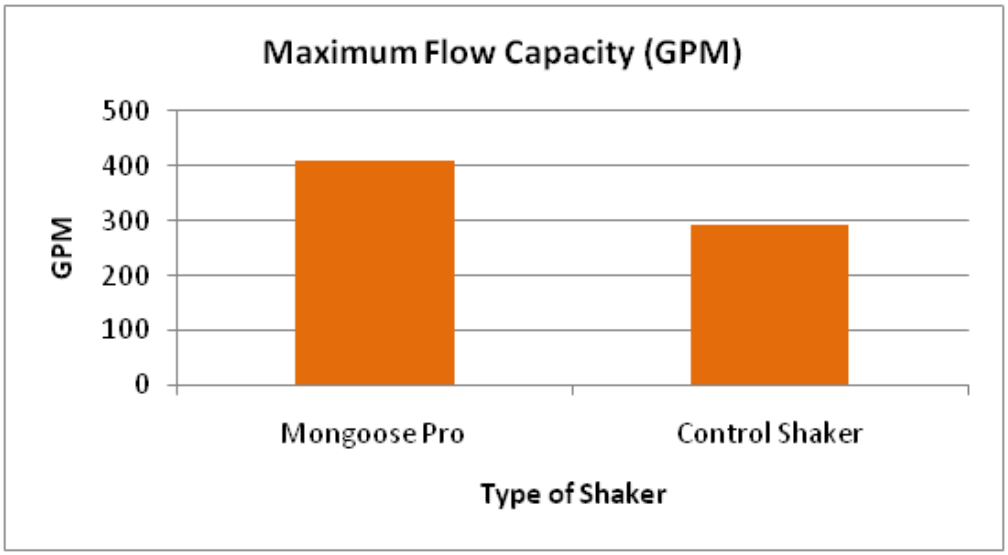

Figure 2

In the 8 ½ in. section, the maximum cuttings discard rate measured for the Mongoose Pro shaker was 3,484 lb/hr (1,580 kg/hr) compared to the control shaker's maximum cuttings discard rate of 2,400 lb/hr (1,089 kg/hr). Overall, the Mongoose Pro delivered a 33% increase in cuttings discard compared to the control shaker while maintaining the same cuttings dryness.

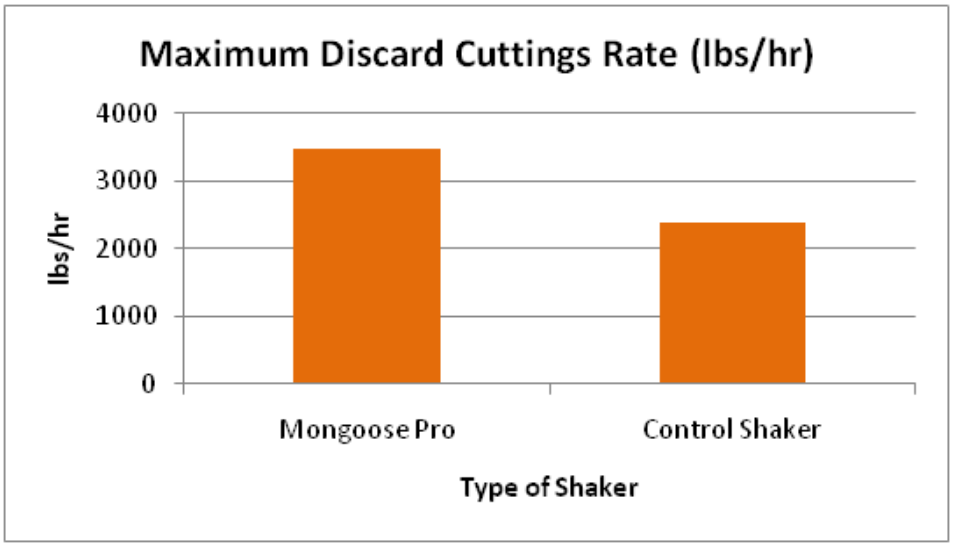

Figure 3

Although the Mongoose Pro shaker displayed the capability to handle a higher fluid capacity and process a higher volume of cuttings, the shaker was able to achieve the same level of cuttings dryness. The Mongoose Pro and the control shaker both delivered average cuttings dryness of 68% "dry" and 32% "wet."

Questions? We'll be glad to answer them.

If you would like to know more about the Mongoose Pro shaker and how it's performing for our other customers, please call the M-I SWACO office nearest you.

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M-I SWACO
A Schlumberger Company

P.O. Box 42842
Houston, Texas 77242-2842
www.miswaco.slb.com
Email: questions@miswaco.slb.com