

# Sludge Treatment Unit

## S•T•U

### Description:

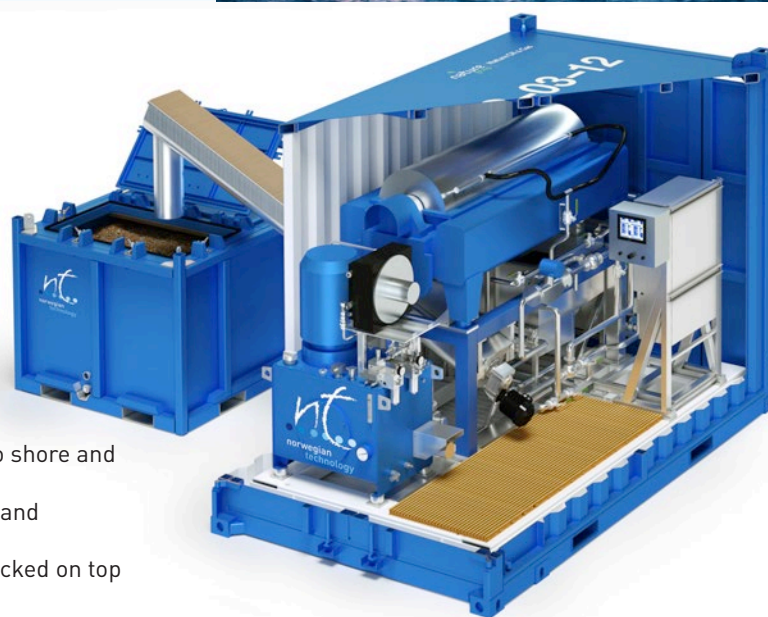
STU is a Sludge Treatment Unit designed for treating heavier slop waste such as sludge, water saturated mud etc. The separation technology includes an emulsion breaker injection system in combination with a decanter centrifuge with high slenderness ratio. The unit is perfectly equipped to separate the solids from the water. The effluent water is suited for water treatment with the CTU.

### Features:

- Small footprint, 14 ft container
- Capacity, 10 m<sup>3</sup>/h
- Proven technology
- Hydraulic Drive
- Variable speed & diff. speed
- Multipower, 400 – 690VAC 50/60Hz
- Standalone unit
- Works together with CTU's
- Controlled by PLC system
- NORSOK Z-015 standard and DNV 2.7-1

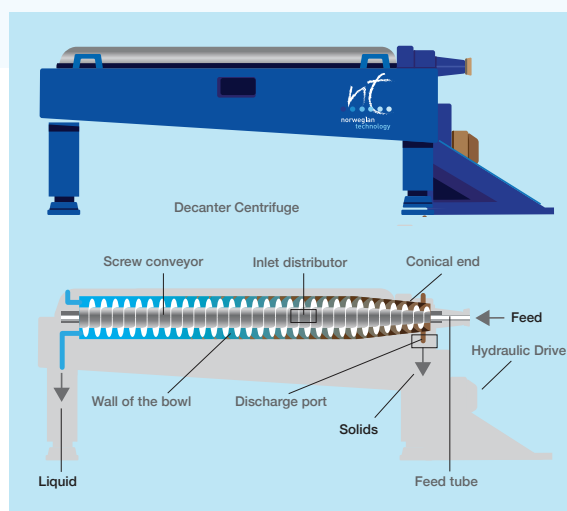
### Benefits:

- Dewatering of sludge/mud to prepare water for water treatment with the CTU.
- Cost reduction on transport of sludge/mud to shore and hazardous waste handling.
- The STU can further dewater the CTU sludge and therefore make it more efficient.
- The STU has extra ISO fittings so it can be stacked on top of the CTU for the saving of deck space.



### TECHNICAL DATA

Container.....	5' DNV 2.7.1
Size/weight.....	14 ft / 11 000 kg
Dimensions (mm).....	L: 4 267; W: 2 438; H: 3 002
Treatment capacity.....	Up to 20 m <sup>3</sup>
Standards & Specifications.....	Norsok Z-015
Inlet.....	2" Cam-Lock Male
Reject.....	2" Cam-Lock Male
Solids.....	Chute to ship
Water discharge.....	2" Cam-Lock Male
Water Supply.....	1" Chicago Claw
Air Supply.....	1" Chicago Claw
Oil in Water Monitor.....	Internal
Water usage.....	Max 100l/h (washing)
Chemical usage.....	Dosing based on lab report
Electromotive force.....	400-480 V 50-60 Hz
Power connection.....	Plug / junction box / 70 kw - 125A
Pressurized Air usage.....	34.5 Nm <sup>3</sup> /h
Capacity .....	1-10 m <sup>3</sup> /h
Design pressure.....	10 Bar
Design Temperature.....	-5 +35 °C
Design pH.....	2-12
Pressurized Air.....	Min 5 barg



