

LW EB Emulsion Breaker improves oil and water separation

Challenge

An oil and gas producer in an African oil field produced a 27°API oil.

The difficult to treat produced fluids contained approximately 75% BS&W (Basic Sediment and Water) and frequently had problems with out of specification export oil (>0.25% BS&W), requiring additional processing.

Emulsion breaker consumption using the competitive product was too high.

The producer asked for a cost-effective solution which would minimize off-spec oil production and improve effluent water quality, allowing the producer to operate trouble free and to recover lost hydrocarbon production from the water stream. Additionally, this would help them meet the effluent water specifications set by the Environmental Organization.

Evaluation & Results

The produced fluids entering the production facilities contained high amounts of free water, along with a stable emulsion.

The production system itself was quite old and contributed many corrosion by-products, sand and debris, further stabilizing the emulsion, and creating a difficult to treat interface in the separation process vessels.

The LW technical team conducted a system assessment, evaluating the issues associated with the treatment system.

A series of tests were performed to develop a product which would improve the separation process and produce the desired results.

The result was a new chemical emulsion breaker, which improved the separation, and was capable of treating the oil-water interface in the separation system.

The new emulsion breaker was applied and optimized by reducing the consumption of 15% than the incumbent product.

BSW (average) leveled off at approximately 0.10%, below the export oil specification, allowing the producer to consistently produce saleable oil.

The total treatment program cost was deeply reduced resulting in annualized savings for this producer. Chemical dosage rates were reduced by 15%, allowing the customer to maximize on site inventory while producing oil that met export specifications consistently.