

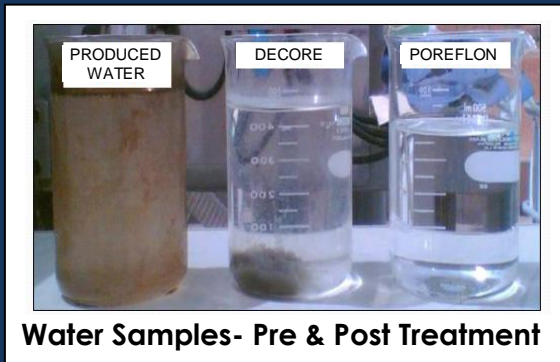
The **Drill Cutting Treatment and Recycling System (DCTRS)** is a green technology ideal for processing offshore drilling wastes. Using a field-proven technology from our partner Dowtec Pte Ltd., the system features three modules: DECORE, POREFLON and CARBONIZER.

DECORE

DECORE and POREFLON processes bring the total suspended solids content of produced/effluent water down to **5ppm** and **1ppm**, respectively. **NO USE OF SPECIAL CHEMICALS.**

Use DCTRS to process Produced Water (PW) from a drilling operation or an operating oil/gas field. There are two types of by products:

1. Oily sludge that will be separated in the DECORE electro-flocculation chamber (has the characteristic of crude oil).
2. Inorganic sludge produced from the DECORE electro-coagulation chamber, consisting of inorganic hydroxide and potential trace pollutants from the produced water.



POREFLON

POREFLON is a hollow fiber micro-filtration (MF) membrane made of PTFE material, which brings down the total suspended solids in PW to 1ppm. The Fluororesin porous membrane with uniform pore-diameter distribution possesses excellent characteristics as below:

- Can tolerate the temperature ranges from 90° C to 260° C.
- Can resist all the acids, alkalis and solvents.
- Can resist the attachment of the oil
- Can produce consistent flux
- Can withstand high vibration due to its high mechanical strength at about 80N.

- Its strength is almost 8 to 10 times more than normal membranes.

The excellent properties mentioned made the POREFLON the most suitable membrane for the treatment of the produced water. The material used to make POREFLON is also widely utilized in industrial materials such as precision filters and sealing materials. The "POREFLON Module" is made by bundling and assembling several hundred of POREFLON hollow fiber membranes. It offers superior performance in micro filtration and wastewater separation.

CARBONIZER™

In the Carbonizer™, drill cuttings from offshore drilling operation go through a specially designed **non-combustion heating process** that removes all the harmful components from the drilling waste.

The end-product is granulated solids from grinded rocks and metals, which can be used as aggregate for various subsea facilities like tie-in ramps, subsea protection, and subsea insulation.



The clean drill cuttings, now free of drilling mud and other fluids, can also be disposed of safely inland should there be no need for reusing the material.

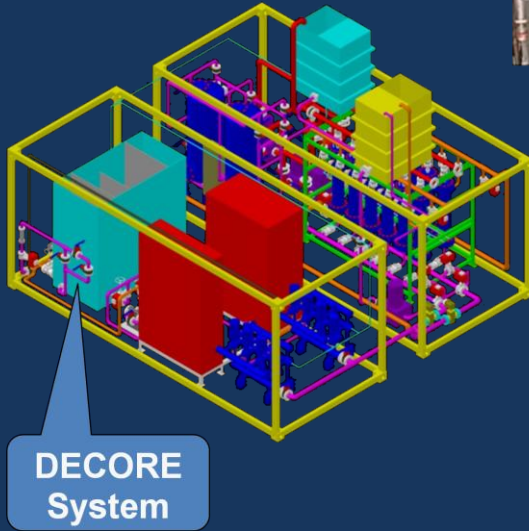
RECYCLING

The DCTRS will receive drill cuttings from the drilling unit's shaker and will be fed into the process system, where the fluids will be separated from the solids. The solids will end up as reusable granulates which will be mixed with SEPORID™, a modified marine biopolymer exclusively produced by Marine BP Ltd., and injected into various soft shell modules. These modules will be used for tie in ramps (supports for flowlines and umbilicals), subsea protection and subsea insulation where applicable.

GREEN OUTPUT, GREEN PROCESS, GREEN TECHNOLOGY

The Drill Cutting Treatment and Recycling System is a Joint Venture Project of **First Crude Oil Ltd** and **Dowtec Pte Ltd**. As a partner in the First Crude Network, **First Crude Eng'g Products, Inc.** is tasked in promoting DCTRS in the Philippines and the rest of the region.

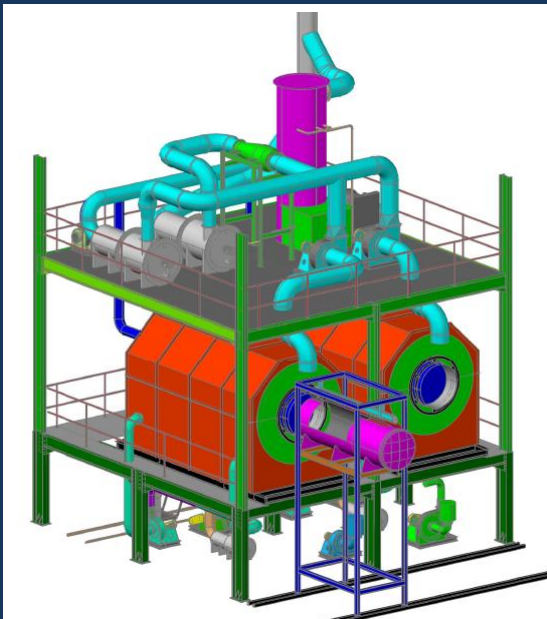
DECORE AND POREFLON MODULES



Actual Containerized Modules



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