Chemically breaking the emulsion of heavy slops

# Compact Treatment Unit

## C•T•U

### Description:

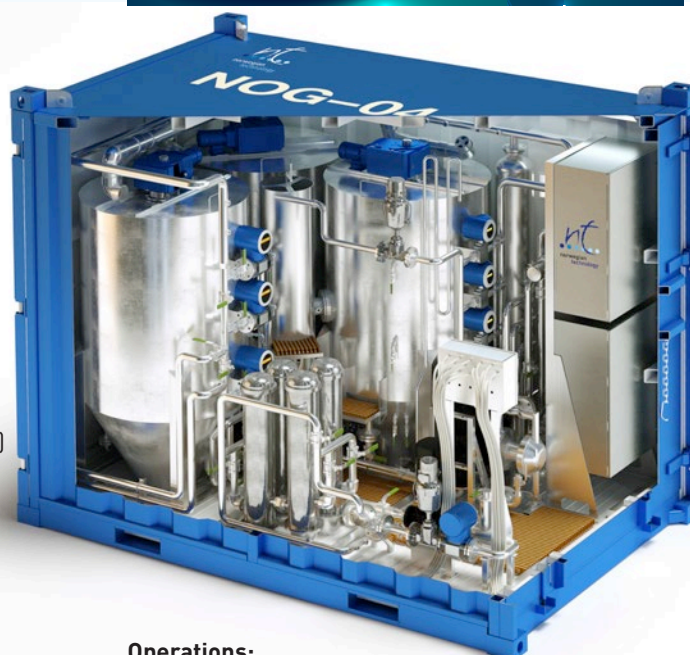
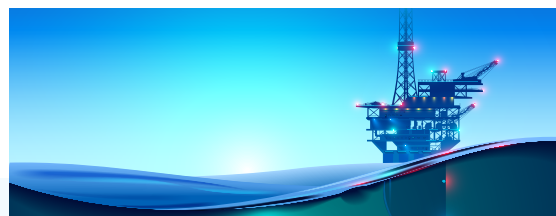
CTU2G is a Compact Treatment Unit (CTU) designed for treating slop water and produced water offshore. The separation technology includes coagulation, flocculation, dissolved air flotation with dosing pumps and control system. The treatment system is built into a 12 ft container in compliance with the NORSOK Z-015 standard and approval for ATEX II/3G.

### Features:

- Small footprint, 12 ft container
- High treatment capacity, 20m<sup>3</sup>/h
- Proven technology
- Target discharge less than 5 ppm OiW
- Multipower, 400-480 VAC, 50/60 Hz
- Low power consumption, 16 kW
- Controlled by PLC system
- Internal NTU monitor  
(can be correlated to independent OiW monitor)

### Benefits:

- Reduces onshore delivery of hazardous waste from the rig up to 95% (dependent on water characteristics)
- Cost reduction on transport of water to shore and hazardous waste handling
- Avoid production of H<sub>2</sub>S during transportation and storage
- Treated water released offshore, not in coastal areas



### Operations:

A touch screen operates the treatment system. The PLC/HMI controls the pumps, motors and valves, and monitors the process variables.

The treatment system consists of 7 steps:

- 1 Inlet – Flow control.
- 2 Mixer – Coagulation and Flocculation.
- 3 Treatment chambers – Dissolved air in water is introduced into the chambers for flotation of the flocculated particles. Sludge is skimmed of the top and discharged to sludge skip.
- 4 Discharge balance tank – Level control by mechanical weir.
- 5 Barrier 1 – A turbidity meter measures the purity of the water, this controls an automated valve if high turbidity occurs.
- 6 Barrier 2 – In case of emergency oil adsorbing filter elements clog up if oil enters into filters.
- 7 Discharge – Discharge pump to sea.

