

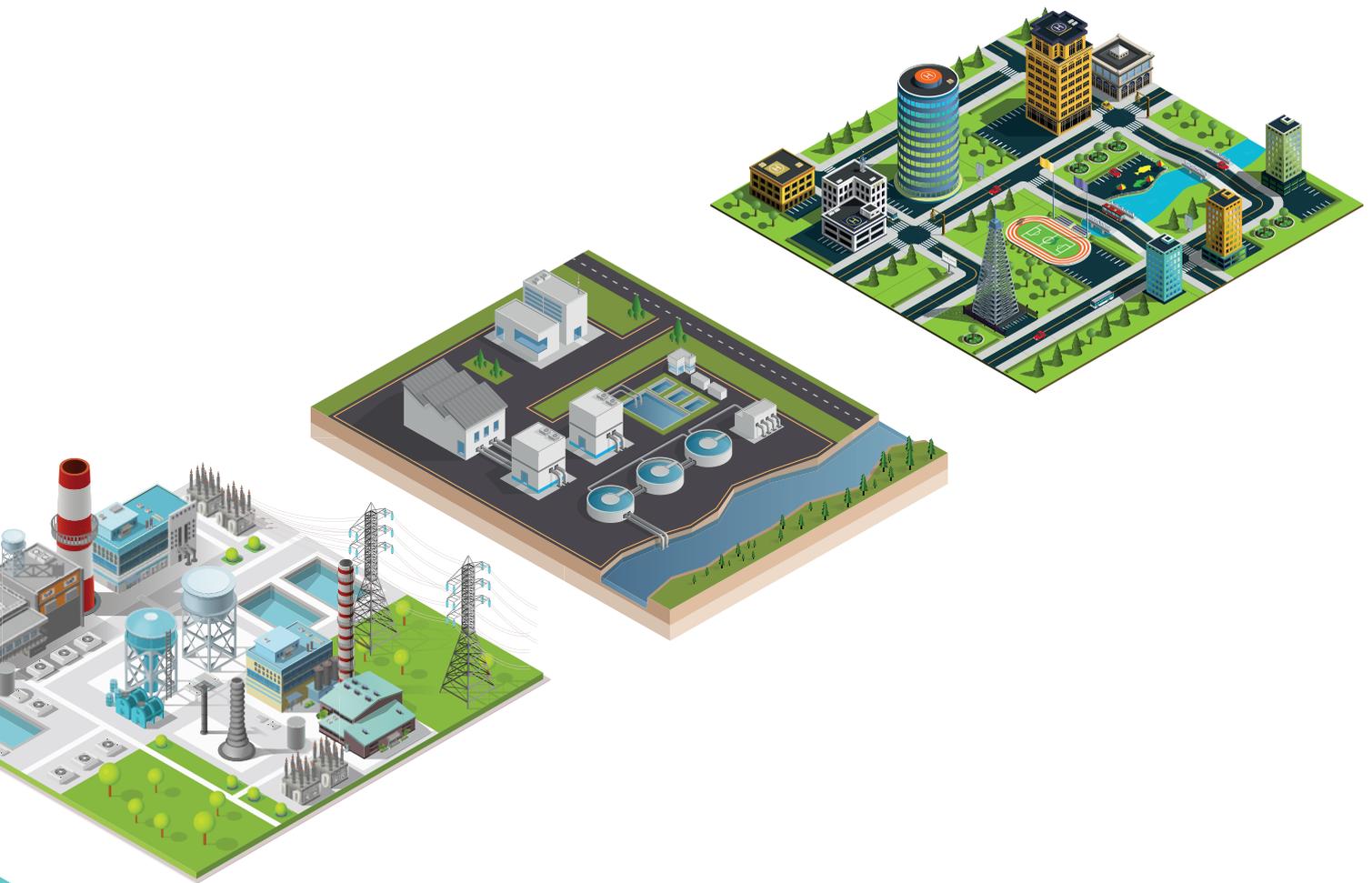
Technologies for the global green economy

# Water

Our most abundant natural resource and the most badly managed, water is the lifeblood of business, society and our economy.

