Case Study: Oil & Gas

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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LIFE EXTENDING TECHNOLOGY FOR NEW AND EXISTING PIPELINES