

Composite Caisson Repair

- Project
 Technology
 Waste Management
 Operator
 Cleaning
 Well P&A
 Disconnection
 Removal & Lifting
 Other (Please Specify)

Company Details		
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Overview
<p>Our client operates a large facility Offshore UKCS and had detected serious levels of corrosion / erosion and thru wall penetration in a large multi diameter seawater caisson. Previous attempts to return the caisson integrity had failed and the caisson remained in a substandard condition, with the potential for a large section of the caisson to fully detach from the main assembly.</p> <p>In addition to arresting any further material loss, the client urgently required to affect a caisson repair that would return the caisson integrity in line with platform unity requirements.</p>

Challenge
<p>Due to the poor condition / material loss from the remaining caisson and the challenging multiple diameter arrangement, a sympathetic repair was required, which would not excerpt undue forces onto the remaining caisson wall or induce significant point loadings onto an already failing structure.</p> <p>The repair would require spanning large gaps in the caisson, deploy over irregular internal protrusions and accommodate multiple bores along the length of the large diameter caisson.</p>

Solution

Cape developed a flexible composite liner which deployed from the topside access point and coated the caisson well below all identified defects. A Hydrophobic resin was infused into the liner which expelled water / moisture between liner and caisson bore below sea level, allowing the material to bond along the full length.

The liner is inflated to take up the profile of the various caisson bores / grout etc and once cured, created a uniform bore down the caisson, filling thru hole penetrations and bonding to remaining caisson bore material preventing further internal corrosion of parent material.

Results

The resultant repair returned the caisson back to a unity position and allowed its return to operation. While internal corrosion has been arrested, external corrosion will continue to be monitored to assure caissons unity position.

If required, the deployed liner repair can be cleaned and an addition liner(s) deployed, to enhance caisson integrity, later should external corrosion deem this necessary.

The technology developed to undertake this repair represented a world first for composites being utilised in this manner, with Cape being recognised with the 2017 Innovation in Design award from Composites UK



Images:



Image shows liners flexibility (coating over grout)



Images shows liners ability to return integrity