

**PRODUCT BULLETIN**

# **LIQUIDSLIDES<sup>TM</sup>**



**Canadian Energy**  
SERVICES

# LIQUISLIDE S™

## LONG-LASTING LUBRICANT

### PRODUCT DESCRIPTION

LiquiSlide S™ is an organic, polymeric lubricant compatible with most drilling fluids for torque and drag reduction. Compositionally, LiquiSlide S™ is a synergistic blend of chemically modified, naturally occurring fatty acids covering a broad spectrum of alkyl chain lengths. It reduces torque and friction factors by providing lubricity while drilling or running casing in directional holes. LiquiSlide S™ improves sliding, drilling rates, casing run rates and directional control in horizontal and high angle holes. It can be used with both drilling and completion fluids. This exclusive product has active components that are chemically synthesized at our JACAM reaction facility.

### PRODUCT FEATURES AND BENEFITS

- Active ingredient contains a slight positive charge resulting in an electrostatic affinity for steel surfaces.
- It is compatible with oil-based and water-based drilling fluids.
- Fast-acting and superior lubricious performance due to the limitation of saponifiable materials in LiquiSlide S™.
- Single chemical lubricant – no need to switch to a two-chemical lubricant system.
- It is also well-suited for mechanical torque.

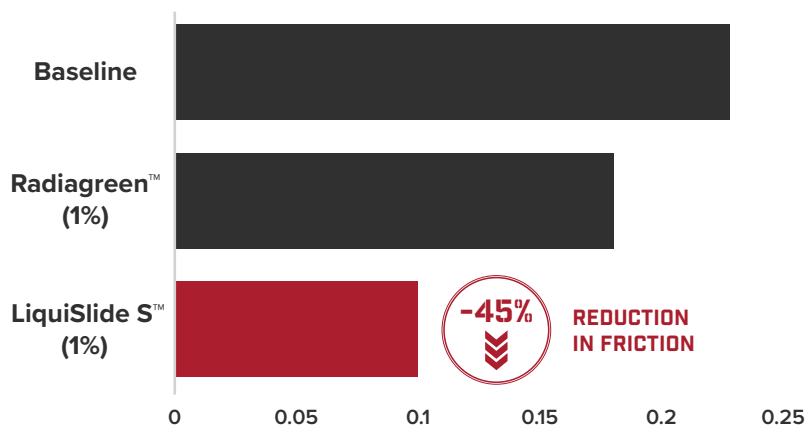
### LUBRICITY LABORATORY TEST RESULTS

The lubricity (in terms of coefficient of friction - CoF) of LiquiSlide S™ was measured and compared to Radiagreen™ by the world-class Bruker UMT unit. The metal-on-metal test was carried out with a 1250 kg/m<sup>3</sup> Calcium Chloride brine.

The CoF values were measured by the Bruker MT with a force of 300 N, 60 rpm for 5 minutes, the steady-state CoF was averaged and recorded.

When compared at a 1% Concentration, experimental results showed that LiquiSlide S™ was more lubricious and reduced friction better than Radiagreen™. A 45% reduction in CoF was achieved by LiquiSlide S™.

### COEFFICIENT OF FRICTION VALUES



### RECOMMENDED TREATMENT

LiquiSlide S™ is typically used to treat a drilling fluid at 0.5 - 3% (5-30 L/m<sup>3</sup>). LiquiSlide S™ should be added to the suction. In a sweep application, the sweep can be caught and reused. The concentration of LiquiSlide S™ should be optimized for each type of problem encountered. Difficult hole conditions may dictate higher concentrations.

It should be noted that calcareous drill cuttings can be oil wetted with LiquiSlide S™, hence, reducing its effectiveness. In these cases, we recommend using our specialty ester drilling fluid lubricants.



### Our Bruker UMT Unit

The Canadian Energy Services Bruker unit is the **only** industry-exclusive advanced tribology unit in North American drilling fluids laboratories.

Also used by NASA and the US Military, the German-engineered Bruker UMT unit has been vital to the appraisal and development of renowned and specialized lubricants.



# CASE STUDY I

## FASTER AND SMOOTHER CASING RUNS IN AN OBM SYSTEM

**LOCATION: FOX CREEK, AB, CANADA**

**TARGET FORMATION: DUVERNAY**

### CHALLENGE

A major global operator was drilling on a pad whose previous wells had experienced challenges while running casing in extended reach laterals. The previous casing runs were plagued with high friction factors and required pumping and rotations to land casing at the bottom effectively. These casing run challenges inflated the overall well cost and NPT.

