MARINE LINERS , HINKLEY POINT C

AUTOMATED VERTICALITY MONITORING

Key achievements

- **Accurate, high frequency, 24-hour monitoring system for measuring verticality of structures during sensitive works**
- **Combined tilt and displacement monitoring solution for comprehensive monitoring of potential movement.**

The Project

The Hinkley Point C project has built five miles of tunnels under the Bristol Channel, which will be used to circulate cooling water to the power station's two nuclear reactors. A key part in the process of connecting the tunnels to intakes on the seafloor are six steel shaft liners.
In preparation for their installation offshore, the liners required concrete fitout works and installation of isolation caps.

The Challenge

During the fitout works, each of the liners were supported in purpose-built frames and required monitoring for any potential movement of the liners during the process. Accurate and reliable data was essential for the safety of those working on the liners. Installation of sensors would require working at height

The Solution

GEO-Instruments and Balfour Beatty worked together to design a monitoring scheme comprised of 24 Tiltmeters and 24 combined Tilt & Distance Sensor Nodes.
Tiltmeters were installed using magnets near the top of each liner and the frames were fitted with four Tilt & Distance Sensor nodes at the corners, aimed vertically downwards at target reflectors.
The tiltmeters installed at height on the liners give a precise indication of any change in inclination of the liner itself. A MEWP used to access the top of the Liners. The distance sensor nodes monitor the frame for tilt by measuring small changes in distance from the ground at each corner.
The monitoring system provides data every thirty minutes, 24 hours a day. Data is collected wirelessly by a gateway installed on site, where it is sent to GEO-Instruments' QuickView web platform.
The software allows for the management and visualisation of data using bespoke layouts and graphs, as well as the definition of automated alerts and reporting.

Application
Verticality Monitoring

Technique
Automated Wireless Instrumentation

Market
Infrastructure
Energy

Client
Balfour Beatty
EDF Energy

Project Duration
6 months

Instrumentation
Wireless Tiltmeters
Optical Displacement Sensors (ODS)

Keller companies
GEO-Instruments