



## Case: West Hercules

### Client

West Hercules, Seadrill, operating for Statoil.

### Challenge

The drainage system philosophy was far from optimal as it consisted of large tanks without agitation or circulation possibilities. Large volumes from the deck drain were contaminated with drilling waste residues. Statoil asked Nature Group to reduce the waste stream generated offshore by the Seadrill West Hercules, which then had to be taken onshore.

### Solution

The rig was winterised and upgraded at a yard stay in 2012 for operations in the Barents Sea, with slop treatment integration being one of the upgrades. Nature Group won the contract to supply equipment and personnel for slop treatment, and assisted the yard with ideas for upgrades to optimise tank, pump and line setups on the slop system. The rig operations and slop treatment were initiated in the summer of 2013.

Nature Group has been carrying out on board treatment since then, first in the Barents Sea for North Atlantic Drilling and, from 2014, in Canada for Seadrill. Little or no unprocessed slop was sent onshore during this period and the equipment has experienced minimal downtime. The equipment was on board during the whole period, accompanied by one operator for one shift every day.

**Equipment** : Compact Treatment Unit (CTU) and Sludge Treatment Unit (STU)

## Result

### Statistics 2015

STU	CTU	Sludge to shore	To sea	Average OiW	Total chemicals
6679.00 m3	7806.00 m3	3.88 %	7507.00 m3	3.25 ppm	1.0 liter/m3



## Dedicated to excellence

Nature Group is a leading maritime, Oil & Gas waste collection and treatment company, with more than 30 years of experience worldwide. We have first-class port reception facilities to treat maritime waste, and offer sophisticated services to reduce on and offshore Oil & Gas waste streams. Nature Group's best-in-class aspirations and tailor-made solutions are reflected in everything we do. Our goal is to set the global standard for sustainable and innovative solutions that ensure cleaner seas and improve efficiency for our customers.

### On-site treatment, major savings

Nature Group's Oil & Gas Division provides a proven slop treatment process that can handle everything produced on a rig from drilling slop to brine/seawater and wastewater.

Our in-house technology treats slop water at source, whether that be a jackup rig, a semi-submersible, a drillship, FPSO or an onshore production facility. Our customers reduce their carbon footprint, save on expensive logistics, see significant reduction in risk and liabilities, and benefit from improvements in process transparency.

### Types of offshore drilling waste

Drilling and production result in several types of liquid waste. Most of this waste cannot be processed on the platform itself because its components are too complex to treat with standardised equipment that uses pre-programmed treatment methods, especially when waste streams are mixed together or stored for longer periods of time. This waste is therefore normally transported to an onshore treatment plant.

**There are different ways of treating liquid waste. Nature Group has defined four categories, each of which represents a specific treatment:**



#### Category I: Oil-contaminated water

**Source:**

Deck drains and rainwater

**Volume:**

High volume >4000 m<sup>3</sup> per annum

**Characteristics:**

Mainly water, brine, less than 5% oil and solids

**Avg waste reduction:**

95%

**Solution:**

CTU

An STU can be added to further dewater sludge coming out of the CTU, whereby the reduction capacity potentially increases to 99%.



#### Category II: Water lightly polluted by OBM

**Source:**

Category I + displacements, pit washings

**Volume:**

2000-3000 m<sup>3</sup> per annum

**Characteristics:**

Sludge + Water, less than 20 % Oil and Solids

**Avg waste reduction:**

80%-90%

**Solution:**

CTU + STU



#### Category III: Water heavily polluted by OBM

**Source:**

Category I and II + push pills, soap pills, other chemicals

**Volume:**

1000-3000 m<sup>3</sup> per annum

**Characteristics:**

Mainly sludge, more than 20% oil and solids or highly polluted with chemicals

**Avg waste reduction:**

60-85%

**Solution:**

CTU + STU



#### Category IV: Produced water

**Source:**

Water from oil or gas production

**Volume:**

High Volume >10,000 m<sup>3</sup> per annum

**Characteristics:**

Mainly water and oil, few or no solids

**Avg waste reduction:**

>90%

**Provided solution:**

CTU