

COMPOSITE REPAIR

HELIDECK WALKWAY 海洋平台漏水修补案例

Workscope

A water leak was identified in the accommodation module of an offshore platform in the UKCS. The leak was affecting the integrity of the helideck walkway and required repair.

The source of the leak was found to be in the roof above the Smokers' Lounge.

Solution

Stork developed a solution using its **PowerSleeve composite repair technology and Bio-Dur 563 resin**.

Stork's Composite Repair team proposed to apply PowerSleeve around the circumference of the walls and Bio-Dur 563 to the remaining exposed steelwork on the floor.

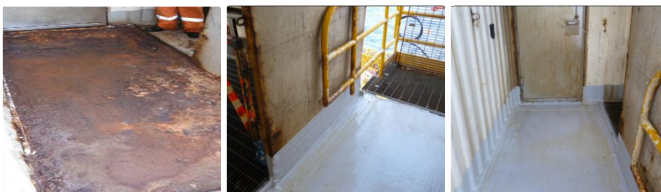
At the platform's request, PowerSleeve was applied to both the walls and the floor. A cosmetic paint coating was then applied to the platform's specification.

Results & Benefits

The project posed a number of key challenges, as it was Stork's first walkway repair using Composite Repair technology. The walkway's location was in an area of high traffic and all blasting operations had to be completed within certain timeframes to minimise noise levels, as there were night shift cabins adjacent to the walkway.

Stork mobilised a two man team for a period of seven days to carry out the repair, which was completed on time and on budget. The team undertook additional worksopes, as stipulated by the client, during the curing process.

Stork's composite repair solutions provide cost savings for clients, when compared with the cost for replacement. They also negate the requirement for any hot work.



- **Project Information**
- **When:** August 2013
- **Location:** North Sea platform
- **Workscope:** Delivering a composite repair solution for a helideck walkway damaged by a water leak
- **Installation:** Stork PowerSleeve
- **Materials:** PowerSleeve and Bio-Dur 563
- **Safety:** Project delivered without an LTI

RUPTURED WATER

OVERFLOW LINE 多种复合材料综合维修案例

Workscope

A temporary repair on the 12" overflow drain line had deteriorated to the extent that the bottom section of the existing pipework had eroded away, resulting in a rupture which was releasing a continuous flow of water. Stork's composite repair team were asked to review the operating parameters and challenged to provide a solution which would enable the repair of the pipework temporarily and restrict the leak to an acceptable level until a replacement spool could be fabricated.

Solution

Stork designed a Composite Repair solution using **PowerSleeve, AquaWrap, BioDur563 and Epoxy Putty** and, by utilising previously trained platform personnel, it was able to react quickly.

PowerSleeve was used first to prepare half-shells 1.4m in length, cast from the existing pipework.

Preparation, normally completed by blasting to SA2 ½, was not feasible in the immediate area where heavy corrosion was visible. Therefore, to reduce the preparation requirement, the area was primed with BioDur 563 which acted as a primer and load film transfer material.

Where there was heavy pitting 5/20 Epoxy Putty was used to reinstate the pipe profile. Once cured, four layers of AquaWrap was applied to put structural strength back into the pipework.

Results & Benefits

Stork provided a one stop service, carrying out all calculations and design in-house in line with ISO 24817 and PCC2.

The project proved a cost effective and innovative solution for the client where the only alternative was to replace the line. This was not an immediate option, as both cost and time were prohibitive.

The repair was completed quickly and safely and the reaction was swift.

Stork's team were commended by the client for what was acknowledged as a difficult repair.

The line is now back in service, providing the client with the crucial time required to order a replacement spool.



- **Project Information**
- **When:** February 2015
- **Location:** North Sea Platform
- **Workscope:** Temporary Repair to a ruptured water overflow line
- **Installation:** Field Wetted Power Sleeve and Aquawrap
- **Materials:** BioDur 563, 5/20 Epoxy Putty, PowerSleeve & AquaWrap
- **Safety:** Project delivered without incident

EXTERNAL CLADDING

Workscope

Stork was contracted by Wood Group PSN to reinforce the structural integrity of a two level module after severe corrosion was identified on Shell U.K.'s Brent Alpha installation. All four sides of the module showed severe corrosion and multiple through wall anomalies.

