



Genesis Fluids Report

Summary

The well was drilled in the Permian Basin and completed in August 2020. This well was a record 15,000-foot lateral in this region with a total of 11.3 drilling days. The Genesis team involved include senior specialist Brian Welch and Hunter Hauckle. The following is a collection of drilling fluid information obtained during this successful operation.

Intermediate Hole

- A gel slurry fluid of 1800 bbls was built before drilling out into intermediate hole. Drilled out of surface with a Brine drilling fluid system and at 3,700 feet the Brine drilling fluid system was displaced to a gel slurry drilling fluid.
- Drilled to 6,150 feet and lost approximately 200 bbls down hole. Two Cedar Fiber and Cotton seed hulls were pumped, and circulation was regained. Drilled to kick of point at 6,286' and an 80 bbls (25 ppb Cedar Fiber/ Cotton seed hulls) pill was spotted prior to pulling out the hole and picking up curve assembly.
- While tripping pipe-Built an additional 600 bbl gel slurry mud containing LCM in preparation for loss circulation zones.
- Experienced seepage while drilling curve at 7,160' losing approximately 150 bbls. Utilized Cedar Fiber and Cotton seed hull sweeps and regained circulation by 7,220'. Drilled completion of curve to 7,292 feet.
- Spotted a high viscosity drilling fluid in the curve and 40 bbl lost circulation pills (20 ppb Tactical Blitz) at 5,900.
- Ran intermediate casing and completed cement job.

Production Hole

- An 1800 bbl production fluid was prepared during cement operations.
- Trip in the hole to test casing above DV tool and the test passed. Drill out DV tool at 3415' and tested again unsuccessfully. TIH above cement at 7,149' and pumped 40 bbl LCM pills including Tactical Blitz and Calcium Carbonate. Pull to 3587' and repeat procedure with 30 bbl LCM pill. Re-tested and passed. Trip back to bottom and drill out to 7345' and displaced with production drilling fluid.
- POH for lateral assembly. And started drilling production hole. A high viscosity sweep was pumped every connection while drilling the lateral to ensure hole cleaning.
- 2 pound per barrel of Calcium Carbonate and Shale Shelf (Asphalt) were added for wellbore stability.
- Drilling Torque increased at 8,500 and additions of Genesis Lube and drill beads were made to the active.
- At 10,849' experienced motor failure and pulled out the hole and trip in the hole with no issues.
- Genesis Lube added at 3 percent when reaching bottom.
- Drilled to 17,386 feet and Genesis Lube concentration increased to 4 percent.
- Drilled to total Depth of 22,303 feet. Used Brine to increase mud density to 9.4 ppg. Pumped 4 weighted high viscosity sweeps with slight increase of cuttings on first sweep. Increased mud



density to 9.5 ppg. Spotted 250 bbls of 4 ppb beads out of the drill pipe and pulled out the hole with no issues in preparation to run casing.

- RIH with 5.5inch casing to 16,473' and started reaming. Reamed casing to 22267' Unable to set with landing joint. Rigged down casing equipment and rigged up cement head. Circulated capacity through head. Cemented with 143 bbls lead at 10.5 ppg, 599 bbls tail at 12.9 ppg. Dropped plug and displaced with 493 bbls of water treated with corrosion inhibition package. Maintained full returns during circulating and cementing. 24 bbls of cement brought back to surface. Reserved 1500 bbls of GenMud for the next well and dumped remaining volume.

Lessons Learned

The well was a record lateral well for the customer. When examining the drilling fluid operations, great efforts were made by the Genesis Fluids team in making drilling fluid available and staying prepared during lost circulation areas. Their preparation resulted in no down time when lost circulation was occurring. The recommended chemical properties and routine sweep regimen were followed and showed to be effective in this well. Genesis lube was used after 8,500 feet at a 3-4 percent concentration till total depth and assisted with torque reduction. The approach taken on this well showed to be proactive and successful.