

BaraPure® Salt-Free NAF System Improves Performance in Canada

BARAPURE® SYSTEM SUCCESSFULLY DRILLS 8,900 METERS (29,200 FEET) IN UNCONVENTIONAL FIELD

ALBERTA, CANADA

CHALLENGES

- » An operator in Alberta, Canada, wanted to reduce project costs in an unconventional pad.
- » High waste disposal costs/logistics were key concerns when drilling with conventional invert emulsion fluid (NAF) systems.

SOLUTION

- » The BaraPure® salt-free, high-performance NAF system was applied as a field trial to three wells on the unconventional pad.

RESULTS

- » The BaraPure system successfully drilled approximately 8,900 meters (29,200 feet).
- » Drilling performance met or exceeded levels of conventional NAF systems.
- » Improved solids control efficiency of fluid helped operator save approximately USD 150,000.

OVERVIEW

A major operator in Canada wanted an innovative way to reduce project costs in unconventional wells. Drilling waste disposal costs were a focal point, and logistics and distance to waste treatment facilities were significant considerations. The high clay content of the formations and lateral well designs required a highly inhibitive fluid to maintain wellbore stability. The operator was seeking a drilling fluid that could meet or exceed the performance of a traditional non-aqueous fluid (NAF) and deliver additional waste management options.



Sample cuttings from well drilled with BaraPure® Fluid System

High value was placed on the ability to reduce or eliminate transportation of cuttings for final treatment.

SOLUTION

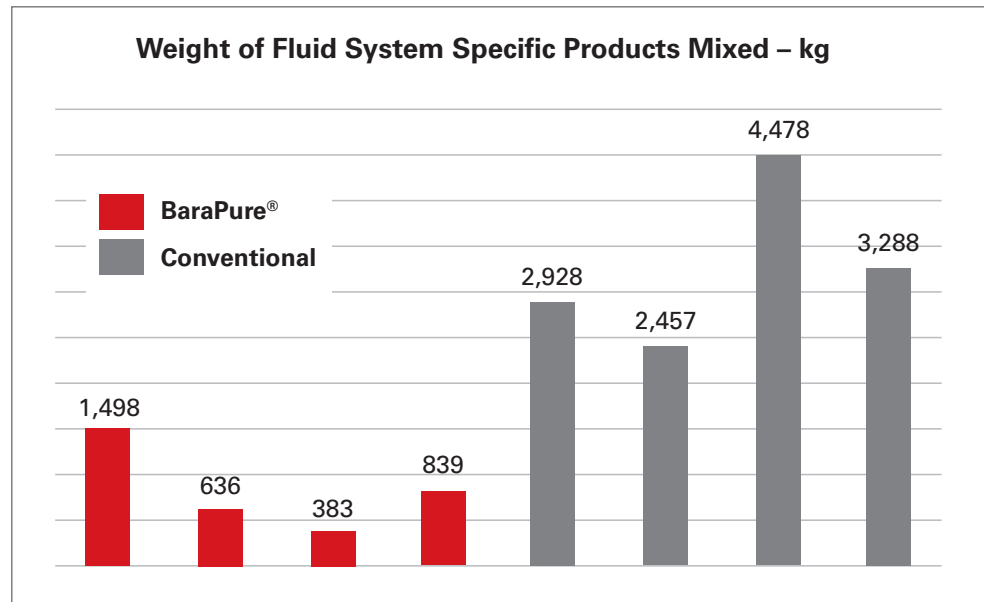
Halliburton Baroid recommended a field trial of the new BaraPure® salt-free NAF system. The salt-free formulation could allow the operator to potentially land-farm the drill cuttings on site without inhibition of plant growth or water quality. The operator agreed to apply the system as a first-use field trial to verify drilling performance in a well-known, low-risk area. The Baroid team then conducted numerous lab tests to identify the optimum drilling fluid formulation.

The BaraPure system was applied to three wells in the same pad, with target metrics similar to conventional NAF systems. The BaraPure system demonstrated inhibition, cuttings integrity, and drill rates equal to or better than the conventional system used on previous projects drilled on the same pad. The operator successfully drilled approximately 8,900 meters (29,200 feet) and noted that the casing runs were the best the operator had seen. Additionally, dilution rates were reduced by up to 50 percent, and lower retained-oil-on-cuttings (ROC) levels were observed. Compared to the previous NAF systems, the BaraPure system required only a quarter of the additives throughout drilling, and average ROC levels were reduced by approximately 37 percent. The lower volume of additives required throughout the project, coupled with the lower ROC levels, helped reduce overall waste volumes.

RESULTS

Drilled cuttings samples from the BaraPure® wells were collected and sent back to the Baroid labs for biodegradation studies. The lab results indicated that the salt-free formulation sufficiently reduced salinity levels to allow alternate and more cost-efficient waste disposal methods, including blending the salt-free waste with native soil for onsite land-farming of cuttings. Though the operator did not choose to land-farm cuttings on this particular project, it was pleased with both the drilling performance and the environmental test results of the fluid system.

Overall cost savings for the project were estimated at USD 150,000, primarily as the result of improved solids control efficiency of the fluid. The operator is currently considering potential applications of the BaraPure system in other parts of the world, with cost savings expected to further improve with utilization of complementary waste treatment and disposal methods.



Lower dilution rates and improved performance allowed the BaraPure® system to reduce overall product usage and required only a quarter of materials compared to conventional NAF systems.