

Modus™ Managed Pressure Wells Solution

Mitigated Wellbore Stability Issues, Drilled 18,000-ft Lateral in Single Trip 9 Days Ahead of Plan

Objectives

- Reach target depth and hole section sizes per planned AFE costs.
- Utilize managed pressure drilling (MPD) techniques to maintain the target equivalent mud weight throughout the lateral section of the drilling plan.
- Avoid potential formation damage from heavy weight muds while drilling through formations with uncertain pressure profiles.

Our Approach

- Weatherford's preliminary planning and engineering captured the scope and set targets for the drilling program by collaborating with the customer, determining the requirements, and creating the service quality delivery plan that would not only coordinate the project's execution and logistics but reduce overall costs.
- After confirming plans with the customer, Weatherford experts performed a rig survey in Ohio, enabling the team to prepare the footprint and staging area as well as identify and eliminate potential hazards.
- Field personnel staged and tested at the Weatherford MPD base prior to shipping to the rig location. Due to the long distance to the rig location, consistent communication with the customer ensured delivery of the equipment would be on time. Once it arrived, the Modus solution equipment was efficiently installed and readied for use.
- Weatherford's engineering team quickly adjusted the flow matrix to accommodate a change in the customer's drilling plan.
- Shortly after landing the curve, the hole showed signs of a pack off. After discussions with the customer, Weatherford's MPD team provided options for updated MPD programs to address the situation in less than an hour.
- Drilling continued with additional backpressure while slowly raising the fluid system by 0.5 ppg. This enabled the rig to continue drilling without waiting to condition the mud and without significantly weighing up the fluid system.
- With this adjustment, the drilling continued with the same bottomhole assembly (BHA) to reach the target depth (TD) of the long lateral section in a single trip.



The Modus managed pressure wells solution creates a comprehensive pressure management strategy that precisely and continually manages the primary well-control barrier, eliminating pressure spikes, improving hole stability, optimizing drilling plans, manipulating effective mud weights, and increasing ROP.

LOCATION

Bridgeport, Ohio

WELL TYPE

Horizontal

FORMATION

Utica Shale

HOLE SIZE AND ANGLE

8-1/2 in., 90°

TOTAL WELL DEPTH

27,834 ft (8,483 m)

MPD ONLINE FROM DEPTH

9,887 (3,013 m)

PRODUCTS/SERVICES

- Modus managed pressure wells solution
- 7825 RCD



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Value to Customer

- The Modus managed pressure wells solution actively monitored gains and losses throughout the entire drilling operation, enabling the customer to use a lighter fluid system and save on barite use for weighting up the fluid system.
- Complementing the lighter fluid system in the wellbore, the Modus solution actively applied surface backpressure to easily adjust to changing downhole conditions. Conventional methods would have required hours or a day to weight up or lighten the fluid system.
- By deploying the Modus solution, the customer reached TD 9 days ahead of the well plan.
- The customer reduced overall costs by using 1.0 ppf lighter mud weight and adjusting backpressure to compensate for wellbore and formation pressure.
- The Weatherford solution drilled an 18,000-ft (5,486-m) lateral in a single trip, achieving an 18% faster ROP as compared to the previous 4 wells drilled conventionally.

