Case Study: Oil & Gas

PROJECT DETAILS
Delivery of the integrated lining system into a 10” pre-constructed steel subsea pipeline for water injection service

LOCATION
Triton Field, North Sea

COMPLETION DATE
October 2011

Challenge

- Design and install a polymer lining solution for a 82,021lf 10” high pressure water injection pipeline with a design life of 15 years and the capacity to accommodate the reel lay installation process from Subsea 7’s reel-lay vessel Seven Navica.
- Fabrication of the lined pre-constructed steel pipeline at one of the longest spool base facilities of its type in the world - runs approx. 6,684 feet from seaward end of stalks to a purpose-built deepwater quay.
- Deliver scope quickly and cost effectively- essential in subsea environments where spread costs can be significant and the rate of progress is central to completion costs
- Complete project scope under significant operational constraints and in adverse weather conditions.

Solution

- Engineering led design modifications to the equipment spread, confirmed by an extensive PQT program, enabled towing loads to be reduced which allowed record **4,922 feet** liner installation lengths to be repeatedly achieved.
- Terminations and jointing were completed using the flangeless WeldLink® connector fitting - part of Swagelining Limited’s Integrated Lining System - which allowed the pipeline to be spooled onto the reel vessel for subsequent installation on the sea bed.
- Swagelining Limited used a bespoke software package to create design parameters which considered and accommodated a broad range of factors, ensuring any potential challenges such as a significant temperature change, which could have an effect on the lined pipe, are met.
- Project specific design parameters were confirmed via practical testing during front end engineering to ensure that the liner design system would respond to a range of pipeline service demands.

Impact

- Internal corrosion protection from end-to-end ensuring the pipeline remains 100% operational for its full service life.
- The liner was installed quickly and efficiently into the carbon steel host pipe achieving the targeted rate of one constructed string per day.
- The combination of WeldLink® connectors with Swagelining™ technology confirmed that an Integrated Lining System, where materials, technology and proprietary components are combined under expert leadership, provides a solid basis for polymer lining of deep water pipelines and risers.
- Pipelay vessel spooling time reduced by minimizing the number of tie-ins required.
- Swagelining technology was first used in the North Sea in 1995 and has been repeatedly successfully used subsea worldwide ever since.
- Following on from the successful completion of this project, Swagelining Limited

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