HIGH VOLTAGE CABLE JOINTS & CABLE TERMINATIONS

Case Study – 3M Cable Joints & Cable Terminations

Hazardous Area Cable Jointing - Buzzard Case Study

The Buzzard project, off the Aberdeen coast, presented a challenge in terms of ensuring 'fit for purpose' power cable joints were installed on schedule, but with the support of cable joint supplier 3M, consultant CB&I and contractor AMEC, Buzzard had all its systems in place for it to begin production in January 2007.

Says Ian Hobbs, Major Projects Business Development Manager, 3M, "The project also shows how we do not just supply specified products, we provide continued support to contractors and other channels throughout the life of each project."

Located in the Outer Moray Firth in the North Sea, the Buzzard oil well lies under a water depth of about 100 metres. Buzzard is one of the largest fields to be developed in the North Sea for over a decade. The Department of Trade and Industry approved the development plans in late 2003 and fabrication began early the following year. Spanning 1,100 feet, the platform structure comprises three large decks: a wellhead deck, a production deck; and a utility deck (including accommodation), all sitting on the 'jackets' that sit in the sea. Oil is then exported by a pipeline to the Forties Pipeline Systems, 28 kilometres away, from where it is transported for processing by BP Kinneil.

Of course, constructing a platform in the middle of a the sea is challenging, so as much pre-installation fabrication as possible takes place, in this case, spread across the UK, Spain and Norway, before being towed out to the site for final 'hook-up'. This included the high voltage electrical system supporting the platform's day-to-day operations.

High Voltage Cable Jointing – The Challenge
Connecting high voltage cable joints involves high precision and can be a time-consuming procedure, requiring skilled cable jointers. Personnel numbers on location are limited so the decision was made to create the cable joints as much as possible on-shore in Norway, then re-sealed before being taken out to the platform for final installation.

CB&I is one of the world's leading engineering, procurement and construction (EPC) companies and was responsible for specifying products for the Buzzard project. To streamline installation processes, CB&I selected the 3M Cold Shrink range of cable joints and cable terminations. Widely used in utility and construction projects across the UK, 3M Cold Shrink design ensures consistent and high quality level of installation, which minimises the potential for installation errors and reduces the time taken to complete a cable joint or termination.

The principle behind 3M Cold Shrink is simple: rather than using heat shrink or resins, a pre-stretched cable joint body is positioned over the connector and shrunk down to form a watertight and EMI (electro-magnetic interference) resistant fit, simply by pulling a spiral cord from within the internal faraday cage of the cable joint body.

Hook-up Challenges – 3M Cold Shrink Cable Jointing
Installation of the electrical system began in the summer of 2006 and delays were not an option.

Enter AMEC, the international project management services company, which provides life-of-asset services to its clients, from initial design through to project delivery and long-term support. AMEC was appointed the hook-up and commissioning contractor for the Buzzard project, including bridges to link the three decks and installing the electrical power system. Martin Peggie, AMEC's engineering co-ordinator for the hook-up phase, believes that Cold Shrink cable joints contributed to the company's ability to meet successfully the tight timescale.

Says Martin Peggie, "We like using 3M cable jointing products because the company has got a proven track record in this area. Furthermore, the products are very easy to use, meaning that we saved installation time and got power offshore very quickly. The specialist cable jointers are very happy to use the 3M products, because as well as being straightforward to install, there is no need to lug around special tools. Plus, unlike other processes, 3M Cold Shrink does not need a naked flame to be used, so it meets the health and safety requirements you get on offshore platforms."

Quality of service

Martin Peggie also believes that the close working relationship between AMEC and 3M was very important to the project's success. Due to the nature of offshore platforms, materials have to be transported out to sea. Consequently, suppliers need to be flexible and responsive. Says Martin Peggie, "Good product is one thing: support and service is another. 3M have been prepared to put themselves out.

While providing electrical power was just one of many issues facing the Buzzard project, the support of 3M helped the company to complete its role in time and most importantly, has given the platform a solid, reliable power system for the future.

As far as 3M is concerned, the Buzzard project helps to augment its position as a leading supplier of cable joints and terminations to challenging and large-scale construction projects. Moreover, Buzzard is a showcase of how 3M provides an end-to-end approach, working closely with consultants, contractors and distributors, providing not just products, but expert advice and on-going support too. As an example of this, the success of the Buzzard project has resulted in CB&I specifying 3M Cold Shrink cable joints on emerging LNG and GTL projects on which the company is working.