



## ENVIRONMENTALLY MINDED OPERATOR SEEKS **ALTERNATIVE TO OIL-BASED DRILLING FLUIDS**

- » Oil based drilling fluids prevent shale damage, but they can cause environmental problems, and the cost of hauling off and disposing of oil contaminated waste has become almost prohibitive.
- » The *M2-PLUS\** inhibited water-based fluid system utilized as a key component of a comprehensive *Fluid/Waste Management Performance Package\** solved the problem.
- » The *M2-PLUS\** water based drilling fluid system was designed to address environmental concerns associated with oil based fluids, provide shale inhibition, reduce torque and drag, and optimize the total cost of its use.

### SITUATION

A West Texas Drilling Operator recently approached Universal Fluid Systems (UFS) with a challenge we frequently encounter. This Operator often drills 18,000-foot wells TD, with 11,000-foot lateral deviations. Typically, they use oil based drilling fluid systems during the well drilling process to mitigate the damage caused by swelling and migrating shales. Unfortunately, the company can no longer risk the potential short- and long-term on-site environmental hazards associated with oil based fluids. In addition, the cost of hauling off and disposing of oil contaminated waste has become nearly prohibitive. The Operator knew a water based system was the answer but feared the possible consequences.

### SOLUTION

An experienced Universal Fluid Services Drilling Fluids Specialist proposed the Operator use the *M2-PLUS\** inhibited water-based fluid system on their next drilling project. He also proposed the job be run as a *Fluid/Waste Management Performance Package\** application, with UFS coordinating both the drilling fluid application and solids control fluid dewatering activities undertaken by our partner waste management company. This would ensure complete and consistent communication to all parties.

To assure the Operator that the *M2-PLUS\** water-based fluid system would perform as expected, numerous tests were undertaken prior to the job. Among the evaluations conducted were: 7-day static aging of core samples for shale swelling/migrating inhibition evaluation, lubricity testing of multiple lubricants to determine which provided the lowest friction factor, 7-day static aging to test for dehydration, and LC50 testing to ensure all the products were environmentally acceptable.

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### NOTES:

### RESULTS

Based on the known performance of the *M2-PLUS* system, successful testing and our prior experience, Universal Fluid Services was awarded the job.

The Operator was able to shorten the drilling project by three days and thereby significantly reduce rig utilization costs. As a result of implementing the *Fluid/Waste Management Performance Package* application, solids control costs were lowered by 34% compared with previous projects. Drilling fluid component costs on this well were similar to those of previous projects. However, by eliminating the need for diesel fuel, the total cost of the fluid system was reduced by 45%. The greatest financial and environmental achievement however was the fact that the driller was able to virtually eliminate haul-off. Through waste management efficiency, our solids control partner clarified the water based fluid enough for it to be shipped to a salt water disposal well. Further, the solid cuttings on location were extremely dry and required minimal haul-off.

### CONCLUSIONS

By utilizing the *M2-PLUS* water based fluid system, the Operator was able to exceed their drilling project expectations, minimize environmental impact, and lower their overall drilling cost by approximately \$386,000. This total includes drilling fluid additives, solids control, base fluid, haul-off, and corrosion protection. This provided them the opportunity to add two additional wells to their current drilling program. The *M2-PLUS* water based fluid system and *Fluid/Waste Management Performance Package* application, will be utilized to drill both of these wells.

**To enjoy the benefits of *Application Excellence*<sup>\*</sup> let Universal Fluid Services (UFS) provide the fluid management services on your next well.**