CASE HISTORY

Kol-Seal® Fine Reduces Seepage Losses and Improves Fluid Efficiency in Alberta Multi-Well Pad Drilling

Location: Alberta, Canada
Application: Seepage loss control in deviated pad drilling
Product: Kol-Seal® Fine Engineered Fine-Particle Lost Circulation Material

Challenge

- Seepage losses averaging ~40 m³ (250 bbl) per well
- Losses increased to 60–70 m³ without bridging materials
- Conventional Gilsonite + $CaCO_3$ blend showed limited effectiveness
- Increasing concentrations did not improve performance

Solution

- Replaced a competitive product with Kol-Seal® Fine
- Maintained 1:1 ratio with calcium carbonate
- Applied at 9.5 kg/m³ in invert system
- Leveraged fine particle distribution for improved micro-fracture bridging

Results

- Significant reduction in seepage losses
- Improved sealing of micro-fractures and permeable zones
- More consistent drilling performance across multi-well pads
- Reduced need for increased treatment concentrations

CHALLENGE

A Canadian operator drilling multi-well pads in Alberta was experiencing consistent seepage losses while drilling wells to approximately 1,600 m MD (5,248 ft) with 15–25° deviation profiles. Each pad consisted of up to 18 wells, with average drilling durations of 10 days per well and oil-based invert systems in use for approximately 8 days.

Typical seepage losses averaged 40 m³ per well (approximately 250 bbl), even with the use of conventional bridging materials. The standard treatment involved a 1:1 blend of Gilsonite and zero-grind calcium carbonate, mixed at a rate of five 50 lb sacks of each per 12-hour shift. When bridging materials were not used, losses increased to 60–70 m³ per well.

Attempts to increase concentrations of the conventional blend did not result in meaningful reductions in fluid loss, indicating ineffective sealing of micro-fractures and permeable pathways within the formation.

SOLUTION

To address persistent seepage losses, the operator replaced Gilsonite with Kol-Seal® Fine while maintaining the same 1:1 ratio with calcium carbonate in a pre-mixed invert system.

Kol-Seal Fine was applied at a concentration of 9.5 kg/m³, providing a finer, engineered particle size distribution designed to improve bridging efficiency across micro-fractures and permeable formations.

The reduced particle size enabled more effective penetration into smaller pore spaces and fracture networks, forming a tighter seal within the formation matrix compared to conventional materials. The product was integrated into the existing drilling fluid system without requiring changes to mixing procedures or operational workflow.

WELDRIL

CASE HISTORY

Kol-Seal® Fine Reduces Seepage Losses and Improves Fluid Efficiency in Alberta Multi-Well Pad Drilling

RESULTS

The use of Kol-Seal® Fine resulted in a significant reduction in seepage losses across the drilling program. The engineered fine particle distribution provided improved sealing of micro-fractures, reducing fluid invasion and improving overall fluid efficiency.

Compared to conventional Gilsonite-based treatments, Kol-Seal Fine delivered more effective loss control without requiring increased concentrations or additional treatments. The improved performance contributed to more consistent drilling operations across the multi-well pad, reducing fluid loss variability and supporting overall operational efficiency.

Drilling / Cementing / Custom Blends / WelDril.com

WELDRIL