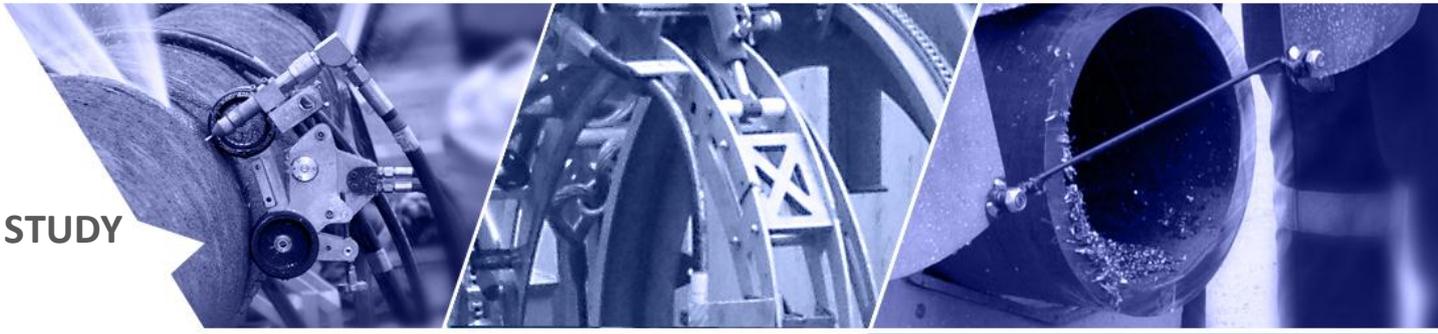


CASE STUDY



Overview:

Underwater Cutting Solutions (UCS) was approached by Technip to carry out cutting operations to assist with recovery of a failed Flexible Riser which required investigation to determine the cause of failure. Due to impact damage on the J-Tube the riser end fitting could not be lowered back down the J-Tube, therefore cutting was required on both the Riser and J-Tube simultaneously. Drilling and pinning had been previously carried out at the +4m mark to secure the riser in place.

The Riser/J-Tube was to be cut at three locations utilising both air and saturation Divers and to facilitate lifting the Riser/J-Tube sections a "recovery saddle" was used. Prior to cutting the Flexible it was secured by drilling and pinning to prevent / limit any movement while cutting operations were taking place.

Project Details

Product particular

Flexible Riser inside J-Tube dimensions as below;

J-Tube:- 20" (508mm)OD x ½" W.T

Flexible:- 10" (254mm) OD x 3" W.T

Project Scope

- Fit Recovery Clamps prior to recovery
- Drill and pin Centralisers and rigging
- Riser/ J-tube to be cut and removed into 3 sections
- Deploy and set up Diamond Wire Saw for cutting operations
- Cutting of J –Tube/Riser into sections using the UCS 22" Diamond Wire Saw (DWS) to simplify and support safe and "damage free" recovery to the deck of the vessel to allow investigation of flexible failure.



Recovery Saddle test set up



Yard trial test cut with the 22" DWS

CASE STUDY

Equipment Suitability

As this cutting requirement had never been executed Offshore it was agreed a trial test was to be carried out along with testing the recovery clamps. The trials showed that the 22" was more than capable of performing this task offshore and a cutting time of 45 minutes was achieved.

Project Performance

4 cuts were performed in various locations on the Riser/J-Tube from horizontal through to vertical. The Diamond Wire Saw was set up for Diver operations and the design only required the Divers to operate three functions; Clamps / Motor / Feed. Once the 22" Diamond Wire Saw was deployed and clamped on to the product and the drive motor activated, the Diver engaged the auto feed he was then only required to monitor the cutting operation. The tool performed as expected with excellent average cutting times of 46 minutes with the Client feedback being - "Diamond Wire Cutter performed exceptionally. Good, positive comments from the divers on ease of Use".



Subsea footage of cutting operations



22" DWS and cut Riser / J-tube on back deck



Cut Completed on 20" J-Tube & 10" Riser