### TECHNICAL DATA

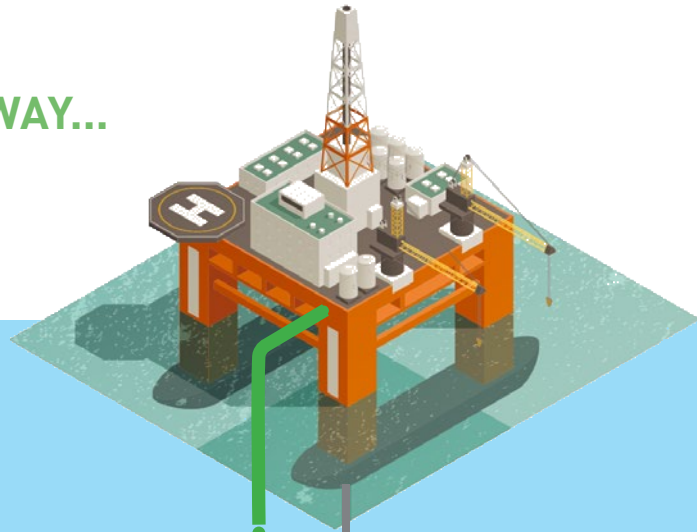
Container.....	5' DNV 2.7.1
Size/weight.....	12 ft / 9 000 kg
Dimensions (mm).....	L: 3 674; W: 2438; H: 3 000
Treatment capacity.....	Up to 20 m <sup>3</sup>
Standards & Specifications.....	Norsok Z-015
Inlet.....	2" Cam-Lock Male
Discharge.....	2" Cam-Lock Male
Return.....	2" Cam-Lock Male
Sludge.....	2" Cam-Lock Male
Decanter supply (opt).....	2" Cam-Lock Male
Decanter return (opt).....	2" Cam-Lock Male
Water Supply.....	1" Chicago Claw
Air Supply.....	1" Chicago Claw
Oil in Water Monitor.....	Infracal T0G / TPH Analyzer
Water usage.....	Max 100l/h (washing)
Chemical usage.....	Dosing based on lab report
Voltage.....	400-480 V 50-60 Hz
Power connection.....	Plug / junction box / 16,5 kw - 32A
Pressurized Air usage.....	34.5 Nm <sup>3</sup> /h
Capacity .....	1-10 m <sup>3</sup> /h
Design pressure.....	10 Bar
Design Temperature.....	-5 +35 °C
Design pH.....	2-12
Pressurized Air.....	Min 5 barg







OUR WAY...



**95%**

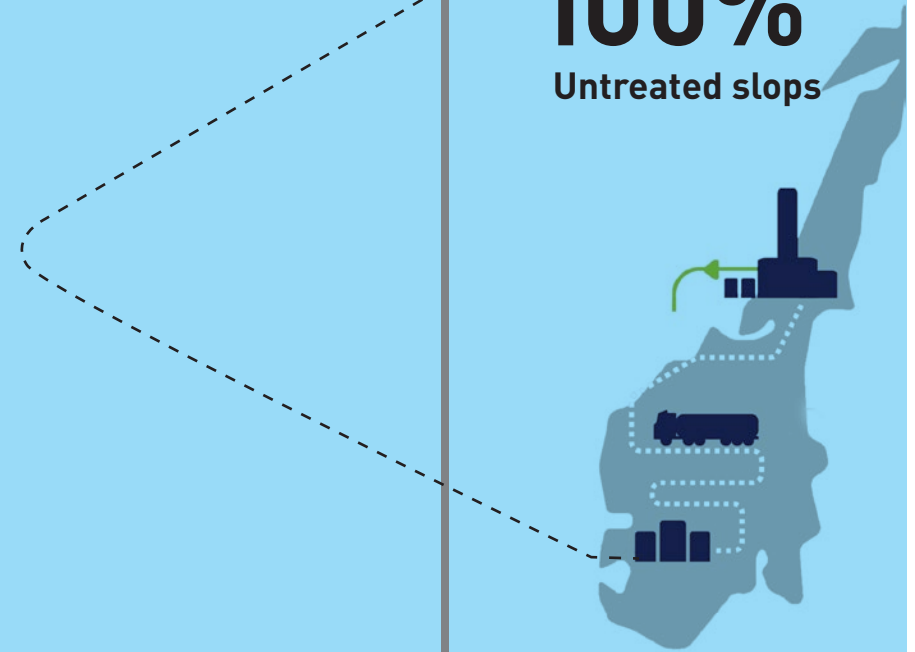
Treated water  
> 5ppm

OR THE HIGHWAY



**100%**

Untreated slops



Reliable treatment of liquid waste

