# Storing CO2

## Project Greensand

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### Facts

- The oil field is located at an optimal depth of 1,5-2,3 km and is encased in cap rocks.
- The area has retained oil and gas for 10-20 million years.
- Geologically very stable, making it a safe and permanent storage site for CO2.
- 29 consortium members working together.

### Transportation and offshore interfaces

- 80 x 20' ISO tank containers carrying CO2
- 1 x platform supply vessel (converted)
- 1 x jack-up drilling rig (interface)
- 1 x stationary offshore installation

Denmark's ambitious climate target of reducing CO2 emission by 70 % in 2030 is to be helped by the findings of Project Greensand's trials, which took place during 2021-2023. The project is the first of its kind in Europe, and transport and logistics provider Blue Water Shipping is proud to be part of the consortium to realise this project.

The aim is to store 4-8 million tonnes of CO2 per year from 2030. By means of Carbon Capture and Storage (CCS technology), it will be possible to capture, transport and store CO2 in drained oil wells in the Nini field situated in the Danish North Sea. The CCS technology is based on an imitation of earth's own CO2 cycle.

### Blue Water's scope

Blue Water's role in the project covers the core competence of providing logistics solutions. This includes sourcing special containers capable of transporting CO2, handling the containers and chartering the vessel to transport them offshore and back. Here is a summary of the scope:

- Sourcing 80 x 20' ISO CO2 tanks
- Port operation set-up
- Vessel sourcing (correct vessel, correct specs) of Platform Supply Vessel (PSV)
- Modification of vessel
- Communication with various team vessel owners, vessel class, vessel flag, national authorities to get the vessel approved for service as the shipping-part sorts under the IMO's IGC-code (International Gas Code) which has very strict stability requirements, which a PSV is not built for.
- Grillages and transport frames play a critical role in the transportation of heavy and oversized cargo on vessels. Grillage stress test versus vessel deck strength and lashing system (marine engineering). The containers were carried on a standard Platform Supply Vessel (PSV), but this vessel does not have container bays, so these needed to be manufactured and installed (and removed upon completion of the project).
- CO2 leakage detection system

The CO2 was collected from a factory in Antwerp and delivered to the Nini field in the Danish North Sea. The Port of Esbjerg was used as a transshipment point for the CO2 and for the ship's modification and reinstallation work.

The first part of the project lasted for over a year with the vessel being chartered for a total of 140 days. Blue Water had to source 80x20' containers globally and get them to a specific location in Belgium.

### What does the Greensand Project mean to Blue Water?

Being involved from the outset has helped Blue Water to make successful progress in CCS, which is a future niche area, and Blue Water has submitted several bids for facilities to support this onshore injection. Blue Water has also been involved in port infrastructure projects for CO2 unloading facilities, including one in Esbjerg.

Blue Water is working to reveal what the next step and progress on Greensand will be. In the meantime, Blue Water has been approached by several companies that also have logistical needs for liquid CO2.

### Contact

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