

Baroid Slurry Handling System Provides Cost-Effective Waste Disposal Solution

SYSTEM ENABLES OPERATOR TO ACHIEVE ZERO DISCHARGE WHILE DRILLING IN ENVIRONMENTALLY SENSITIVE AREA

OFFSHORE BRUNEI, SOUTHEAST ASIA

CHALLENGES

- » Deliver a well with zero discharge within an environmentally sensitive and protected area
- » Provide cost-effective waste disposal

SOLUTIONS

- » Custom-designed slurry handling system to efficiently remove solids from the drilling fluid
- » BaraStream™ SV400 portable cuttings and fluid transfer unit to support environmentally safe rig cleanup operations

RESULTS

- » Successfully drilled and completed the well without any environmental impact within protected area
- » Efficiently handled, stored, treated, and transported cuttings slurry and other drilled solids
- » Enabled operator to meet environmental regulations through onsite processing of cuttings, and efficient handling and transportation of the treated waste to an approved offshore disposal site
- » Eliminated need for high-cost container rentals, transportation, and onshore disposal

OVERVIEW

An operator planned to drill a well inside an environmentally sensitive area offshore Brunei in the Southeast Asia region. In response to the zero-discharge policy required at this drilling location, Halliburton proposed a Zone 1-certified cuttings slurry unit to store and transfer cuttings slurry while drilling. An environmentally safe and economical skip-and-ship method was also employed, whereby treated cuttings would be shipped to an offshore disposal site. And to provide a rig cleanup method that would not contaminate the surrounding waters, the Halliburton BaraStream™ SV400 portable cuttings and transfer unit was chosen for its clean, air-operated, and diesel-free pumping, which makes it intrinsically safe and in compliance with Zone 1 requirements. Onsite collaboration between the Halliburton Surface Solutions team and drilling fluid mud engineers also contributed to the project's success, as it helped to maximize slurry handling efficiency, while minimizing the generation of hazardous waste.

OPERATOR SEEKS 'ZERO-DISCHARGE' SOLUTION IN ENVIRONMENTALLY SENSITIVE AREA

The planning of a well within an environmentally sensitive area poses issues outside the realm of typical offshore drilling considerations. At this rigsite, for example, using the existing "barge" drilling units was deemed unfeasible without an alternative method to handle and safely dispose of cuttings under a zero-discharge policy. With respect to an acceptable skip-and-ship method, coastal disposal was not an option since it would demand changing the available drilling unit to another type, such as a jackup unit, in order to execute the project. However, that was ruled out by the customer as too costly an alternative. This situation called for a safe and cost-effective waste disposal solution, leveraging new cuttings management technologies that reduce the health, safety, and environmental (HSE) risks footprint of drilling operations.

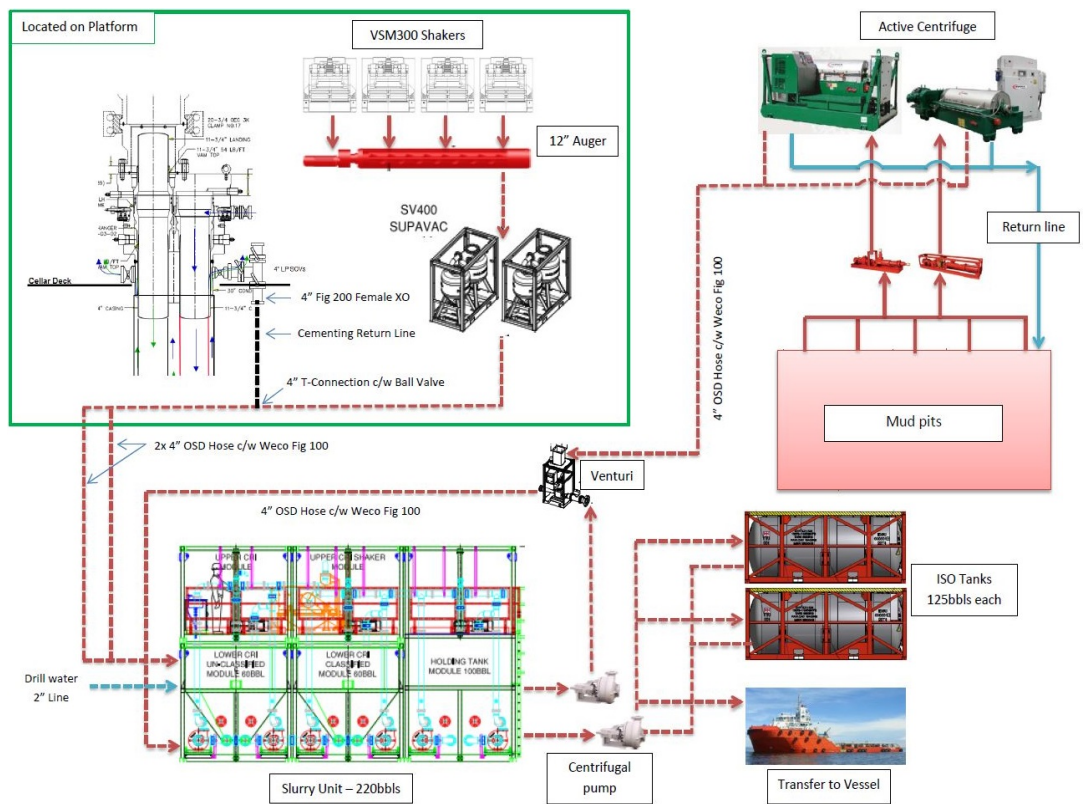
BAROID DESIGNS CUSTOMIZED SLURRY HANDLING SYSTEM

The Halliburton team got involved six months before the scheduled start date to proactively plan for a comprehensive, customized slurry handling system suited for this location. Rig visits were conducted, well information was gathered, and internal/external meetings were held to ensure that not a single detail was overlooked. Close communication ties between the team and customer representatives were established, both onshore and offshore, and remained so throughout the project.

The Halliburton drilling waste management solution, with a cuttings slurry unit as the main component, provided a safe and cost-effective method for drilling-waste disposal with zero discharge in an environmentally sensitive area.

Working within the known limitations of the offshore rig setup, Halliburton designed a slurry handling system that required only limited deck space. The slurry treatment chemicals ordering system and storage were also consolidated to facilitate logistics and optimize limited space. The slurrification system was designed to handle all drilled solids, waste mud, and other well-related materials, such as excess cement and gravel-pack fluids. The system blended these waste streams into slurry form, which was then pumped to a support skip-and-ship vessel – in this case, for offshore disposal.

The BaraStream™ SV400 unit was used to transfer all cuttings from the auger to the slurry unit, with a capacity of 220 bbl of slurry. In addition, two 125-bbl ISO tanks were on hand to store extra slurry when transfer vessels were unable to come alongside the rig due to unfavorable weather conditions or delays in vessel turnaround time. This extra storage capacity provided an additional buffer capacity and ensured extended drilling time.



Flow diagram of slurry handling system custom-designed for operating in an environmentally sensitive area offshore Brunei.

SOLUTION ENABLES OPERATOR TO ACHIEVE ZERO-DISCHARGE OFFSHORE DRILLING

The Halliburton drilling waste management solution, with a cuttings slurry unit as the main component, provided a safe and cost-effective method for drilling-waste disposal with zero discharge in an environmentally sensitive area. The solution allowed the operator to meet environmental regulations through onsite processing of cuttings, and efficient handling and transportation of the treated waste to an approved offshore disposal site. An added benefit was the elimination of high-cost container rentals, transportation, and onshore disposal.

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