



## Waste Management

# Offshore Slop Treatment Unit Reduces Volume Sent to Shore by over 90% on Two NCS Operations

Location: Norwegian Continental Shelf

### Operator's Challenge

Oily slops resulting from rig cleaning and contaminated rain water were typically sent to shore for processing as discharge is limited to 20 ppm oil content, per OSPAR regulations. To mitigate the high cost of transporting waste water to the onshore treatment facility, an alternative was needed that would reduce logistical issues by treating oily slops at the rigsite, and allow the operator to comply with discharge and safety regulations. In addition, the alternative option had to be easily deployed and occupy a small footprint due to limited deck space.

### Halliburton's Solution

The Baroid team recommended installing an Offshore Slop Treatment Unit developed specifically for NCS operations.

- **Case Study 1:** the successful treatment operation has been ongoing for over two years. During this time, the unit helped reduce the volume of oily waste water treated onshore by more than 92% by bringing the effluent into compliance with specifications required for NCS discharge. Only slops with extremely high oil concentrations are still sent to shore for processing.
- **Case Study 2:** the slop treatment cost was greatly reduced over an 87-day drilling campaign where oil based mud was used. Normally oily liquid wastes were sent to shore with the oil based cuttings. The Offshore Oily Liquid Waste treatment package, operated by cross-trained Baroid personnel, resulting in only 96 m<sup>3</sup> (5%) of the 1,959 m<sup>3</sup> of oily liquid waste generated being sent to shore for processing.



*The Offshore Slop Treatment Unit fits easily into limited deck space and meets all safety and discharge requirements.*

The containerized unit is rigged up easily and quickly. It is also easy to shut down when no oily liquid wastes are generated by the rig, allowing for more efficient use of personnel.

Unit operation does not require costly consumables – such as a filter that would need a special disposal process – and chemical consumption during the process is minimal.

The unit can be connected to any pit on the rig and combined with pit cleaning equipment as needed. It handles variable levels and types of contamination, and the results are tracked by a Real Time Total Petroleum Hydrocarbons measurement instrument.

### Economic Value Created

- **Case Study 1:** Over the duration of 851 days of oily liquid treatment at the rigsite, 34,412 m<sup>3</sup> of oily waste water was generated. Of that total volume, only 2,298 m<sup>3</sup> of concentrated oily sludge was sent to the shore for processing. The operator has saved over \$7M USD by reducing the oily liquid waste volume that previously would have been sent to the land for treatment.
- **Case Study 2:** The oily liquid waste stream that would have been sent to shore for processing was reduced by 95%, decreasing treatment costs by \$430K USD over the 87-day operation. The effluent volume discharged had a Total Petroleum Hydrocarbons concentration of 9.66 ppm, well below the 20 ppm limit. In addition to savings on onshore treatment costs, the use of cross-trained Baroid personnel to operate both the cuttings treatment equipment and the Offshore Slops Treatment Unit helped reduce daily costs at the rigsite. Offshore Slops Treatment Unit helped reduce daily costs at the rigsite.

