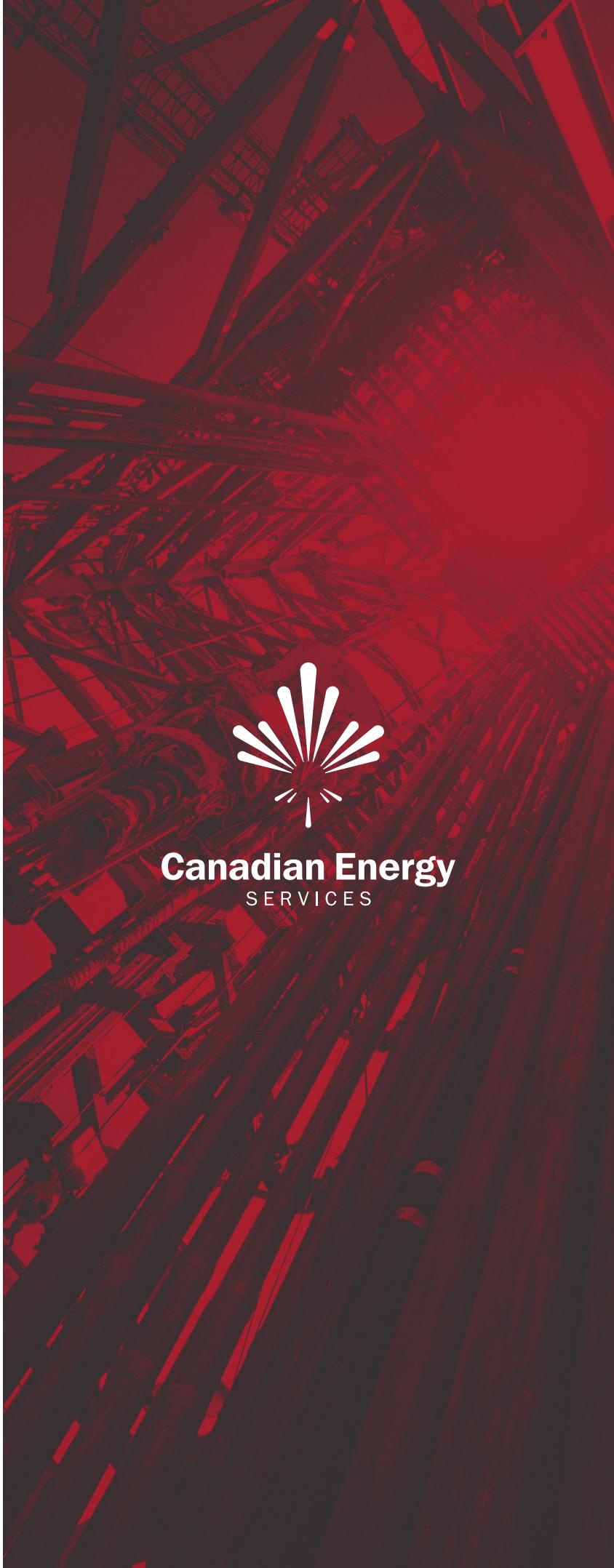


**PRODUCT BULLETIN**

# **HT INVERT<sup>TM</sup>**



**Canadian Energy**  
SERVICES

# HT INVERT™

High Performance, Temperature Stable Invert

## PRODUCT DETAILS

Get repeatable Oil Based Mud (OBM) performance with HT Invert™. Designed to minimize barite sag, and clean wellbores better than conventional OBM by resisting thermal thinning, while achieving low plastic viscosities for reduced pump pressures and superior solids control efficiency. Engineered using in house manufactured rheological control agents and surfactants working synergistically to amplify fluid performance delivering faster wells, less tool failures, and reduced fluid associated transportation costs.

**OVER 90%**  
**REDUCTION IN PRODUCT MIXED ON SITE**

**USED IN OVER 100 WELLS**  
**FROM ALBERTA AND BC MONTNEY TO HIGH TEMPERATURE, HIGH PRESSURE ALBERTA DUVERNAY.**



*RSS Upper Torquer - Competitor Conventional System  
(60h / 74h circ.)*

*RSS Upper Torquer - CES HT System  
(101.5h / 52h circ.)*



Take advantage of preferred trucking rates with Equal Transport, a CES owned trucking company. Providing low cost transportation out of Edson, AB to the Deep Basin.

# CASE STUDY

## Duvernay - Fox Creek, AB

### CHALLENGE

Fox Creek Duvernay operators were plagued with uncontrollable buildup of ultra-fine low gravity solids when batch drilling laterals, excessive barite sag and poor hole cleaning. This resulted in premature rotary steerable tool failures, extended clean-up cycles, and poor casing runs.

