

Enerflex in action

Efficient by Design: Enerflex's Integrated DBOOM Approach

Our client partner discovered a reservoir that had 5x greater production potential than anticipated, exceeding the capacity of their two current production facilities. The increase in production required a third facility to be built to handle the excess 30,000 BPD of oil and 330,000 BPD of produced water. Further processing was required to meet the treated water requirement of <50ppm oil-in-water (OIW). This facility was to be executed under a fast track DBOOM (Design, Build, Own, Operate, and Maintain) contract.



Solution

Enerflex implemented a simplified plant design using innovative solutions to expand our client's production capacity. Fluid entering the facility is directed to a three-phase separator and the fuel gas exits the system for scrubbing. 30,000 BPD of separated oil is then sent to the oil train consisting of a water heater and two-stage desalter. It is then dehydrated to meet the export oil quality requirements of <0.5%. Simultaneously, 300,000 BPD of produced water is sent to Enerflex's single Gas Flotation Tank (GFT®) to reduce OIW from 1,000 ppm to <50 ppm. The GFT combines the design of an API tank and microbubble flotation (MBF®) technology for optimized OIW separation. A wider operational band is provided through the multi-chamber design, enabling the GFT to handle slugs and eliminate short circuiting. The GFT simplifies the overall facility, control philosophy, and shrinks the footprint, thus reducing CAPEX and OPEX. Following treatment, the water is transferred to a treated water collection tank where injection pumps deliver it via trunklines for reuse, reinjection, and disposal.



Outcome

Receiving an inlet of 10% OIW, the plant successfully exceeds our client partners required outlet with an average of 29 ppm (data range March 2023 – February 2024) for challenging emulsified oil. Utilizing the GFT, this is completed with a >70% chemical reduction compared to traditional solutions. Enerflex's integrated approach to plant design – from concept to engineering to operations – allowed for a 21-month DBOOM project schedule. Implementing our solution resulted in a >50% reduction in footprint, >50% reduction of steel tonnage, ~50% reduction in major equipment, and a reduction of 9,000+ design and construction manhours. Compared to traditional facilities, tonnes of CO_2e during build and construction was decreased by 35%. This project was completed with 3.91 million manhours worked LTI free and 1.68 million kilometers safely driven. Enerflex has pushed the envelope of operating excellence through Data Analytics and RM&D (Remote Monitoring and Diagnostic) platforms.

These systems provide real time operational metrics and comply with SASB and GRI reporting standards for Scope 1 & 2 greenhouse gas (GHG) emissions. The project has received multiple awards including the Al Roya Economic Award for Best Government Investment Project, 1st place OPAL Award for In-Country Value, a MEED Award, an OPES Award, and an OIA Award.

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