Case History
Drilling Waste Management

Dual HH-5500 Centrifuge Dewatering Units Successfully Maintain Mud Weights while Drilling through Surface and Intermediate Sections
Location: Wattenberg Field, Colorado Rockies

**OPERATOR’S CHALLENGE** – While operating in the Wattenberg Field in the Colorado Rockies, an operator was attempting to maintain mud weights at or below 8.6 ppg while drilling through surface and fast-hole/intermediate sections. The customer found that by using a single HH 5500 unit while drilling through these sections, the mud weights would slowly creep up to approximately 9 to 9.1 ppg.

**HALLIBURTON’S SOLUTION** – To maintain mud weights per the customers’ requirements, Halliburton Baroid implemented dual HH-5500 centrifuge dewatering units with an updated Enviro-Flo® unit, which provided the customer with the ability to process fluids at a much higher rate while drilling through surface and fast-hole sections than with a single HH-5500 centrifuge unit. This solution maintained mud weights at or around 8.6 ppg throughout these sections. Baroid recommended using two centrifuges instead of one (in case any mechanical issues arose) to prevent their operation from being shut down.

Baroid was also able to increase the hydration time for flocculant and in turn improve performance by updating the dewatering unit with larger mixing tanks.

Using dual dewatering units increased the customer’s ability to maintain the active system fluid properties at certain levels. This solution also allowed drilling to continue at a faster ROP, while also improving the ability to clean fluids so that they could be reused on multiple wells.

Baroid’s experience with dewatering closed-loop packages in this challenging area is recognized for the following:
- 40 horizontal Niobrara wells delivered to the business unit (an increase of 14 from 2011)
- 449,172 ft drilled (an increase of 157,000 ft from 2011)
- A record of 5.98 days spud to rig release well (a DJ Basin horizontal record)

Furthermore, this operator recognized Baroid for their ability to provide this type of high returns while:
- A safety record in 2012
- Zero recordable or lost-time incidents (954 days without a recordable or lost time since the customer acquired the well)
- Zero COGCC reportable spills

**ECONOMIC VALUE CREATED** – The success of the dual HH-5500 centrifuge units allowed the customer to maintain the rig’s active system at the ppg levels requested, while removing more solids content and improving the mud properties throughout all sections of the well. The use of dual units enabled the centrifuges to run conventionally in certain parts of the well, which limited the need to dewater, thus saving the customer money on chemical costs.
Further added value to the customer was derived from the updated Enviro-Floc unit that allowed for longer hydration times in the flocculant-mixing tanks, as well as the use of ferric chloride, which increased the dewatering performance and minimized chemical use. By using dual HH-5500 centrifuge units, the customer is drilling wells faster than ever before. Baroid has helped the customer to save approximately 8 hours of dewatering time on each well, which has dramatically decreased both equipment and chemical costs.

In creating a quantifiable value to the customer by decreasing the amount of dewatering needed while drilling, Baroid has delivered a quality product that saves the customer time and money, while maintaining and improving drilling ROP as a result of cleaner fluid/lower solids content.