

# Vertech Case Study



## RTM Clump Weight Retrieval

### Introduction



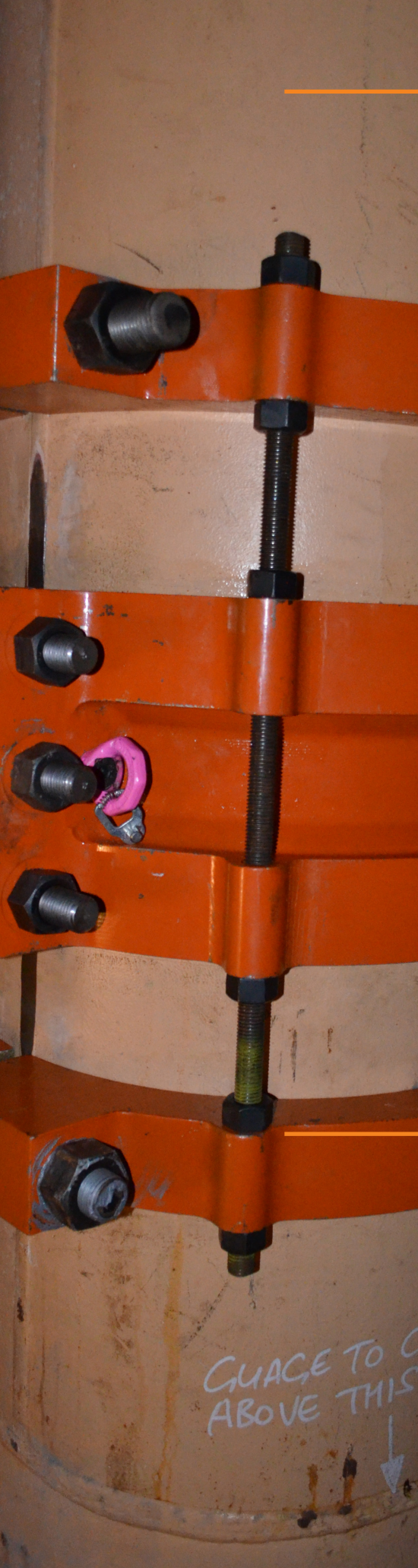
Vertech were contracted to assist and provide a confined space multi-discipline solution and leadership in the retrieval of the FPSO Clump Weight / Cable Stopper which was lodged 70+ meters below water level down the central shaft of the facility RTM (Riser Turret Mooring). The clump weight was supported by a 141mm wire rope which was attached to the FPSO. The clump weight managed to get lodged in the central shaft due to an unrecorded diameter reduction of the main shaft. Once the clump weight was

lodged the FPSO was unable to detach and sail away from the RTM until the clump weight was free which was a huge concern to our client.

Vertech's alternative approach was chosen instead of taking the facility back to dry dock, which would've proven costly to our client.

Due to the highly challenging nature of this project Vertech were engaged and involved in several high level feasibility and hazard assessments to ensure any applicable solution could be delivered in a safe and effective manner.





# Project Summary

Vertech teamed up with a strategic partner to provide access and support their mechanical solution to free the lodged clump weight.

The RTM was not designed for personal entry, accessing the area which was >70 meters below sea level where the clump weight was lodged required abseiling through 7 separate shafts and compartments. Each shaft entry needed to be unbolted, opened then accessed via rope access all while on long line BA.

Each compartment required between 6 to 12 hours forced fresh air ventilation to ensure the area was gas free safe for human entry. The access and egress points for each level had differing hatch diameters and locations, each penetration had to support multiple cables, ventilation hoses, long line BA hoses, lighting cables and rope access systems which made them very congested as some of the hatches were only 600mm in diameter.

Writing a rescue plan for this scope was very challenging due to complex nature of the hatch locations in each compartment. Our team had to set up multiple rescue stations to ensure if a rescue had to take place our teams would be able to recover casualties to safety in a timely manner. Once the area was made safe the team was able to support our strategic partner with locating the lodged clump weight. There were a few attempts to dislodge the clump weight using hammers and other means which proved unsuccessful, eventually the team had to cut into the shaft below and above the clump weight to expose the area and provide access for specialist tooling.

Once the clump weight was exposed our team attempted to dislodge the clump weight using pneumatic jacks which proved unsuccessful. The final solution was to use specialist cutting equipment to mill the diameter of the clump weight. The original diameter of the clump weight was 480mm and had to be reduced to 440mm in order to allow the clump weight to move freely through the shaft. There were many challenges that presented themselves during the campaign, weather, untoward atmospheric and gas readings, RTM access restrictions, no helicopter access etc.

The milling of the clump weight proved successful, Vertech provided 24 hour operations until the milling was complete and the clump weight was freed.

Vertech's mechanical fitters and riggers were used to repair the shaft installing an engineered clamp system.

## Key Success Factors:

- ☑ Team approach where all parties were involved from planning phases through to execution
- ☑ Robust feasibility and risk assessments from all parties involved.
- ☑ Vertech provided a strong multi-disciplined trade based team and managed to access, acquire and deploy a wide range of specialist equipment at very short notice.
- ☑ Buy in and support from our client and partners throughout the entire project
- ☑ Our offshore team's ability to adjust and react to shift changes, inclement weather challenges and a very challenging work environment
- ☑ Strong planning and management support from Vertech management team