

COMPACT VERTI-G Dryer Enables Compliant Overboard Disposal, Saves Operator USD 127,740

Small-footprint solution helps Atwood Oceanics reduce average ROC to 1.77%, eliminate dedicated transportation and associated costs, offshore Gulf of Mexico

CHALLENGE

Meet retention-on-cuttings (ROC) requirement of 6.9% to enable overboard disposal of drilling solids, thereby eliminating dedicated shipping operations and decreasing disposal costs.

SOLUTION

Use COMPACT VERTI-G[†] low-profile cuttings dryer to decrease ROC.

RESULTS

- Averaged 1.77% ROC in the first 2½ months since the dryer's installation, surpassing the 6.9% requirement for compliant offshore disposal.
- Averaged 1.33% ROC over 3,694-ft
 [1,126-m] underreamed section compared
 with 2.63% achieved using a different
 cuttings dryer in the same hole section
 of a similar well in the field.
- Saved USD 11,940 in transportation and handling costs and USD 115,800 in whole mud volume.



Decrease transportation and discarding costs by enabling compliant overboard disposal

Atwood Oceanics was drilling offshore in the Gulf of Mexico, where regulations require using a centrifuge and dryer to treat cuttings that will be disposed overboard. A sample of cuttings from each piece of equipment must be tested every 500 ft [152 m] and analyzed with a mass-balance retort. These results are then used to calculate the well's average ROC, which must remain below 6.9% for overboard disposal.

If the ROC is too close to the regulatory requirement, drilled cuttings are sent to a cuttings box, causing increased rig time and expenses on shipping and disposal as well as restricting the ROP to the available volume in the cuttings boxes on the location in a given time. During cuttings treatment, however, if the discharge from the dryer is too dry, there will be issues with sticking and equipment packoff.

Deploy reduced-footprint COMPACT VERTI-G low-profile cuttings dryer

The operator requested that M-I SWACO install its COMPACT VERTI-G low-profile cuttings dryer on its Advantage rig in the Gulf of Mexico. The COMPACT VERTI-G dryer is a high-capacity vertical centrifuge with a screen mesh basket and dedicated centrifuge to help reclaim more fluid. With a maximum drying rate of 61 metric tons per hour, the COMPACT VERTI-G dryer dries cuttings to less than 5% ROC, reducing the volume of discarded waste.

The dryer includes hard-faced, adjustable, rotating flights that brush cuttings to the screen surface, helping to prevent blinding and decrease potential downtime. This separation is achieved by strategically deploying $327 g_n$ [3,206 m/s²] at the base of the cone to keep solids moving through the system and also by spending more time in the fluid-removal stage of the treatment compared with conventional drying techniques.



The COMPACT VERTI-G dryer incorporates a high-speed vertical centrifuge that achieves maximum liquid-solid separation in large-volume processing.

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Enable offshore disposal, save USD 127,740 in costs

In the first 2½ months after its installation, the COMPACT VERTI-G dryer achieved an average ROC of 1.77%. With the dryer in place, clean drilling fluid flowed from the unit at approximately 10 galUS/min [38 L/min], maintaining a steady flow returning to the active system.

In a 21-in hole section of a similar well in this field, a different cuttings dryer was producing an ROC of about 2.63%. In the subject well, the 3,694-ft [1,126-m] 21-in hole section was underreamed at an ROP of 80 ft/h [24 m/h] and an average ROC of 1.33%. Additionally, 398 bbl of 12-lbm/galUS [1.43-g/cm³] drilling fluid was reclaimed in the section.

In just that section, the fluid recovery from the COMPACT VERTI-G dryer saved Atwood Oceanics USD 11,940 in transportation and handling costs and USD 115,800 in whole mud volume. Over the 2½ months, the dryer also did not require shutting down for cleaning, which would lead to slower drilling and limited volume availability.



The ROC obtained by the COMPACT VERTI-G dryer over the 3,694-ft underreamed interval was half the ROC obtained using a conventional dryer in an offset well over a similar interval.

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