



SPARROWS

CASE STUDY

CAISSON VIDEO INSPECTION AND SIMULTANEOUS CLEANING SYSTEM

Innovative, custom-designed and manufactured equipment can prove to be a very efficient option when you need one tool that can simultaneously carry out multiple functions

BENEFITS

Improves efficiency and reduces manpower

Minimises DROPS potential

Re-configurable on-site to cater for additional client requirements during field deployment



CLIENT

BP

ASSET

Eastern Trough Area Project (ETAP)

LOCATION

UK

CHALLENGE

Our customer required a high-resolution inspection and cleaning of a Caisson J-tube, which contained a loosely anchored messenger wire that could not be disturbed or snagged during the process. With a requirement to clean all debris from the open end of the tube, it was necessary to ensure the camera / cleaning equipment could be recovered without diver assistance.

We set out to create an innovative method for the inspection and cleaning of the Caisson J-tube, which is:

- Able to be deployed to the end of the J-tube
- Configured to remove any debris via pressure water-jetting from the bottom of the J-tube as it was open to the sea
- Optionally configured to physically manipulate debris or objects within the J-tube
- Able to provide high-resolution (1080p) image (both forward facing and 360 degree side facing) feeds in live video format
- Accurately and repeatedly deployed to any specific location within the tube for additional inspection and cleaning purposes
- Able to demonstrate the ability to move rotationally within the J-tube to allow 360 degree cleaning if required, and avoid any potential snagging or hang up points
- Fully risk assessed to have as low a DROPS potential as reasonably possible.

SOLUTION

- After analysing all the requirements, we designed a new tool – PISCES (Precision Inspection and Simultaneous Cleaning in Enclosed Shafts).
- The cleaning head can be manually turned / steered onto its feet and provides accurate orientation within the J-tube. The manual steering system also allows the unit to be pushed to the curved end of the tube.
- This concept allows simultaneous, very accurate control of cleaning and inspection progress, with 100% certainty of mission task success before recovery from the tube.
- With live video feed available during the cleaning process, we can quickly repeat water jetting in any specific area as required. This greatly reduces the time required on the job.
- EV Offshore, an established industry leading subsea video inspection company provides proven high-resolution camera hardware.
- The system's design and its bespoke deployment method operate within the limits of manual handling techniques. We utilise incorporated lifting devices within our equipment to avoid the need for additional on-site rigging, removing a large degree of complexity from the on-site deployment.
- We offer various attachments to enhance steering and orientation options, tailored to each site's requirements. These are off-the-shelf, but we can adapt and tailor them to a bespoke location very quickly and simply.
- Whiskers can be fitted to the system to enhance visual depth perception, identify possible gaps at tube joints, and verify the integrity of the J-tube. We can place the whiskers into and around any joints with accuracy and repeatability.
- Alternate cleaning head sections and operating pressures can be fitted, providing maximum flexibility to cater for the client's pressure jetting requirements.
- Our system can be configured to a deployed length of up to 250m to maintain the live camera feed.
- The initial inspections undertaken provided our customer with detailed insight into the types of deposits found in subsea caissons and how to remove them in preparation for commissioning. We could repeatedly target specific areas and verify the integrity of Caisson joints. This created a high degree of confidence in the overall caisson integrity and significantly de-risked the subsequent umbilical pull.

SUMMARY

- Engineering and designs support
- PISCES pressure jetting / video head mounting unit
- Deployment bench
- Water pressure pump and hydraulic hoses
- EV Offshore camera unit and umbilical cable
- Steering rods and PISCES head unit control swan-necks fittings
- 3 operators for the system
- 2 1000ltr IBC tanks with clean potable water.



The PISCES system set up on location.

DELIVERY ASSURED

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