TECHTEL

RESOURCES INDUSTRY CASE STUDY

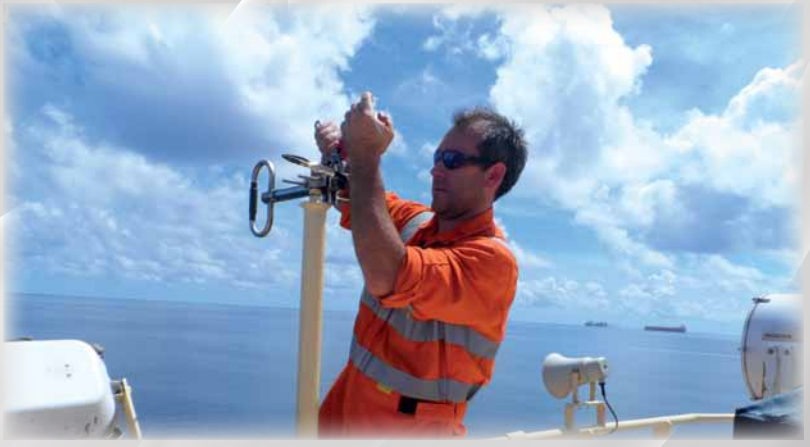
STAR PROJECT

Setting the Scene

In 2002, a major natural gas resource platform was launched in the Timor Sea and was equipped with an analogue entertainment system to provide television services to the workers on board both the gas platform and a storage vessel floating 3 kilometres away. Ten years after the platform was launched, Techtel was selected to replace the end-of-life entertainment system which was re-distributing services from the Aurora satellite service that was due to end service on 31st December 2013. These factors contributed to the need to replace the older equipment with a digital technology solution and use the new satellite resources available to acquire television content.

The Techtel Solution

Techtel commenced design discussions with the platform operator and their telecommunications service provider, CSE Comsource, some years before the solution was implemented. Throughout the design period a range of technology advances meant that the solution was revised a number of times before reaching the final system design. Techtel was able to deploy a system that used an acquisition solution at the main platform, based around a fixed satellite dish attached to the vessel which is then anchored to the sea floor. The acquisition system received, demodulated and descrambled services from the government's Viewer Access Satellite Television (VAST) service which provides free-to-air television services and a collection of channels from Foxtel. The end result was the provision of over 37 television channels – a mixture of standard and high definition.



Techtel carries out work on board the main resource platform.

Once acquired, all video and audio services were re-multiplexed, re-encrypted and distributed via DVB-T. Two delivery points were serviced by the head end, the first being a local campus-based coax network of set top boxes while the second point was the floating storage vessel some 3km away which mirrored the coax network conditions on the main vessel. To service the storage vessel, a group of 10 watt UHF transmitters was implemented to use existing infrastructure to deliver the content. Use of existing infrastructure was important to avoid the need for expensive external facility modifications; adding gyro-stabilised satellite infrastructure would have been cost prohibitive. Importantly, both sites required an emergency warning system that would enable all television services to be interrupted by an alarm message, should the master alarm system be triggered. Because of the unique features required it was necessary to resource around 150 custom set top boxes that would ensure compatibility with the new encryption platform and the DVB-T delivery network.

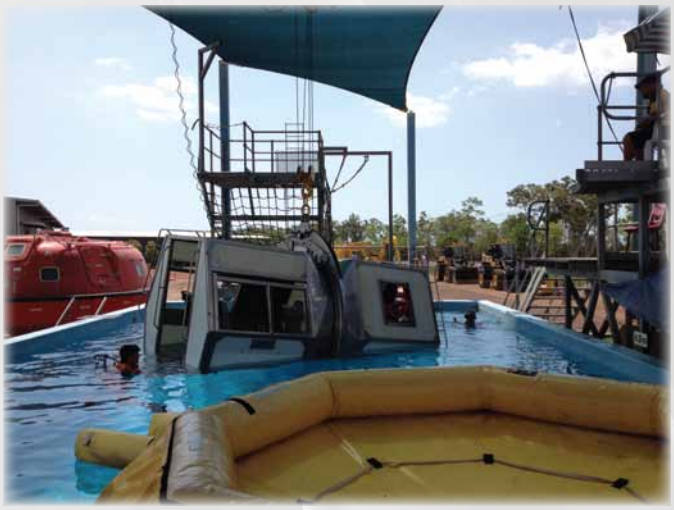
The Build

The Timor Sea as an installation site is so remote that there is no room for error of any kind; everything must be thoroughly planned and executed to ensure a successful project build. For this reason, the technical solution needed to pass two critical phases on land before it would be ready to ship offshore. The first phase was a comprehensive solution pre-staging that was performed at the Techtel office in Sydney. The complete solution was sourced from manufacturers, consolidated and built to ensure that video and audio services were performing as planned. Conditional Access Modules (CAMs) were tested and content was authorised, cables were measured and rack designs finalised. Once this stage was complete the system was freighted to Darwin for the second stage which required a full solution build to match the exact offshore conditions. This phase was hosted and jointly built by CSE Comsource and Techtel in Darwin under the close supervision of the platform operator.