Norwegian Technology AS is where the sustainable management of the water resources becomes a living imperative shaping business and public policy.





## Technology & Innovation

The pace of technological innovation has accelerated almost beyond comprehension. Leading companies are using new and more energy efficient technologies to innovate across product lifecycles and to 'future proof' their brands.

Norwegian Technology AS is a company where inspiration for change is rendered.

## Treatment of wastewater and drilling fluids

Norwegian Technology AS provides services and supplies environmentally friendly chemicals to Waste Water Treatment Plants (WWTPs).

The company provides state of the art compact mechanical separation equipment and supplies environmentally friendly chemicals for the treatment (onsite and offsite) of flowback fluids, completion fluids, produced waters and any other industrial water.

Norwegian Technology AS provides services (onsite and offsite) and supplies environmentally friendly chemicals to destabilise the drilling fluids, oil-based mud (OBM) and water-based mud (WBM), allowing for the separation of the three main elements, i.e. water/brine, oil and solids.

# Efficiently converting hazardous waste into valuable products A major technological breakthrough

## Wastewater Treatment Unit

The Wastewater Treatment Unit (WTU) is the most compact and efficient solution for the treatment of wastewater both offshore and onshore. The WTU employs dissolved air flotation in combination with ceramic membranes to process complex industrial wastewaters.

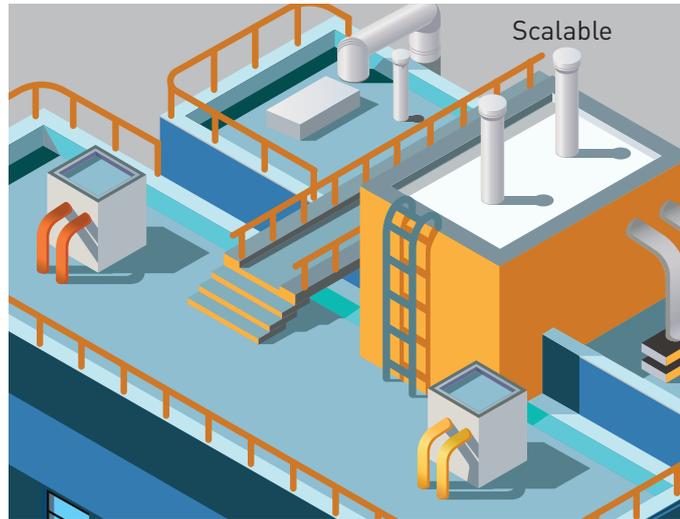
The WTU is built on a frame for indoor installation or into a 5 ft container to operate outdoor, offshore and onshore.

The WTU reduces the oil in water (OIW) to less than 1 ppm in the case of slop water from Oil based mud (OBM) drilling.

The WTU separates the heavy metals, dissolved and suspended, from the wastewater (the degree of separation depending on the chemicals dosage). Thus, it separates more than 99% of the suspended solids. The WTU reduces the turbidity to less than 10 NTU\* depending on the chemicals dosage.  
\*Nephelometric Turbidity Unit

### Applications:

- Produced water
- Flowback fluids
- Slops
- Completion fluids
- Industrial wastewaters
- Closed drain and wash treatment by means of decanter centrifuge





## Chemicals for the treatment of Oily Sludge

Oily sludge is one of the most significant solid waste generated in the petroleum industry. It is a complex emulsion of various petroleum hydrocarbons, water, heavy metals, and solid particles.

The solution offered by Norwegian Technology AS for treatment of oily sludge allows for the separation and recovery for re-use of the different components of the sludge, namely oil, water and solids. The process takes place at room temperature with the use of proprietary chemicals.

Norwegian Technology AS provides also the most technologically advanced mobile separation equipment and the operators to carry out the sludge treatment.

