

Geotechnical Site Investigation for Platform Decommissioning



UTEC Geomarine own and operate the geoROV™ system, a comprehensive ROV-deployable seabed Cone Penetration Test (CPT) and sampling system. This highly flexible and reliable system conducted a geotechnical site investigation in a restricted access brown-field site to allow a major operator to begin decommissioning process of the crude oil and diesel storage cells on Brent Charlie.

CHALLENGE

As part of the decommissioning process of Brent Charlie, the operator were committed to the remediation of the storage cells. The cells are located on the sea floor between and around the concrete legs of the platform. These cells were covered in construction material/equipment and drill cuttings of an unknown cemented nature. Of the initial scope of work, consisting of CPT and Samples, a number were not viable resulting from the difficulty of access due to the debris on site.

SOLUTION

The geoROV™ was quickly mounted on to the client supplied WROV and completed the scope of work between 18th and 23rd November 2011. The light weight and small dimensions of the

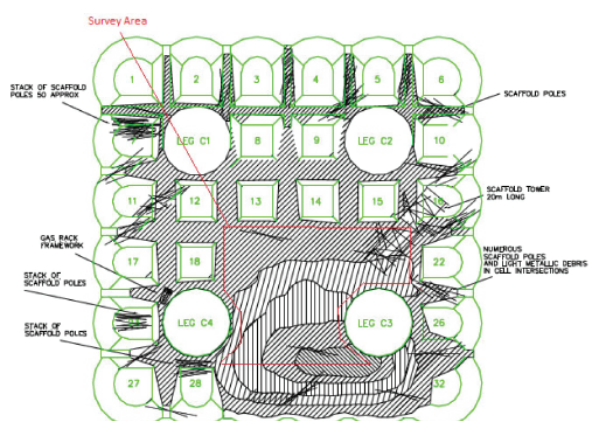
geoROV™ system meant that the WROV could readily navigate to the site investigation points between the legs of the platform and land directly on to the cells.

RESULT

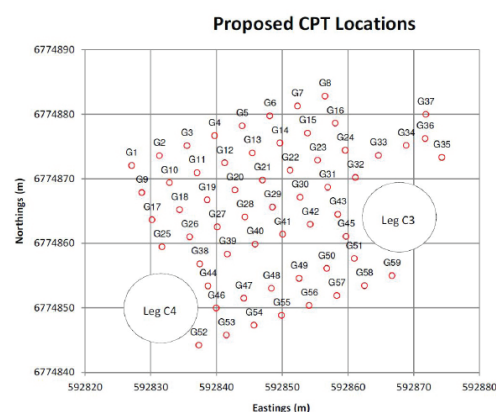
Restrictions due to weather and concurrent work on the platform, a 12 hour window for operations was made available, during which a total of 46 CPTs were completed to target depths of 3m. The returned high quality data enabled characterisation of the drill cutting accumulations above and around the storage cells.

KEY CAPABILITIES

- » Quick and cost effective to mobilise - 5 transit cases for bare bones system
- » Real-time data and ability to turn around processing fast offshore
- » Accessibility - ability to operate in close proximity to and beneath structures
- » High productivity - up to 4 tests/hour
- » Fast to install and remove from the ROV (1hr install, 0.5hr remove)
- » Push sampling from the same hydraulic drive unit
- » Precision positioning



Schematic of leg and cell layout and detritus



Site plan of proposed locations around legs

KEY BENEFITS

- » Reliable and manoeuvrable nature allowed CPTs to be conducted in restricted access locations in short notice
- » Characterisation of drill cuttings
- » Test locations between platform legs and storage cells

TYPICAL APPLICATIONS

- » *In situ* and sampling within close proximity of structures which would otherwise be inaccessible to other SI methods
- » Pipeline or cable route site investigation
- » Trenching support
- » Subsea structures where accurate information is required - i.e. site investigations for the positioning of mudmats, manifolds, suction caissons
- » Scour monitoring
- » Pipeline soil resistance to lateral and longitudinal movements
- » Site investigations with high density of testing and sampling