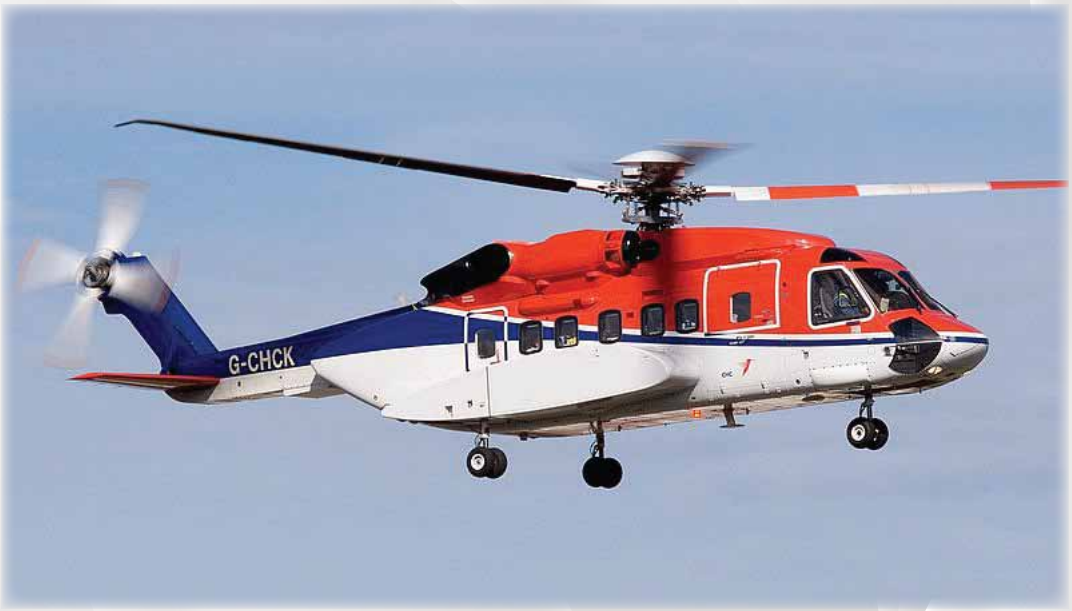
Techtel/CSE Team stand proudly beside the finished product.

After the system successfully passed factory acceptance testing it was left to run under soak for some weeks to ensure that equipment continued to operate as expected. The soak test proved to be a crucial time to review and improve the solution design which was a credit to the joint planning of the project. Completion of the soak led to the final phase involving the offshore work on the gas platform. Techtel's team of installers were required to complete basic offshore induction safety and emergency training that prepared them for risks around the platforms such as helicopter water landings. This training had been conducted during the months leading up to the offshore work so both the team and the equipment were now prepared for the final offshore phase.

In late November 2013, the teams flew into Dili, East Timor and connected onto the 1.5 hour helicopter transfer that provided the final link to the platform. The equipment had been sent via sea on a supply vessel the week prior, allowing all teams to be repatriated with the hardware so that the build could begin promptly. Old systems were decommissioned and removed while the new systems were installed and running within 4 days. The extensive coaxial network on board both facilities was checked for operations and the solution passed the site acceptance test without any complications. After nearly 14 days offshore, the Techtel and CSE teams departed via helicopter to return home.



Emergency helicopter landing simulation at the offshore safety induction and emergency training in Darwin.



A 1.5 hour helicopter flight provided the final link to the natural resource platform.

The Wrap Up

The final test was by the end users, a workforce with very limited connection to the outside world and they were the most impressed by the major improvement in the quality and volume of television channels now available to them. The project has also been declared an overwhelming success by Techtel, CSE Comsource and the platform operator. For Techtel, the success of this installation demonstrates foremost that broadcast technology and telecommunications have applications right through the resources industry and we look forward to our next opportunity to work with organisations in the resource field.

Manufacturers involved in the project include:

Appear TV Egatel harmonic verimatrix SMB CISCO

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