Solution

Stork applied its innovative pipe repair system; PowerSleeve.

PowerSleeve's engineered composite reinforcement was selected because of its 100% solids epoxy impermeable barrier. This combined with the strength of its custom E-glass and Kevlar® fabric made it the best choice to encapsulate and reinforce structures on this project

The surface of the module was hand prepared by Stork's multi-skilled rope access technicians and all voids filled with epoxy putty to smooth the surface area. All repair calculations are conducted in-house, providing the client with a fully customised rapid delivery.

Results & Benefits

Stork's technicians were able to completely cover affected area; restoring original structural integrity.

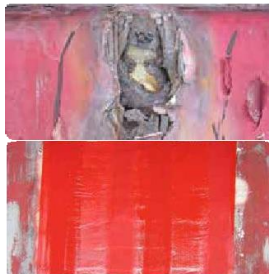
Additional worksopes have been requested due to proven results on this workscope.

用户评价:

"Stork's PowerSleeve delivered a rapid solution which has produced significant time and cost savings. The original structural integrity was completely restored and affected area covered. We found the attitude of the Stork technicians to be of an excellent standard. They displayed a safe and conscientious attitude towards the tasks they were asked to carry out and completed the scope as per the planned timeline."

George Rennie
ISC Fabric Maintenance Lead
Wood Group PSN

- **When:** February 2013
- **Location:** Shell U.K., Brent Alpha
- **Insulation conditions:** 5 C ambient temperatures
- **Installation type/products:** Field wetted Powersleeve composite system
- **Materials:** 5/20UW Epoxy Putty Stick, Power Sleeve® W-11® hybrid fabric with Standard Resin, Bio-Dur 563® Epoxy basecoat/ primer and final topcoat
- **Safety:** Project delivered safely with no lost time incidents
- **Workscope completion:** The workscope was completed on time and within budget



DRAIN SPOOL ELBOW

Workscope

Stork was contracted to repair the perforation on a 4" closed drain spool elbow located on Nexen's Scott installation.

The surface of the 4" closed drain spool elbow was hand prepared by Stork's multi-skilled technicians. All voids were then filled with epoxy putty to smooth the surface area.

Stork's innovative pipe repair solution; PowerSleeve was then utilised.

PowerSleeve's engineered composite reinforcement was selected because of its 100% solids epoxy impermeable barrier. This combined with the strength of its custom E-glass and Kevlar® fabric made it the best choice to encapsulate and reinforce the entire spool elbow.

Results & Benefits

All repair calculations were conducted in-house, providing Nexen with a fully customised rapid delivery.

Stork's technicians were able to completely cover affected area; strengthening structural integrity.

All work was completed and carried out by Stork's multi-skilled, on-board technicians.

The overall cost was far less than compared to conventional repair methods.

用户评价:

"Further to Stork assisting Nexen with an Engineered Wrap solution to a 4" pipe-spool defect on the Scott platform in the closed drains system, I would like to pass on our thanks for the manner in which this was organised. To achieve our required mobilisation and the fact that the Core/LTADHOC painters had the necessary training to allow this to be applied without mobilising any further personnel was well received due to the current POB at this time of year"

Alan Shand
Asset Integrity & Platform Support Services Engineer
Nexen



Project information

- **When:** June 2013
- **Location:** North Sea, Scott Platform
- **Insulation conditions:** 5 C ambient temperatures
- **Installation type/products:** Field wetted Powersleeve composite system
- **Materials:** 5/20UW Epoxy Putty Stick, Power Sleeve® W-11® hybrid fabric with Standard Resin, Bio-Dur 563® Epoxy basecoat/ primer and final topcoat
- **Safety:** Project delivered safely with no lost time incidents

PowerSleeve is a non-toxic alternative which eliminated the need for additional PPE requirements

- **Workscope completion:** The workscope was completed on time and within budget