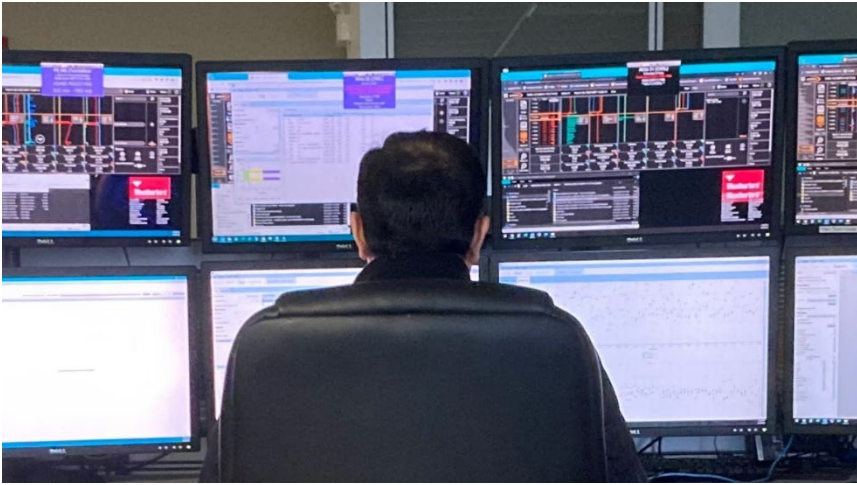


## MPD Engineering, Planning, 24/7 Support, Real-Time Engineering Enabled Operator to Build Longest Wells Drilled in Canada



Leveraging Weatherford's unmatched knowledge base, highly technical staff, including specialists and engineers, provide continued support from the North American MPD Engineering Excellent Center.

### Objectives

- Drill successfully (without nonproductive time) 3:1 extended-reach horizontal wells in the Duvernay formation.
- Deliver top-level engineering planning, taking into account the effects of pipe eccentricity, fluid compressibility, thermal effect, and pipe rotation on long hole sections.
- Provide real-time engineering support to evaluate operational performance and adapt to conditions as needed to reach the planned final depth on all wells.

### Our Approach

- From the early stages of the planning phase, Weatherford provided high-level managed pressure drilling (MPD) engineering capabilities, meeting the customer's expectation in terms of calibrating our hydraulic models.
- Weatherford combined its local experience and knowledge acquired during previous campaigns with its most critical applications in North America to provide our customer with a comprehensive approach to deal with common issues when drilling horizontal, extended-reach wells.
- The engineering capabilities were daily applied while drilling all horizontal sections with a presence in the field as well as remote monitoring to deliver 24/7 support, reducing reaction time to a negligible amount.

#### LOCATION

Canada

#### WELL TYPE

Extended-reach, horizontal

#### FORMATION

Duvernay

#### HOLE SIZE

6-3/4 in. (171 mm)

#### CASING SIZE

5-1/2 x 5 in.

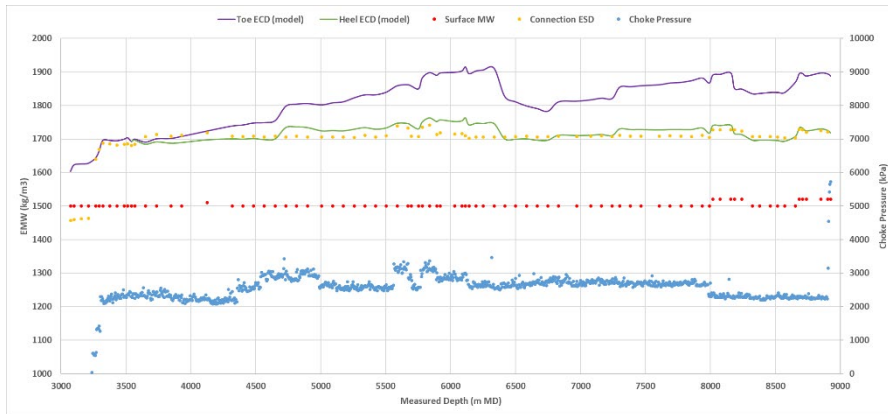
(ran and cemented with MPD using provided engineering schedules)

#### PRODUCTS/SERVICES

MPD engineering services and continuous real-time support



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Engineering deliverables, monitored in real time, present important well construction parameters and provide accurate hydraulic plans.

## Our Approach (continued)

- Weatherford experts applied the most up-to-date MPD procedures to well balancing, tripping, and cementing the casing.

## Value to Customer

- To date, MPD engineering support has been provided in 19 wells for a total of 24,278 ft (7,400 m) of hole successfully drilled.
- Despite the challenges encountered, 100% of all wells were drilled to the planned depths, and Weatherford's MPD engineering contribution proved critical to achieve perfect results without incurring nonproductive time (NPT).
- With the aid of Weatherford's MPD engineering and continuous real-time support, the customer was able to drill the longest well in Canada—approximately 29,597 ft (9,000 m) measured depth (MD).
- Weatherford's immediate response, solid deliverables, and the high level of expertise on MPD engineering support for drilling, tripping, well balancing, and managed pressure cementing has proved a differentiator, helping the customer achieve all objectives.