Lab test



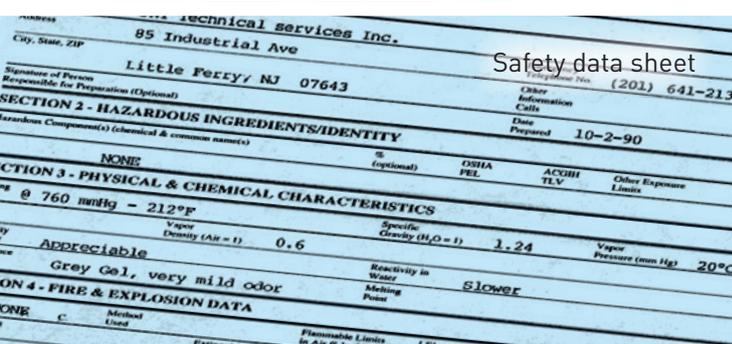
## Lab tests

Norwegian Technology AS conducts lab tests in order to accurately identify the most appropriate chemicals, to optimize their dosing, to evaluate the reaction time at ambient temperature and, last but not the least, to draw a technical proposal highlighting the consequent cost savings for the Customer.

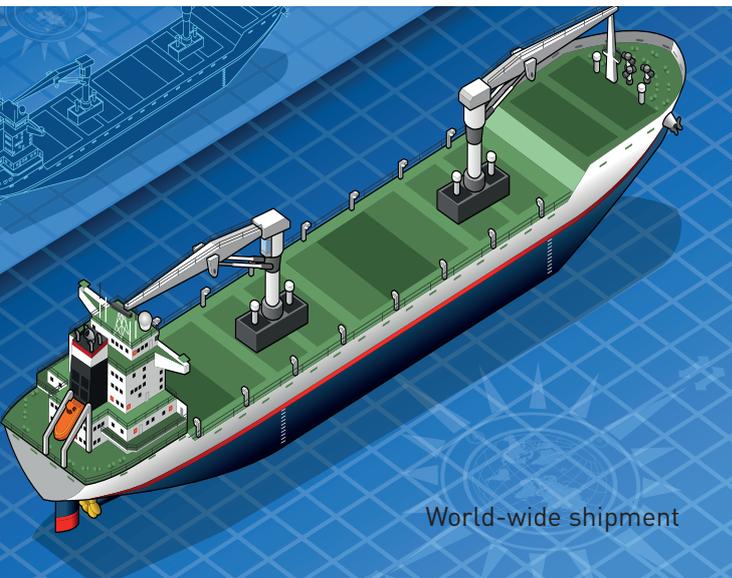
Project development:

- Chemicals and dosing pump mobilization.
- If settling tanks are not present, installation of inline mixer and decanter.
- Mixing of the chemicals.
- Sedimentation in gravity settling tanks or solids separation by means of decanter centrifuge.

Safety data sheet



World-wide shipment



# Chemicals for the treatment of Oil-Based Mud and Low-Solids Oil-Based Completion Fluids

Oil-based fluids (OBF) in use today are composed of oil as the continuous phase and water as the dispersed phase in conjunction with emulsifiers, wetting agents and gellants.

The Base Oil can be diesel, kerosene, fuel oil, selected crude oil or mineral oil. The water can be freshwater, or a solution of sodium or calcium chloride.

The Oil Water Ratio (OWR) represents the relationship between Base Oil and Water in the drilling fluid. OWR is the ratio between the percent oil in liquid phase and the percent water in liquid phase.

This figure is very important since it tells us how much water is present in the mud.