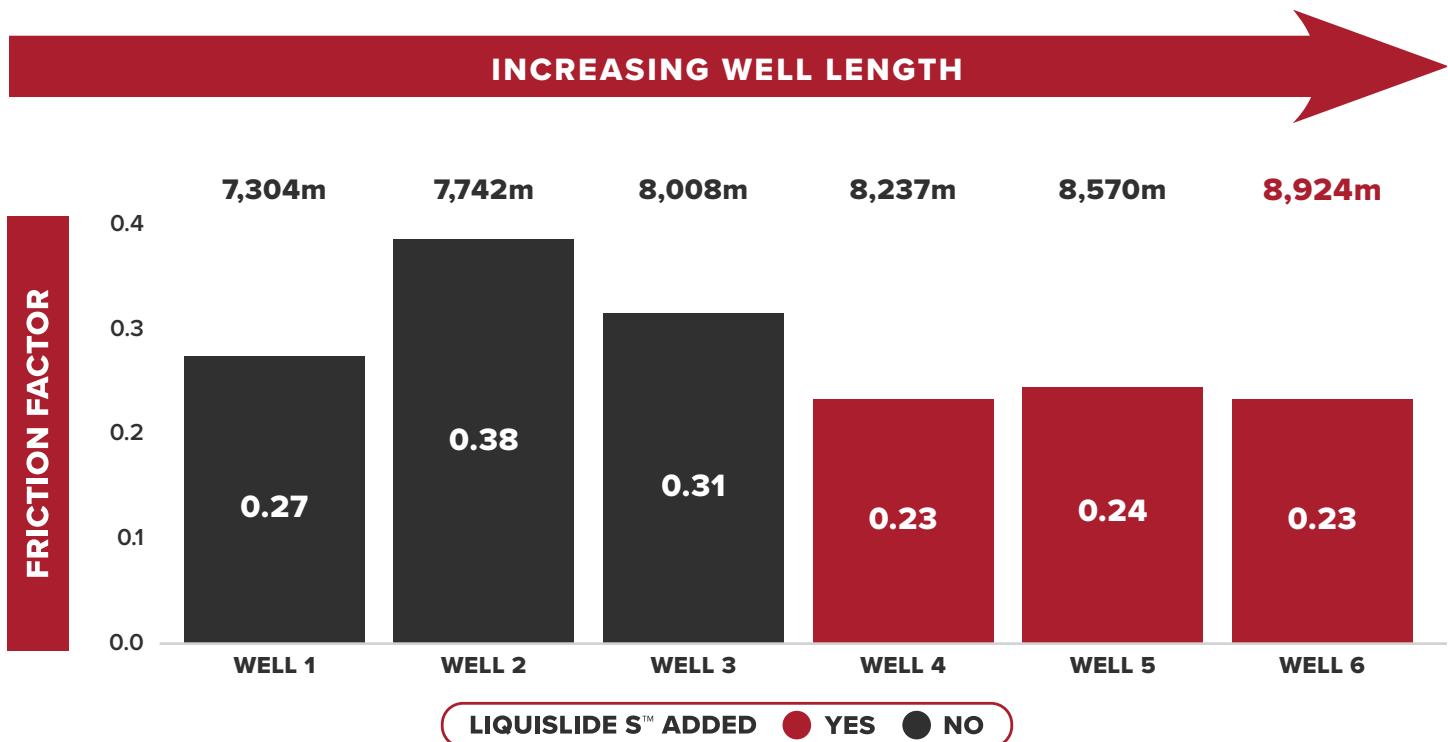
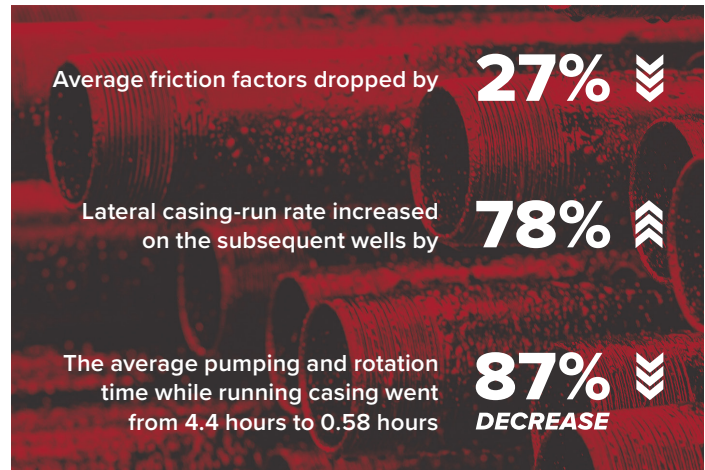
The operator needed a practical solution that would curb these challenges and increase the casing run rates on their subsequent wells on the pad, which had significantly longer laterals, hence posing a greater casing run challenge.

### SOLUTION

CES recommended using **LiquiSlide S™** to mitigate the problem in the oil based mud. 1% of **LiquiSlide S™** was spotted in the lateral prior to the casing run. Significant improvement in casing run performance was achieved on the next set of wells, even on Canada's longest well (5,850 m MD lateral length).

### RESULTS

After incorporating **LiquiSlide S™** into the drilling process:



# CASE STUDY II

## REDUCING SEVERE TORQUE IN FLOC WATER LATERALS

**LOCATION: KAKWA, AB, CANADA**

**TARGET FORMATION: MONTNEY**

### CHALLENGE

A major operator drilling an extended reach well (with flocculated water) in the Montney reached their torque threshold (24,500 ft/lbs) and had high friction factors that impeded their drilling speed and efficiency.

