

# CLEAR SOLUTIONS for complex fluids

## CrudeSep® IGF and DGF Treats Produced Water in North Sea



### CHALLENGE

- Operator had existing water that did not meet regulations



### SOLUTION

- CETCO Energy Services (CETCO), conducted an Installation Study and designed a package to reduce Oil-in-Water (OIW)



### RESULTS

- CrudeSep® IGF and DGF achieved oil removal efficiency <90%, and OIW <20mg/L for discharge

# CrudeSep® IGF and DGF Treats Produced Water in North Sea

## CHALLENGE

A North Sea operator experienced long term difficulties with produced water oil-in-water (OIW) overboard discharge. The existing produced water system is discharging water that does not meet the regulator-approved limit of  $\leq 30$  mg/L. Because of this, and due to the installation's sensitive environmental location, the regulator is poised to take enforcement action.

## CETCO SOLUTION

CETCO, was contacted and initially conducted a Fluid Process and Optimization Study on the installation, and determined the fluid characteristics; oil and solids particle size; chemical injection program; and process performance. This information has led CETCO to select best available technology (BAT) to separate OIW and to enable the asset to achieve overboard discharge limit.

CETCO mobilized a two-stage compact flotation package consisting of CrudeSep® IGF and CrudeSep® DGF. This treatment package was to take a side stream of approximately 1,000 bwpd

coming from the separator. CETCO installed 18" CrudeSep® IGF and 18" CrudeSep® DGF pilot units, in series configuration, at an identified and suitable point of the produced water system. For the duration of the pilot study, all fluids discharged from the pilot package were routed to the Reclaimed Oil Tank (ROT) of the plant. OIW analysis and Jorin data captures were performed to standard procedures every three hours to monitor OIW concentration and determine particle size and distribution. The trial was conducted under a typical chemical injection program conditions and there was no chemical enhancement regime that was carried out as part of the pilot testing.

## RESULTS

CETCO's CrudeSep® IGF and DGF synergy consistently achieved a combined oil removal efficiency of  $>90\%$ . For the duration of the two week trial, CETCO successfully treated the produced water and removed hydrocarbons to a constant OIW discharge concentration of  $<20$  mg/L.