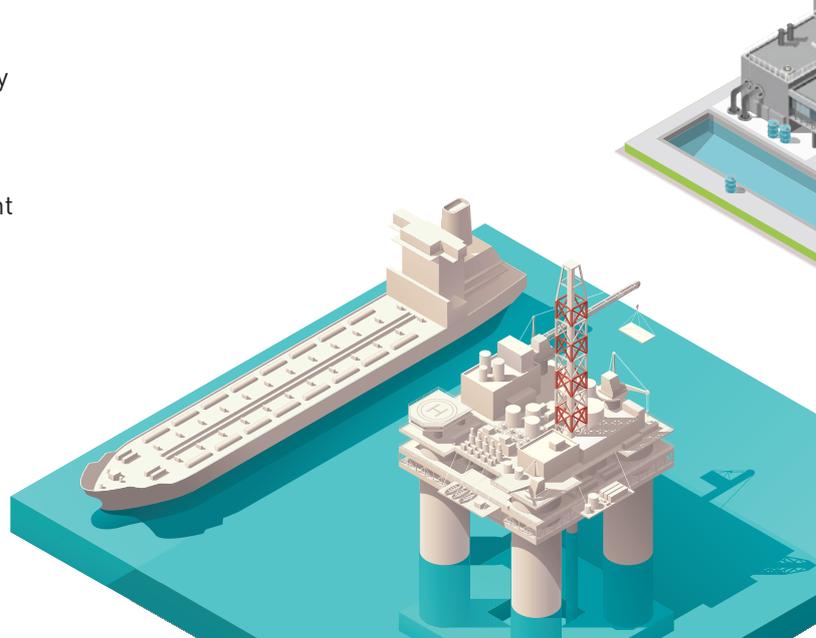
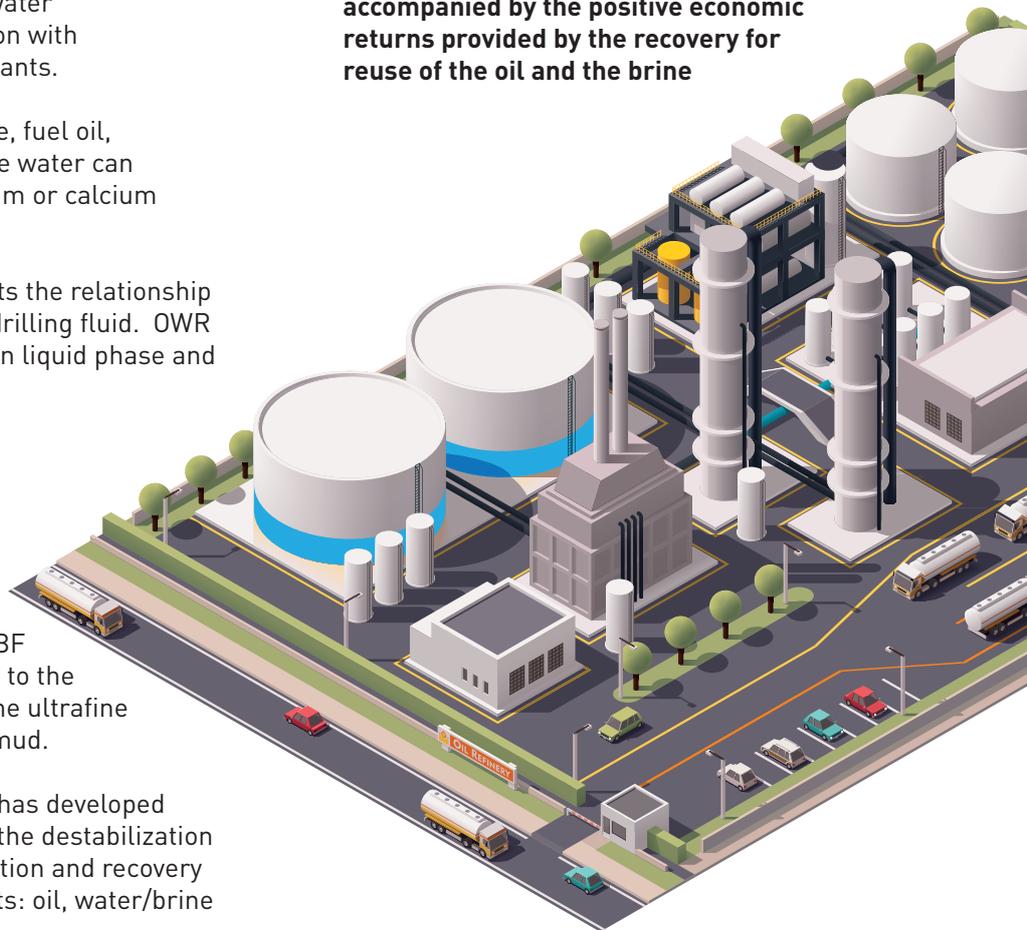
While the mud circulates in the borehole, the water to oil ratio and the ultrafine solids content of the OBF increase. In order to return the mud to the mud system the excess water and the ultrafine solids must be separated from the mud.