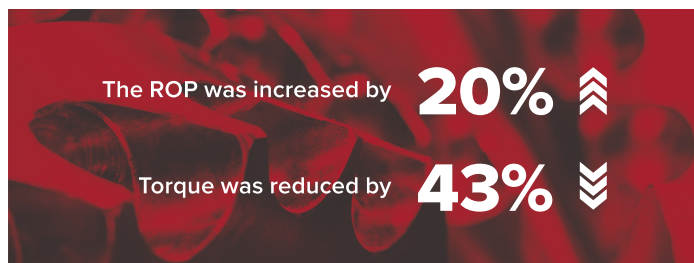
The operator needed a single and fast-acting solution to reduce the torque and friction factors without further impairments to their drilling operation.

### SOLUTION

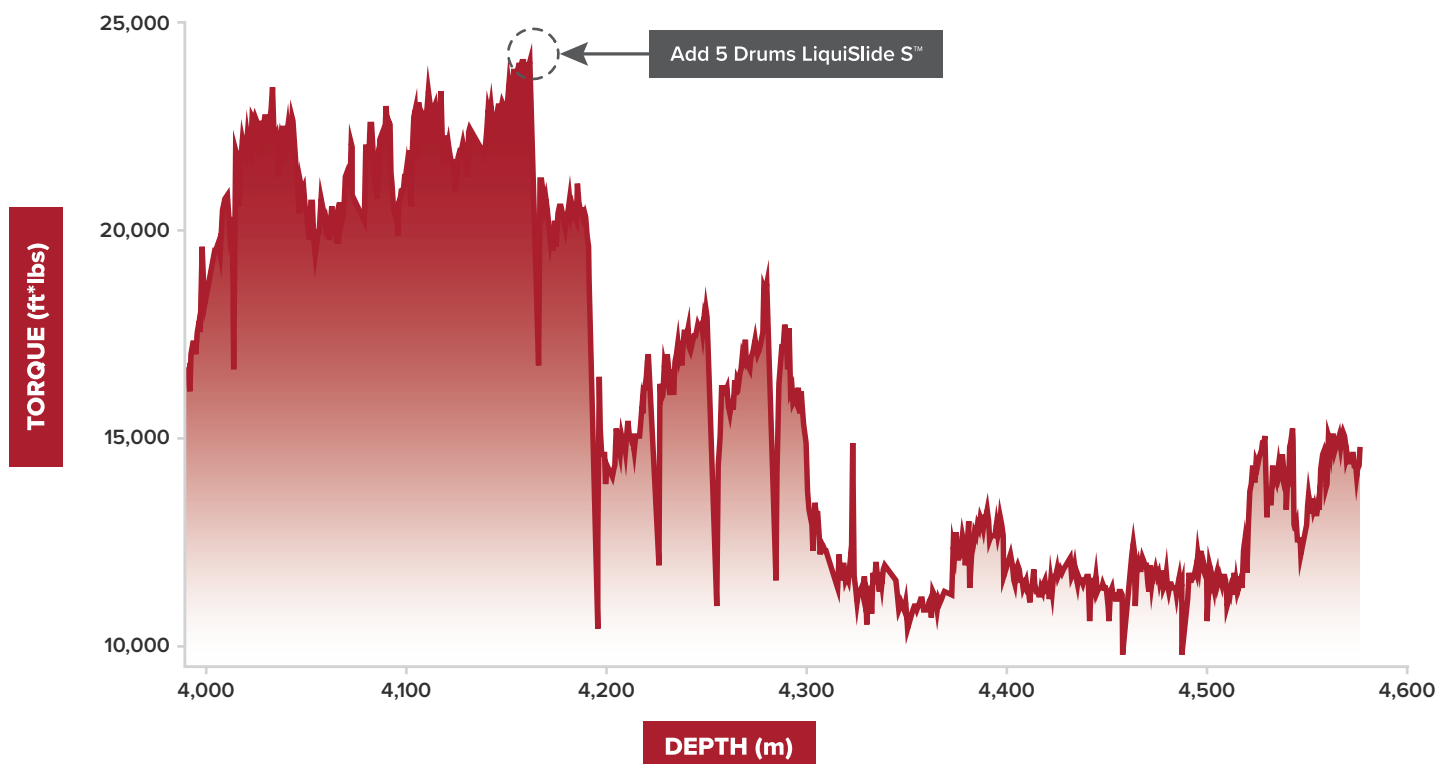
Canadian Energy Services recommended using **LiquiSlide S™** to reduce torque and friction factors. **LiquiSlide S™** was added to the circulating floc water system through the suction. 5 drums were added over 1 circulation for a 1% concentration v/v (10L/m<sup>3</sup> concentration).

### RESULTS

Instantaneous torque reduction was achieved. The positive active ingredient in **LiquiSlide S™** attached itself to the drill string and BHA due to its electrostatic affinity for steel surfaces, which expedited the lubricating process. The torque was effectively reduced from 24,500 ft/lbs to 14,500 ft/lbs, while parameters remained constant. This allowed for an increased mud motor differential pressure as further weight was transferred to the bit and not lost to hole drag.



### TORQUE vs DEPTH



**LiquiSlide S™**



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