



## CleanDrill™ HD Divalent Brine-Based Reservoir Drill-In Fluid Successfully Used to Drill Open-Hole Interval, Offshore USA

An engineered solution using CleanDrill™ HD reservoir drill-in fluid (RDF) was successfully tested and deployed in Offshore USA, providing increased density of the fluid design with excellent cuttings transport

CHALLENGE	SOLUTION	RESULT
<ul style="list-style-type: none"> <li>• Drill &amp; complete horizontal open-hole interval</li> <li>• Minimize fluid loss during completion screen assembly installation</li> <li>• Increase density of system from 11.5lb/gal to 12.0lb/gal</li> </ul>	<ul style="list-style-type: none"> <li>• CleanDrill™ HD minimally damaging divalent brine-based RDF</li> <li>• Specially formulated for formation compatibility and density</li> <li>• Provide necessary rheology for excellent cuttings transport efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• Successfully drilled open-hole interval with increased density</li> <li>• Maintained superior fluid loss control while drilling interval</li> <li>• Able to run completion screen assembly to TD without incident</li> </ul>

### OVERVIEW

Reservoir drill-in fluids (RDFs) are minimally damaging fluids designed to meet performance requirements while drilling and preserving reservoir targets during completion operations.

A greater emphasis on open-hole completions in the drilling and completion phase has resulted in the development of optimized and minimally damaging RDFs. Divalent brine-based RDFs such as CleanDrill™ HD are often used in higher pressure reservoirs.

### CHALLENGE

An operator in the Louisiana offshore Gulf of Mexico market required a solution to drill and complete a well where the density had to be increased at TD, thereby increasing the density of the RDF prior to the open hole completion.

This included adjusting the density of the current CaCl<sub>2</sub> RDF system, which required the addition of CaBr<sub>2</sub> brine, to meet the operator's criteria.

The open-hole interval for which the CleanDrill HD drill-in fluid was planned was from 11,265' - 12,161'MD (9,520' TVD).

Newpark Fluids Systems utilized lab testing specific to the design and development of a fit-for-purpose CaBr<sub>2</sub>/CaCl<sub>2</sub> brine-based RDF. Provided with formation reservoir information, a properly blended RDF was constructed.



## SOLUTION

Following extensive laboratory testing, the resulting CaBr<sub>2</sub>/CaCl<sub>2</sub> CleanDrill HD formulation was blended at Newpark's Fourchon facility to the customers specifications and the compatibilities of formation.

Prior to receiving the reservoir drill-in fluid, all pits, surface lines, and sand traps were thoroughly cleaned.

The CleanDrill HD was blended at a density of 12.0 lb/gal. A spacer train was pumped prior to displacement of the RDF. Float collar and 15'ft. of new formation was drilled prior to F.I.T. test being performed.

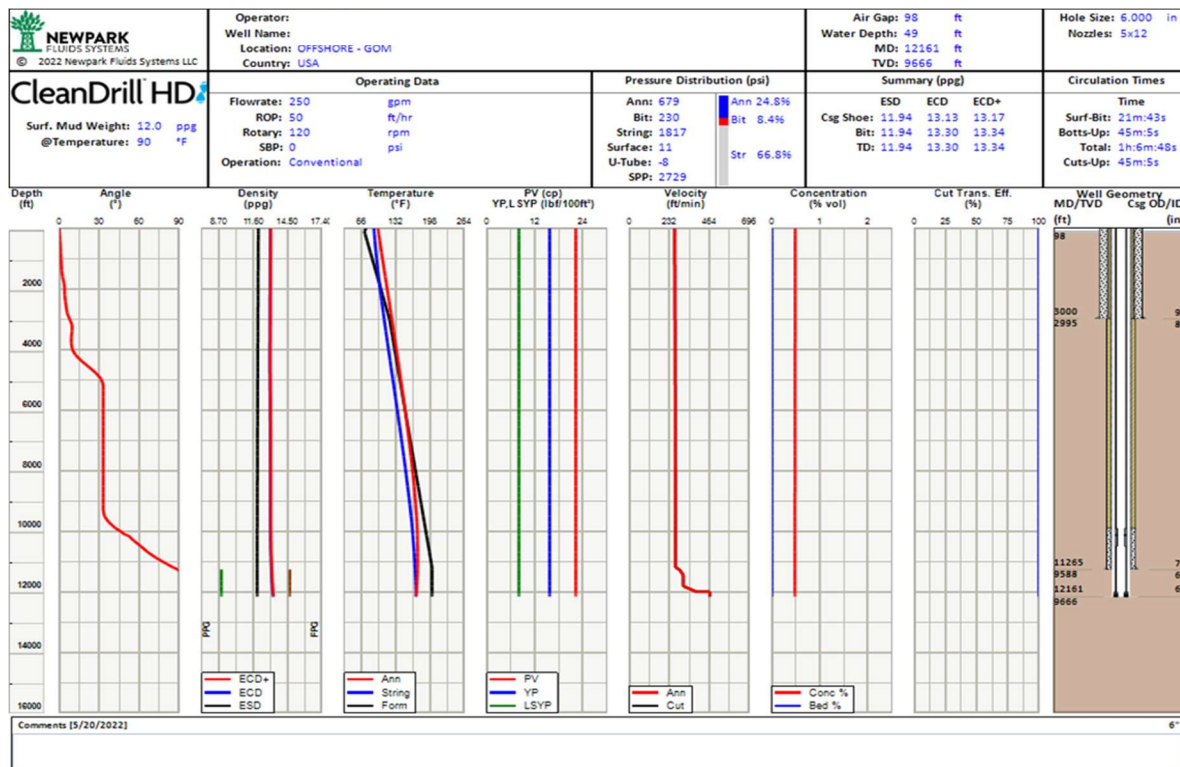
## RESULTS

The CleanDrill HD easily met the expected specifications during the drilling of the interval, performing as planned.

The actual total depth of the well was revised to 11,767' with a max angle of 85.9°, total drilling time for the 502' interval was 21 hours.

There were no lost circulation events that occurred while drilling with CleanDrill HD in open hole.

The open hole section was displaced to a SF-SRF and 100' into the casing section. The gravel pack screens were positioned in the well to bottom with the filter cake remaining intact and no losses. The well was converted over to 12.0 lb/gal CaBr<sub>2</sub>/CaCl<sub>2</sub> brine to finish the completion operations.



\*The information in this report is based on our experience and represents our best judgment in the matter and is intended to be helpful, but we cannot assume responsibility for any loss or accident that may result from its use. Furthermore, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing patents covering any materials or uses (ClearTrack 2022)