For that, Norwegian Technology AS has developed chemical additives and services for the destabilization of the OBFs, allowing for the separation and recovery for re-use of three different elements: oil, water/brine and sludge (solids).

The effectiveness of the treatment is accompanied by the positive economic returns provided by the recovery for re-use of the oil and the brine.

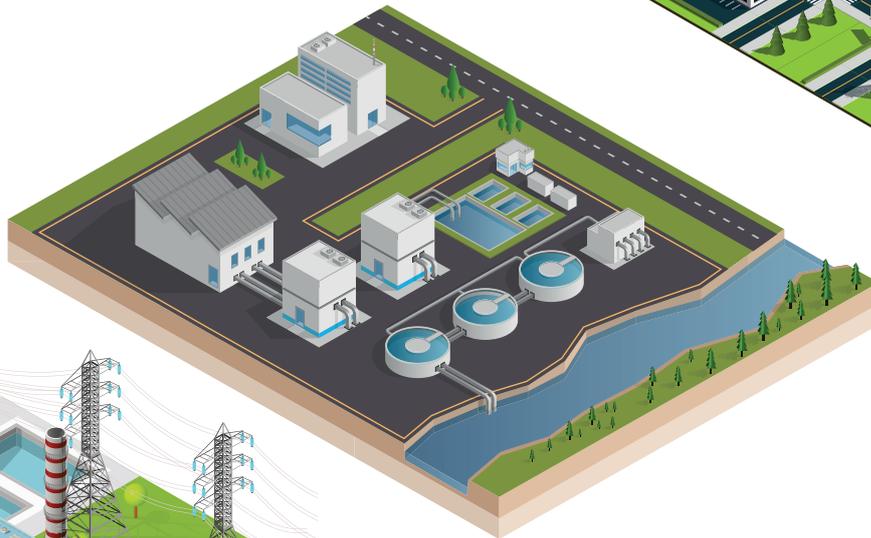
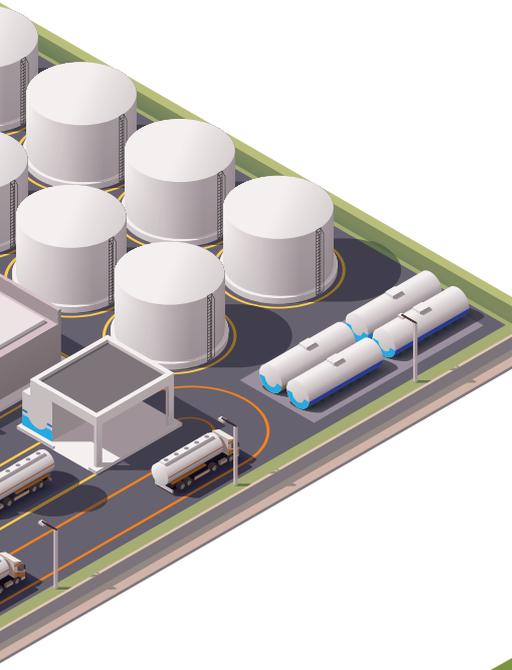
Norwegian Technology AS provides the most technologically advanced mobile separation equipment and the operators to carry out the onsite treatment operations.

