



# Composites enable safe operations for aging offshore assets



*Corrosion under insulation (CUI) is one of the most insidious problems for offshore assets and one of the most difficult to address (photos courtesy of ClockSpring|NRI)*

**By Michael Rogers**

ClockSpring|NRI manufactures composite pipeline repair solutions worldwide, which are designed to provide structural reinforcement, leak repair, and corrosion prevention for commercial and industrial pipes.

Managing Director of ClockSpring|NRI, Europe, Sean Connolly has been involved in composite repair technology for nearly two decades. Following the recent merger between NRI and Clock Spring Company, Inc., Connolly continues to play an instrumental role in the company's operational expansion within the UK, Europe and West Africa.

Connolly's in-depth knowledge of pipeline and pipework repair methods and extensive experience with the company's expanding portfolio of composite solutions provides him with unique insight. So, to find out more, *Energy Northern Perspective* caught up with him by phone during one leg of a tour in which he had visited operations in West Africa and ClockSpring|NRI offices in the US.

***Your part of the company covers quite a large part of the globe.***

"ClockSpring|NRI, Europe, works primarily offshore in the UK North Sea, Norway and West Africa. That includes Angola, Gabon, the Democratic Republic of Congo in West Africa – all these areas have offshore assets that our Europe-based team provides repair services for, primarily with composite systems."



**Sean Connolly, Managing Director, ClockSpring|NRI, Europe**



***A qualified ClockSpring|NRI technician applies a proprietary engineered composite repair system on a damaged line offshore***

"But we not only supply the composite systems; we also provide a complete turnkey service in terms of installation in this region. That's both onshore and offshore – although I'd say the lion's share of what we do is offshore."

***And the scope of your work with composite systems – what sort of range of repairs are possible?***

"At ClockSpring|NRI, we offer quality composite systems that can cope with the range of issues that clients have, both offshore and onshore. So, we're talking, for example, about composites that can cope with glycol systems at 240 to 250° C. Another example would be repairs in splash zones – hostile, wet areas. We see a range of fluids involved, from gases to glycol to sodium hydrochloride, and we

have an exceptional portfolio of third-party tested composite systems that we've installed to repair pipelines carrying these types of inventory."

"With composites, particularly with our systems – the engineering and the testing has already been done. The design work is done specifically for whatever repair we are doing, and it's available immediately, as fast as we can get it to the facility. And we have the skilled personnel to install it, so composites are an excellent choice of solution."

### **And you work with a range of failures?**

"A lot of what we are dealing with are catastrophic failures. It could be, for example, a hydrocarbon leak where the operator has to shut down to avoid causing pollution or environmental damage. But when they do that, it's lost revenue, so they want to get it back into service as soon as possible."

"In some cases, our work is done on cooling lines, deluge lines, firewater lines, produced water lines. When these systems develop a leak, it's a safety issue, but owners don't want to take them out of service while they undergo repair. They want somebody to come and repair them online, if possible. And that's a big part of what we do as well."

### **How long does it typically take to perform these types of repairs?**

"It depends on the systems we're working on. Usually, we need between two or three shifts to perform a repair, start to finish. So that is up to 36 hours, depending on the severity of the situation. But it can go much quicker as well. If it's a live, leaking problem, and we've got to deal with the leak first and then apply additional reinforcement after that, the job may take slightly longer."



**A completed composite repair on a corroded line offshore restores line integrity**



**Composite repairs are specifically designed for complex geometries and can be installed effectively on lines where other repair methods are impractical or**

### **In addition to the jobs that deal with leakage, are customers asking you to work with preventive measures as well?**

"Yes, absolutely. One of the big projects we started the year with was on a large platform in the North Sea. They were stripping off some insulation from produced oil pipelines and discovered extensive CUI (corrosion under insulation). They had to shut the platform's production down immediately because if one of those oil pipelines had failed – the corrosion was so extensive – it would have been a massive environmental issue."

"So, they shut down and called us – and within a day we were on the platform with the material, dealing with quite a lot of repairs. So, it took us in all, two weeks to complete the repairs and get the platform back into production."

### **The CUI work was a discovery process as well because you don't know its extent until you got there?**

"That's correct – they found some initial CUI, so they then had to commit to removing all insulation from these produced oil pipelines. As we were working on one part, they were discovering other areas of corrosion. So, our engineers were working with theirs to develop the calculation packages for us to refer to. And we actually did the repair as the scope was emerging."

"We received a commendation from the operator for our team and the way we responded. And that's what we do – of course, you have to do the job well, and you have to have the appropriate skills – but we also have to respond straightaway. And that's one of the things that we've developed, which is the ability to respond quickly. We know that when there is an issue, our clients need it dealt with immediately."

### **How does the European business look for ClockSpring|NRI in the future?**

"In the North Sea, there are approximately 185 platforms. A big percentage of those platforms were designed for 30 years' lifespan and are now well past that date. And what you tend to find is that majors like BP, for example, are selling a number of assets to companies such as Serica Energy, RockRose Energy and EnQuest. These smaller companies are finding ever more ingenious ways of getting the oil out of the ground, so the life of these platforms is being extended."

"So, for us, with what we do, this is a very important part of our market. We are able to provide a service – not only an impressive range of composite materials. We cater to a lot of different types of defects – but we also have the expertise in our Manchester office to deploy to these facilities to install the products safely."



*ClockSpring|NRI is a Houston-based manufacturer and provider of high-performance critical infrastructure construction and repair products and associated engineering support and training services. ClockSpring|NRI solutions are used to construct, maintain, and rehabilitate pipelines, natural gas distribution lines, high-consequence industrial pipework, and civil structures. ClockSpring|NRI composite pipe repair systems and inline insertion valves are used in more than 75 countries and include industry-leading products such as Clock Spring™, Atlas™, Syntho-Glass® XT, Scar-Guard®, Contour, and DiamondWrap® composite products, as well as the award-winning AVT EZ Valve™ for water and gas lines. All ClockSpring|NRI products are easy to install, cost-effective to deploy, and durable for decades. [www.cs-nri.com](http://www.cs-nri.com)*

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