The operator demanded an oil-based drilling fluid, capable of improving drilling conditions at high ROPs, reducing wellbore conditioning time, while boosting solids removal efficiency, and increasing downhole tool reliability. This system would need to be capable of maintaining clean hole in conditions that often exceeded 100m/hr with tool temperatures that could exceed 150°C in weighted systems up to 1,800 kg/m<sup>3</sup>.

### SOLUTION

A research project to develop the ideal oil-based drilling fluid system was undertaken. Resulting in a special organophilic clay set and surfactant package that was developed and manufactured entirely in-house by CES.

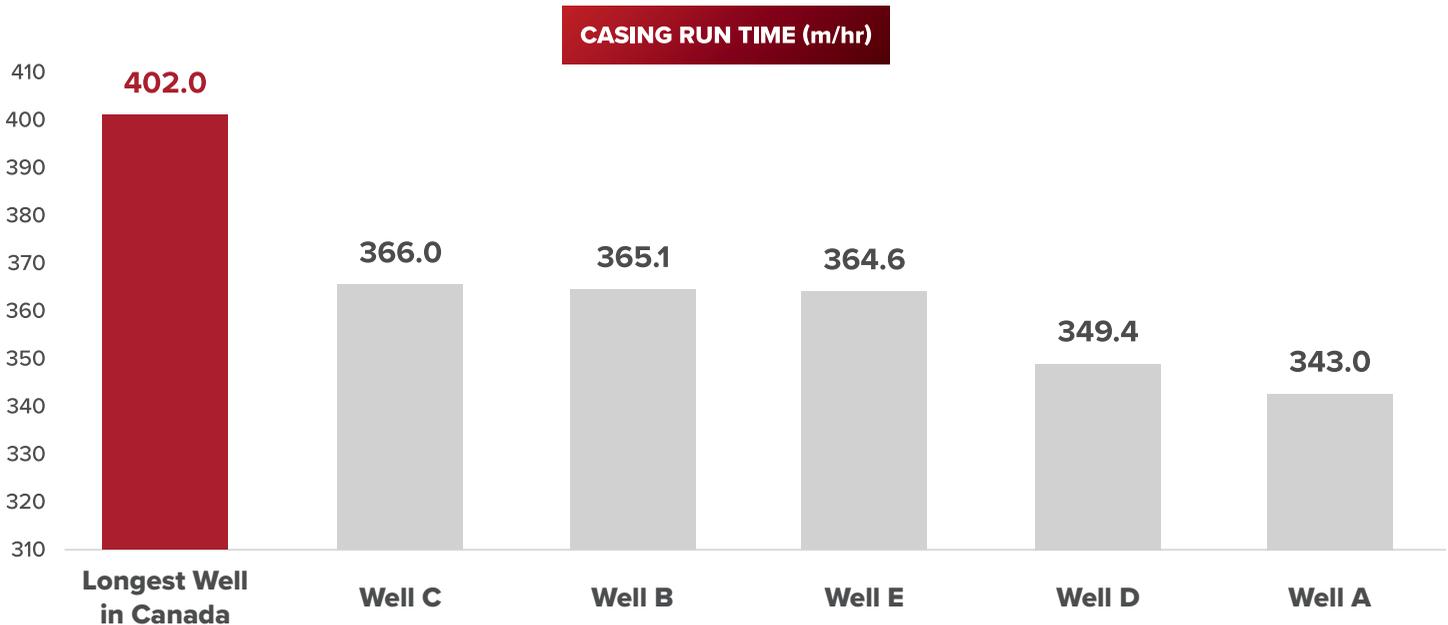
### RESULTS

Initial results using HT Invert™ showed more competent cuttings at surface, lower friction factors, less premature RSS failures, and less mixing on site.

The ultimate challenge for HT Invert™ came on an extended reach pad that batch drilled over 25,000m of continuous Horizontal Duvernay, which included the longest well in Canadian History. Low Gravity Solids were kept within a +/-1% band for over 98% of the operating time. Not a single trip for down-hole tool failures was made throughout these 6 wells.

HT Invert™ Properties	
Density (kg/m <sup>3</sup> )	1,440 - 1,880
Drilling FF	0.15 - 0.20
Temperature	130°C+

### CASING RUN SPEED



# HT INVERT™

Fox Creek, AB | Single Duvernay Pad

## 25,000M CONTINUOUS LATERAL HOLE DRILLED

