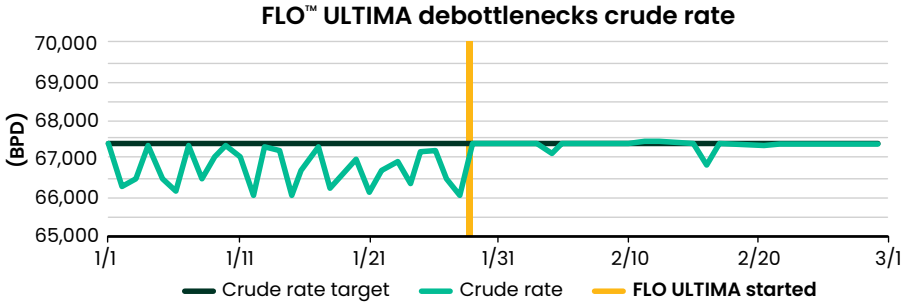
Case study: Midwest, United States

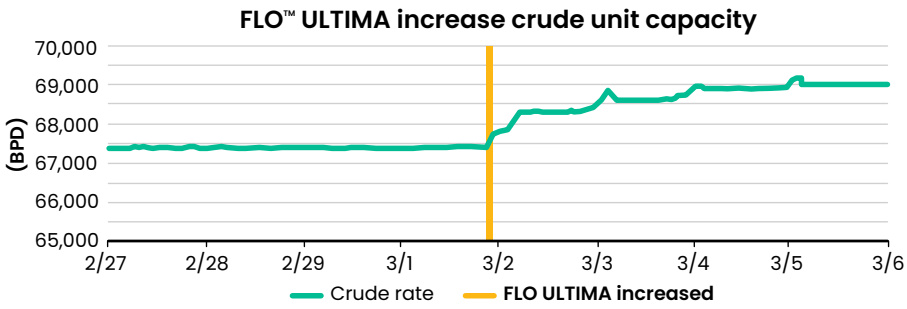
FLO ULTIMA heavy crude drag reducing agents increased crude rate 2,000 BOPD

A series of crude rate increases at a Midwest refinery eventually resulted in a crude-supply hydraulic constraint that kept the plant 500 BOPD (79.4 m^3/d) below its throughput target. This difference cost the operator millions annually in direct opportunity cost. Looking for a way to turn around this deficit, the operator reached out to Baker Hughes to evaluate the crude-feed system, perform a hydraulic survey, and propose a solution to capture the opportunity.

After an in-depth hydraulic analysis to evaluate potential flow improvement, the survey identified a rate-limiting pressure drop across a 3-mile pipeline section feeding the crude unit. The Baker Hughes technical specialists recommended FLO™ ULTIMA heavy crude drag reducing agents (DRA) to help reduce bottlenecks and keep operations on track. The services utilize patented technology to inject the petroleum and fuel additive chemistry into the transfer lines. FLO ULTIMA services are effective in short line segments of less than two miles in refineries, terminals, and/or flow lines that were previously untreatable with conventional capacity improvement chemistry.

Within minutes of commissioning the chemical injection using the FLO ULTIMA chemical injection system, the crude-rate increased, and the entire crude unit stabilized at the higher crude-rate target shortly thereafter.





Subsequent test runs demonstrated that elevated chemical dosages could further increase crude-rate, which has added refinery operational flexibility and increased profitability.

Challenges

- Long pipeline from crude tank-farm to crude-unit
- Unbudgeted chemical application required minimal-capital solution

Results

- Reduced frictional pressure loss of crude feed line by 52%
- Enabled refiner to increase crude feed rate by 115,000 barrels per year
- Delivered the refiner a payback at a rate greater that 10:1