



# CleanDrill™ Monovalent Brine-Based Reservoir Drill-In Fluid Successfully Used to Drill Ultra-Deepwater Horizontal Open-Hole Interval in the Gulf of Mexico Utilizing Controlled Mud Level (CML)

CleanDrill™ Reservoir Drill-In Fluid is a Specialized, Minimally Damaging Monovalent Brine-Based System Allowing for Easy Cleanup of Filter Cake

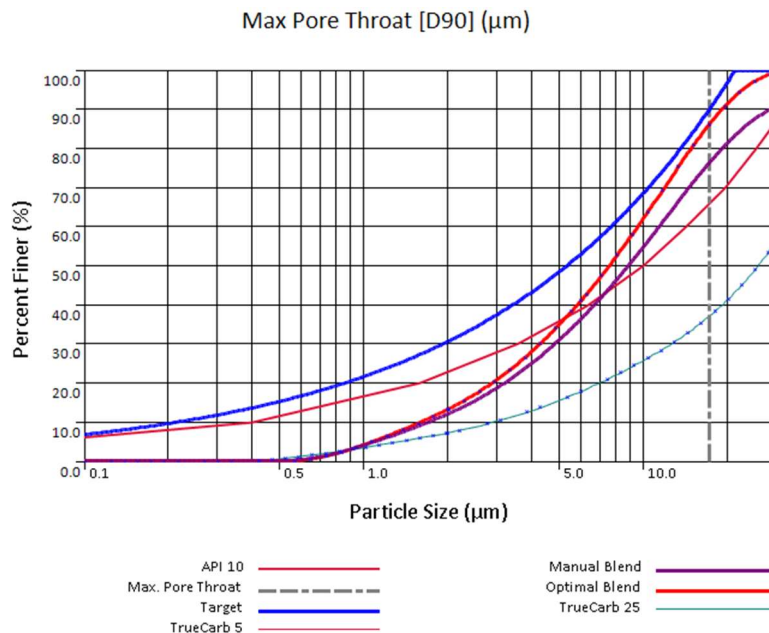
CHALLENGE	SOLUTIONS	RESULT
<ul style="list-style-type: none"> <li>• Drill &amp; complete horizontal open-hole for oil producing well</li> <li>• Minimize fluid loss during completion screen assembly installation</li> <li>• Easily remove filter cake</li> </ul>	<ul style="list-style-type: none"> <li>• CleanDrill™ reservoir drill-in fluid</li> <li>• Specifically formulated for formation compatibility</li> <li>• Appropriately sized particle distribution for fluid loss control</li> </ul>	<ul style="list-style-type: none"> <li>• Successfully drilled open-hole interval</li> <li>• Controlled fluid loss to formation while drilling</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 drilling performance requirements while drilling and reservoir integrity targets during completion operations. A greater emphasis on open-hole completions in the drilling and completion space has resulted in the development of optimized and minimally damaging RDFs.

## CHALLENGE

A major operator in the GOM Ultra-Deepwater market required a solution to drill and complete a 90° horizontal well while utilizing Controlled Mud Level (CML) managed pressure drilling at a water depth of 8,021'. This project represents the first use of CML to drill and complete a well in the GOM. Scope of work involved drilling an intermediate section, running and cementing intermediate casing, drilling the open hole reservoir section from 11,141' MD/10,218' TVD to 13,445' MD/10,238' TVD, installing a screen and gravel pack completion, and installing the upper completion and production tubing.





Newpark Fluids Systems utilized lab testing specific to the design and development of fit-for-purpose reservoir drill-in fluid. Provided with reservoir information and associated samples a properly blended RDF was constructed. This included the use of Newpark's ClearTrack™ – bridging particle size distribution analysis software.

## SOLUTION

The resulting CleanDrill formulation was blended to specifications and delivered to location and stored in reserve tanks until its use. Due to weather delays at the rig the CleanDrill™ remained unused and stored for several weeks before drilling the open-hole section. The RDF density was reduced per the operator prior to displacing the SBM out of the well. The CleanDrill system easily met the expected specifications during the drilling of the interval.

## RESULTS

The total drilling time for the 2,304' interval was 61.5 hours. Fluid losses to formation were experienced while drilling and mitigated via the LCM Decision Matrix utilizing TrueCarb™ sized calcium carbonate. At TD a solids-free CleanDrill fluid was placed in the hole prior to running screens. The well was converted over to brine with gravel pack screens positioned in the well with the filter cake remaining intact preventing losses.

