

Lifting Support for PSA Installation on FPSO

Thunder Cranes successfully positioned a TC05 modular crane on FPSO process deck to provide lifting support for a PSA vessel changeout on an FPSO. Our scope included onboard lifting equipment from the process deck to the platform upper deck. The heaviest lift performed was 3,516Kg.

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Overview

In this case, our client had to perform a PSA vessel changeout involving four units of PSA vessels each weighing approximately 3.5 tons. This was a complex situation due to the size and weight of the vessels, and also their location on level 3 of the process deck where there were major space constraints and where there was no crane to perform the lifting required.

Thunder Cranes’ solution involved installation of a TC05 portable-modular crane on the upper deck where it would be in a position to support the PSA vessel removal and installation. Following a site visit, we conducted detailed planning and risk analysis with our clients. Our engineers provided a step by step lifting plan for the TC05.

The comprehensive lifting plan featured multi-step rigging, skidding and lifting solutions for both our TC05 rigging up process and also for the PSA vessel changeout itself. The TC05 crane was provided with zone rated safety systems on all of its auxiliary equipment due to the project being in a zone 2 area.

Challenges & Solutions

- **Skidding:** Transferring crane components and PSA Vessels across FPSO deck from the loading area to the installation location required the use of customised trolleys, and pallet trucks.
- **Rigging up:** Self-lifting TC05 from main deck to level 3 of the FPSO process structure then self-erecting the TC05 without any 3rd party assistance. In addition, due to space constraints the crane powerpack was positioned on a separate level to the crane.
- **Modifications:** Minor modifications only – such as the dismantling and temporary removal of certain FPSO deck elements (railings, ladders).
- **Tie down method:** Sandwich clamps to structural beams with spacers.
- **Max Lift:** 3.5MT (Onboard) with the TC05.

Application

- Lifting Solution for PSA Vessel Replacement on FPSO

Challenges

- Difficult to reach location on FPSO
- Space constraints

Our Service

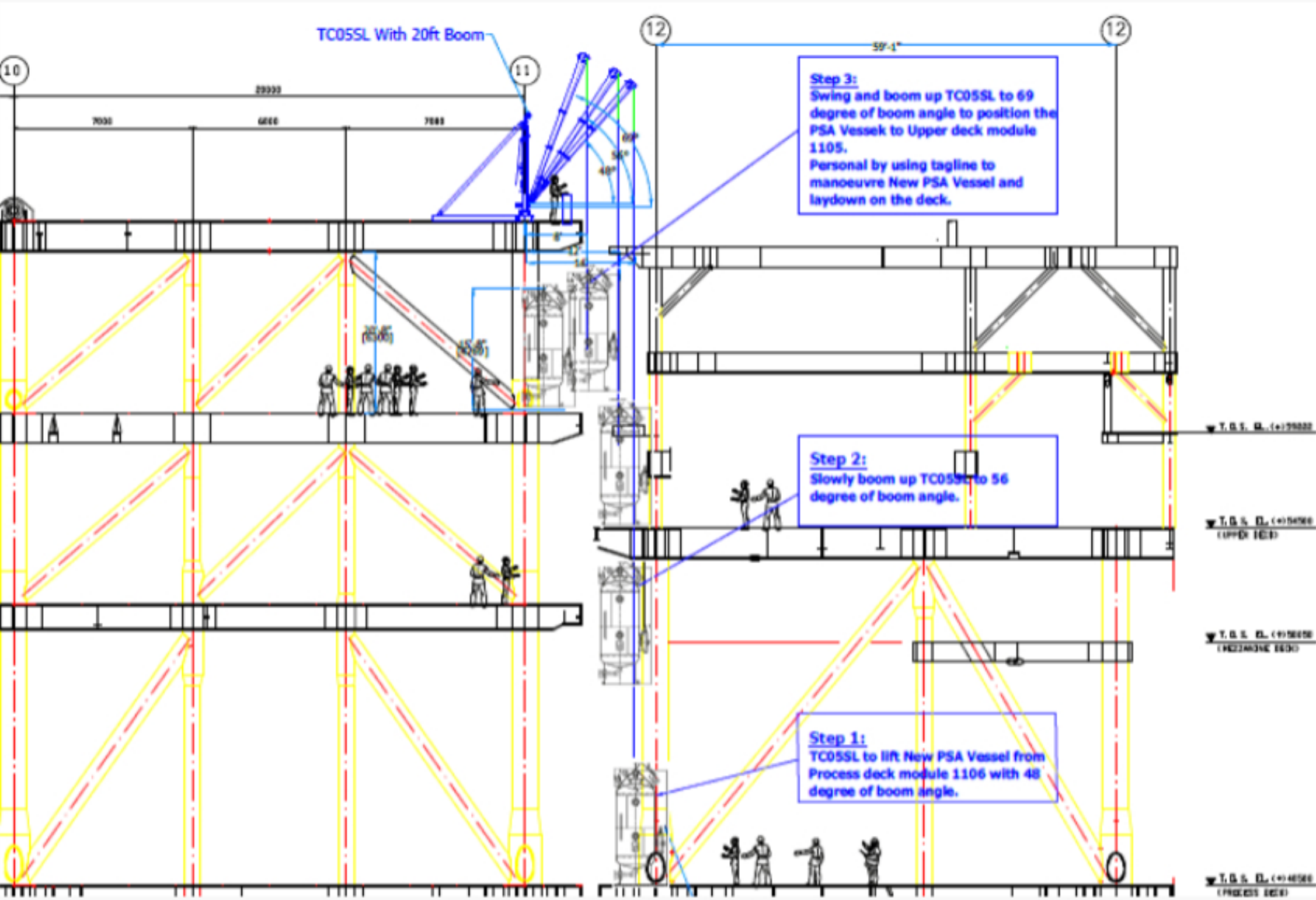
- Offshore Rental Crane TC05
- Complex Rigging & Skidding
- Crane Operators
- Detailed Planning & Preparation

Benefits

- Cost effective, safe, precision lifting solutions

Location

- Malaysia



Timeline / Steps

1. — All materials and equipment were lifted from the supply vessel to the FPSO loading bay lay down area via the FPSO crane.
2. — They were then transferred by trolleys from the loading bay to the process area, approximately 100 metres.
3. — TC05 was rigged up via a self-lifting A frame system on the upper deck (level 4) of the process structure.
4. — Use of gantry and chain blocks for positioning and installation of powerpack and hydraulic tank on level 2 of an adjacent process structure.
5. — Crane and equipment safety inspection and load test was performed prior to commencing lifting operations.
6. — Four units of PSA vessels were removed from Level 3 and lifted down to the deck level.
7. — The PSA vessels were then transferred to the loading bay by trolley.
8. — Four new PSA vessels were then installed.
9. — Crane was then rigged down, crew was demobilized and transferred back to shore base.

Outcome

Performing non-routine maintenance on FPSO can be complex, time consuming and costly. One of the challenges of performing maintenance on this FPSO in offshore Malaysia was the relative lack of crane coverage over parts of the FPSO deck.

The PSA vessel replacement project was safely and successfully completed with the TC05 modular crane providing the lifting support.

The project demonstrated the versatility of our rental cranes, our ability to work closely with clients and partners on detailed planning, as well as our execution of creative, complex rigging and skidding procedures.