TECHNOWRAP™ 2K HA
SUBSEA PIPELINE CORROSION PROTECTION

SCOPE
ICR's Global Partner in Qatar applied Technowrap™ 2K as a corrosion protection system for subsea pipelines for a major Oil & Gas Company.

The trial installation of the corrosion protection system took place onshore with a pipe lay barge transporting the protected pipe lengths offshore where they were then installed on the seabed. 6", 8", 10" and 12" pipe diameters were protected. Each pipe section was welded and then encapsulated with Technowrap™ 2K H.A. Following a successful trial, this process was used for a subsea hydrocarbon and gas pipeline of length 12 kilometres.

Prior to trial both client and contractors undertook extensive testing and inspections. The trial took 12-14 weeks to complete with a crew of six Technowrap™ 2K Installers working on 24-hour, 12 hour rotation to encapsulate the various welds with layers of Technowrap™ 2K composite repair, following hydrotesting of the pipe sections after welding.

RESULTS & BENEFITS
• The Technowrap™ system proved successful in this application and has been approved for corrosion protection applications. Specific to this trial, the client requested a 25-30 years lifetime, 5-10 years more than our standard lifetime designs of up to 20 years. Through a design calculated engineered solution, in this situation, a 25-30 years lifetime could be provided.
• This design life is higher than that of any other paint and epoxy system available on the market and is now approved for corrosion protection and pipe reinforcement of subsea pipelines.

VEssel SPECIFICATION

<table>
<thead>
<tr>
<th>Design Pressure</th>
<th>228 Bar g</th>
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<tbody>
<tr>
<td>Design Temperature</td>
<td>70°C</td>
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<tr>
<td>Design Lifetime</td>
<td>30 years</td>
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