

BLACK FURY LSDF Successfully Drills Wells Throughout the Rocky Mountain District

“BLACK FURY* LSDF has been instrumental in drilling numerous problem-free wells throughout the Lower Piceance Basin in Colorado by eliminating key problems in the area.”

Brady Allen, IFE Project Engineer, Rocky Mountain District

Well Information

Location Lower Piceance Basin, Colorado
 Date Wells Drilled 2004 - Present
 Interval drilled 7⁷/₈ -in. hole for a total of 7,800 ft (2,377 m) from 2,000 ft to 9,800 ft (610 to 2,987 m)
 Disposal method Discharged cuttings to earthen-lined pit

The Situation

Wells throughout the Lower Piceance Basin are historically very difficult to drill because of the extremely high amount of drilling fluid lost to the hole. Wells in this region also often encounter severe sloughing shales, which can cause hole washouts (primarily in the Wasatch G formation). In the past, wells drilled in this area were drilled with a basic expendable aerated water-base drilling fluid, with losses of drilling fluid ranging from 3,000 to 8,000 bbl per well. The number of days on each well varied from 25 to 31 days, depending on the severity of losses and hole stability issues. Constant hole stability issues had prevented one operator from logging.

The Solution

With full knowledge of the inherent problems in the Piceance Basin, the Alpine drilling team designed a drilling fluid that was slightly more expensive than the norm but that addressed all of the area’s drilling problems. After extensive testing in the Bakersfield, California, and Houston, Texas, laboratories, the fluid was fine-tuned to be more suitable for lower fluid densities as well. The first generation of the low solids drilling fluid (LSDF) formulation with BLACK FURY product eventually became the fluid of choice for wells requiring mud densities from 12.5 to 16 lb/gal (1.5-1.92 sg).

The Results

The systems containing the BLACK FURY product performed well above expectations in the Lower Piceance Basin. LSDF systems with the BLACK FURY product reduced drilling time for these wells from 25-31 days to 10-15 days and reduced losses to 900-1,200 bbl per well from the previous level of 3,000-8,000 bbl per well. All hole problems were virtually eliminated in conjunction with a major reduction in reaming.

The operator that previously could not run logs can now run logs on every well, even with logging runs lasting two or more days.

The hole washout was another concern. One operator suggested it would like to drill a couple of lateral wells, but was unable to do so until the washout issue was resolved. The BLACK FURY product provided a solution that enabled operators in the area to move forward with their plans to drill lateral wells. The average hole size is now 8.2 in. with a 7⁷/₈-in. bit, compared to an 11-in. hole previously drilled using the same size bit. The operators running this system in the Piceance Basin have realized time and cost savings using the BLACK FURY product.

The Details

Extensive testing of the BLACK FURY systems product was targeted toward creating a fluid that was shear thinning so as not to exert additional stress on the wellbore. The fluid needed to plug and seal the formation and adequately clean the hole. The BLACK FURY LSDF product provides all of this and more.

System Composition
MAX GEL*
POLY-PLUS* Dry
POLY-PAC* R
BLACK FURY
Caustic Soda

Typical Properties	
YP	28
10 sec	4
10 min	5
API Filtrate, mL	5.6
HTHP	18
COF	.154
Return Permeability Tests	
92.6 % Return Permeability	

Questions? We'll be glad to answer them.

If you'd like to know more about the BLACK FURY LSDF product and how it's performing for our other customers, please call the ALPINE or M-I SWACO office nearest you.



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