

RUSSIA
EASTERN SIBERIA

Number of project pilot wells	1
Number of wells drilled previously	10
Interval drilled	Conductor and surface casing
Interval length	1,926 ft [587 m]

Background

An operator experienced chronic partial to total lost circulation while drilling the conductor and surface casing intervals for multiple eastern Siberian wells. M-I SWACO suggested changing the drilling fluid system from the spud mud used previously to the DRILPLEX AR PLUS* anionic-tolerant water-base drilling fluid system to address the challenging drilling conditions.

Technology

- DRILPLEX AR PLUS anionic-tolerant water-base drilling fluid system
- FLOPLEX PLUS* fluid loss control additive
- DRILPLEX* mixed-metal-oxide water-base drilling fluid system

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DRILPLEX AR PLUS System Solves Lost Circulation Problems While Drilling Two Upper Intervals, Russia

Highly effective drilling fluid eliminates mud losses and reduces average drilling time by 25%

DRILPLEX AR PLUS System Formulation Component	Concentration
Soda ash, lbm/ft ³ [kg/m ³]	0.06–0.09 [1–1.5]
Caustic soda, lbm/ft ³ [kg/m ³]	0.12–0.19 [2–3]
CaCO ₃ (coarse), lbm/ft ³ [kg/m ³]	2.5 [40]
CaCO ₃ (medium), lbm/ft ³ [kg/m ³]	2.5 [40]
FLOPLEX PLUS additive, lbm/ft ³ kg/m ³	0.99–1.12 [16–18]
DRILPLEX system, lbm/ft ³ [kg/m ³]	0.19–0.22 [3–3.5]
Bentonite, lbm/ft ³ [kg/m ³]	1.87–2.18 [30–35]
DRILPLEX AR PLUS System Property	Value
Density, g/cm ³	1.05–1.12
Funnel viscosity, s	120–150
Plastic viscosity, cP [Pa.s]	6–8 [0.006–0.008]
Yield point, lbf/100 ft ² [Pa]	80–90 [38.3–43.1]
R6	36–38
Gels 10 s, lbf/100 ft ² [Pa]	35–40 [16.8–19.2]
Gels 10 min, lbf/100 ft ² [Pa]	55–60 [26.3–28.7]
Fluid loss at 86 degF [30 degC], mL/30 min	< 8

In the pilot project well in which 10 previously drilled wells exhibited lost circulation, the well drilled using the DRILPLEX AR PLUS system showed no lost circulation problems while drilling the upper intervals. Using the system resulted in a 25% reduction in the average drilling time.