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North Sea spotlight

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Deepwater Intervention

Pieter Schelte: Bigger and better

Work is lining up for Allseas' mega-vessel the *Pieter Schelte*, which finally starts sea trials offshore Korea this summer. Elaine Maslin got an update and found out more about the firm's next massive project.

Pieter Schelte fact box

Dimensions: 382m-long and 124m-wide, with a 59-wide slot for removing topsides.

Lift capability: 48,000-tonne for topsides using eight sets of horizontal lifting beams, at 6000-tonne a piece, across the slot for removal or installation of topsides.

25,000-tonne for jackets, using two tilting lift beams on the stern for lifting and laydown

Pipelay system: A 2000-tonne capacity S-Lay pipelay system, able to handle 12m pipe sections under tension using four 500-tonne tensioners, with a 170m-long stinger.

Power: 12 thrusters at 75-tonne a piece, powered by eight main diesel generators, providing a total installed 95MW power

Yard: Daewoo Shipbuilding and Marine Engineering

A unique and long-awaited sight will arrive in Rotterdam in December. More than 20 years after it was first conceived, the twin-hull *Pieter Schelte* mega-heavy lifting vessel is due to berth at Rotterdam's new Maasvlakte.

It is not quite to its original schedule. A decision to increase the vessel's width in late 2012 and delays in the shipbuilding process due to the complexity of the project, have delayed the vessel's launch and sea trials to this summer, off Korea, with lifting tests, using a test platform offshore, scheduled for next Spring.

However, for the market, the 382m-long heavy lift and pipelay vessel's arrival from Daewoo Shipbuilding and Marine Engineering's Korean yard is timely. It already has a string of contracts lined up, offshore Norway, in the UK North Sea, pipelay in the Black Sea and potentially topside installation offshore Newfoundland.

In fact, the interest in the vessel and its potential has been enough to lead Allseas to consider building a second single-lift vessel that will exceed even the *Pieter Schelte*'s 48,000-tonne topside lifting capacity, by 50%, to 72,000-tonne.

"Ever since we started designing *Pieter Schelte* long ago, we always knew there was a league of about 13 very large platforms in the Northern North Sea we could never take out," says Edward Heerema, whose vision has led the creation of the *Pieter Schelte*.

This league of large platforms includes Troll, Gullfaks, Sleipner, and Oseberg, all on gravity-based structures, offshore Norway, and wide structures like Thistle, Magnus, and Dunlin (the latter also gravity-based) in the UK North Sea.

"To be able to lift those out, the *Pieter Schelte* would have had to be much bigger and a few years ago *Pieter Schelte* looked so big we couldn't think of anything bigger," Heerema says.

"But, with the success of the *Pieter Schelte* now, we realized that if you could have a way to remove those very large topsides, you would have something quite special to offer. It is clear that the bigger topside is, the bigger the advantage of a single lift is." There are also opportunities outside the North Sea, such as offshore west Africa, Australia, and the Gulf of Mexico.

The *Pieter Schelte* at Marine Engineering's Korean yard.
Photo from Allseas

Allseas new single lift concept, compared to the *Pieter Schelte*.

"We know better than anyone else what a ship that could lift these (for installation and decommissioning) should look like," Heerema says.

However, Allseas will wait until the *Pieter Schelte* has launched and has done one big topsides lift before starting to invest big money in another new vessel.

The next one will be based on the *Pieter Schelte* design—a twin hull with lifting beams, but it will be wider (160m compared to the *Pieter Schelte*'s 124m), and longer, and will incorporate lessons learned from the *Pieter Schelte*.

When it arrives in Rotterdam, the *Pieter Schelte*'s horizontal topsides lifting beams, made by Cimolai in Italy, will be installed, with lifting trials due to complete in 2Q 2015.

The lifting trials will use a test frame, with a 5000-tonne capacity water tank, resting on four section piles, to simulate a platform. SPT Offshore and Volker Staal en Funderingen will build the structure in a joint venture. It will be sited in about 100ft water depth for lifting tests first in a calm sea and then in increasingly rougher weather, deploying the vessel's dynamic positioning compensation system.

The vessel will then do its first job, lifting off Talisman's doomed Yme topsides offshore Norway, scheduled for May. "This will be a difficult test because the platform is wobbly, by the nature of the deficiencies in the design of the structure," Heerema says.

The *Pieter Schelte* will then be prepared for the South Stream pipelay project, which comprises an 888km pipeline from Russia, through the Black Sea to Bulgaria. Allseas has the contract, and depending on timing of the first Brent platform, which is due to be Brent Delta, it will use the *Pieter Schelte*, or its pipelay vessel *Solitaire*.

"We had been changing our views on what part of the ship should be commissioned with priority – the lift system or the pipelay system, depending on what the requirement is," Heerema says. "The first requirement was heavy lifting work. When South Stream came up, it was an ideal project for *Pieter Schelte*."

Allseas has also bid on an installation contract, on the White Rose extension project, operated by Husky Energy, offshore eastern Newfoundland. This is likely to be in 2018, Heerema says. "That's interesting for us because, for a change, it is an installation," he says. The White Rose extension project involves a new harsh environment platform, sited on a gravity base which will be towed to position and sunk into place. If it secures the contract, the *Pieter Schelte* will then lift the topsides into place.

The *Pieter Schelte*'s jacket lifting equipment will be added in 2016.

It has been a long and complex, but invigorating project for Allseas. The vessel delivery timeframe had slipped due to delays in the shipbuilding process, because of the complexity and scale of the project, the steel wall thicknesses, the locally high steel grade, the high welding quality requirements, and high accuracy requirements on machining, Heerema says. The lifting beams have also taken longer to build than expected, for similar reasons around complexity and accuracy.

"This ship is a challenge for everyone," Heerema says. "So it means everybody has to be on their toes. There have been delays, but it is still amazing to get here." ■

Load out of the topsides lift system beam number one. Photos from Allseas.

Stinger section one loadout from Lemants.

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