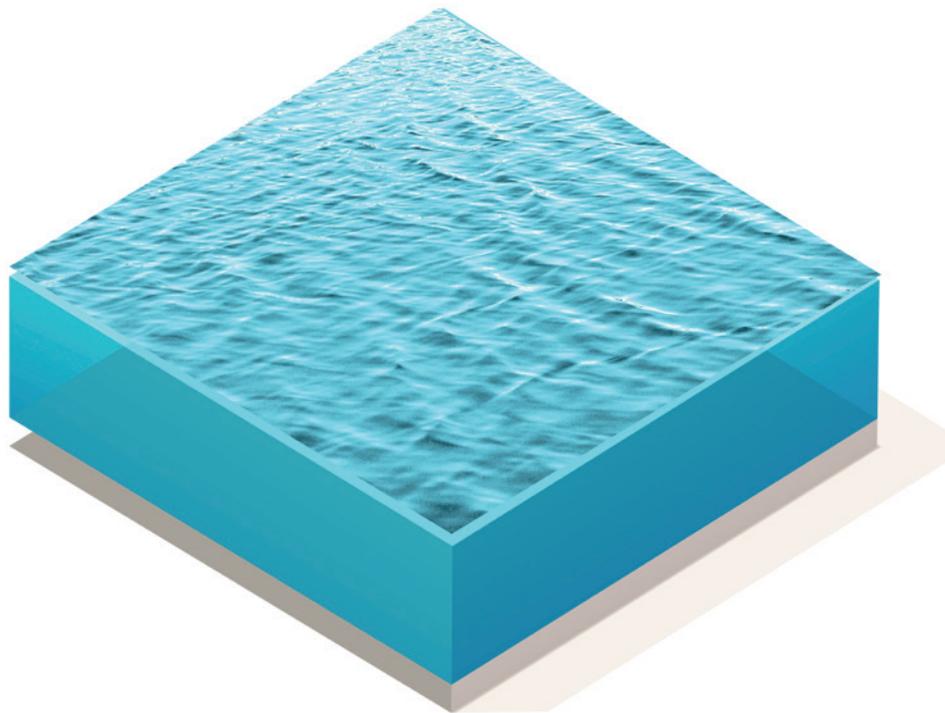
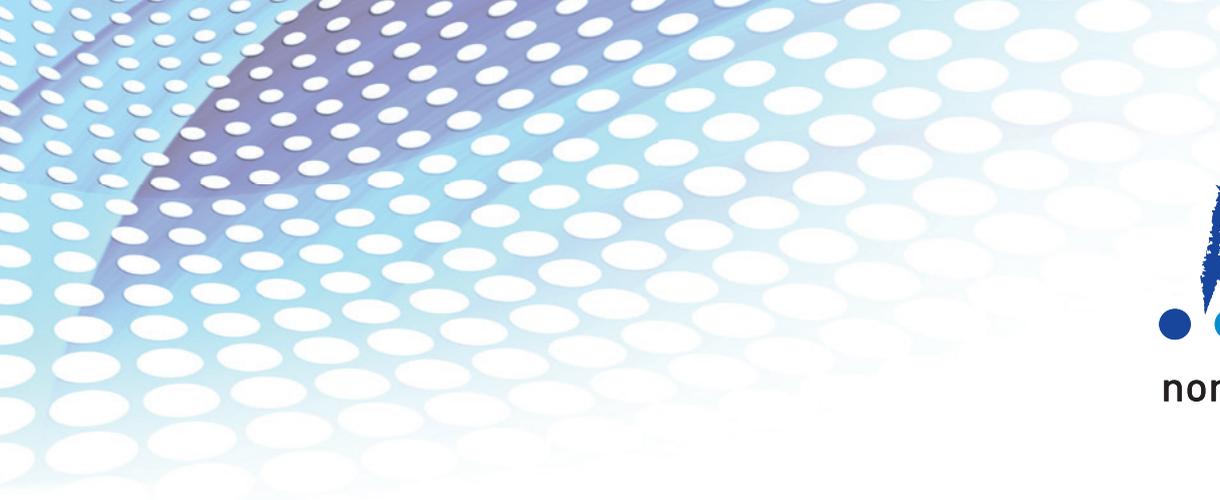
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## Scalable. Flexible. Connectable.

The equipment delivered by Norwegian Technology AS is scalable and easily connected with the sludge treatment unit or a desalination unit. The oily sludge unit is used for the treatment of OBM, WBM and tank bottom sludge. Desalination units are employed to separate Total Dissolved Solids (TDS) and divalent ions.





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