Case Study

iNOVaTHERM reduces carbon emissions and operational costs in the North Sea

Treating drill cuttings offshore minimizes HSE risks

Case study facts

Location: UK North Sea

Customer: Confidential

Rig: Semisubmersible

Timeframe: April–June 2022

Results

- Reduced carbon emissions by 80%
- Reduced operational costs by 38%
- Processed 615 metric tons of drill cuttings
- 0.04% average oil on cuttings
- 121 m^3 oil recovered, saving $157,000
- 7 ppm of recovered water discharged

Background

Energy consumption is under more scrutiny, so the oil and gas industry is focused on making operations safer, more cost-effective, and minimizing environmental impact. Under the traditional skip-and-ship method, offshore oil and gas operators use supply vessels to transport drilling waste to shore for treatment and disposal at a landfill, increasing costs, fuel consumption, and carbon emissions. Plus, numerous offshore crane lifts and cargo movements increase health and safety risks to rig personnel.

A major operator in the UK North Sea selected the Brandt™ iNOVaTHERM™ portable treatment unit to process drill cuttings offshore because of the remote location. The unpredictable weather north of Shetland often stops lifting operations, preventing drilling operations and increasing non-productive time.

Solution

iNOVaTHERM processes various oil-based drilling wastes, including contaminated drill cuttings, muds, sludges, and slops at the rig site.

The portable treatment unit uses non-frictional indirect heating to maintain constant temperatures, which results in lower energy requirements throughout the operation. This improves efficiency with faster start-up and shutdown times.

Unlike other thermal cuttings cleaning technologies, the iNOVaTHERM portable treatment unit has a smaller footprint because the process module uniquely combines the heat exchanger and the condensation module into one skid. iNOVaTHERM can process up to 7.5 metric tons of drilling waste per hour. When higher processing capacities are unnecessary, the electrical power required can be significantly reduced to decrease throughput without compromising the waste stream results.

In addition, recovering expensive base oil from the drilling waste ensures it can be recycled and reused in the active mud system, reducing drilling fluid costs. Meanwhile, the recovered water is either reused or further treated for safe and compliant disposal offshore.

Results

Using the iNOVaTHERM offshore instead of skip-and-ship reduced operational costs by 38% and carbon emissions by 80% and minimized health, safety, and environmental (HSE) risks for the major North Sea operator.

For the 12.25-in. and 8.5-in. sections drilled, the iNOVaTHERM processed 615 metric tons of drill cuttings and delivered an average of 0.04% oil on cuttings. The portable treatment unit recovered 121 m3 of oil, saving the operator $157,000, while 7 ppm of recovered water was safely and compliantly discharged.

As part of the carbon emissions reduction, 1,571 offshore crane lifts and exposure to cargo movements were eliminated, reducing health and safety risks for the rig personnel.