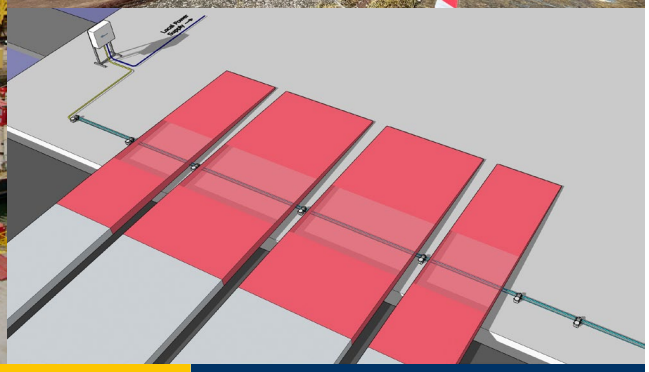
DOCK EDGE MONITORING, HINKLEY POINT C

AUTOMATED DEFORMATION MONITORING



Key achievements

- **High frequency, 24-hour monitoring system for measuring vertical movement with sub-millimetre accuracy**
- **Close cooperation with client to design and protect a bespoke short-term monitoring solution**

The Project

Tier 1 Contractor Balfour Beatty constructed six concrete structures; four 5000 tonne intake heads and two outfall heads at Avonmouth docks. The structures were to be connected to five miles of underwater tunnels to supply cooling-water to the new power station.
The structures had to be loaded onto barges from the docks for transport offshore and along the Bristol Channel. They then needed to be lowered into place in their final position on the seabed via a complex lifting operation.

The Challenge

The loading out process was a slow and careful operation. The intake heads were gradually transferred from the dock edge onto barges via ramps. A monitoring system was required to observe any effects the operation had on the dock edge as a means of design verification monitoring. The system would need to measure small changes in vertical movement of the dock.
The heavy-duty nature of the works meant significant risk of damage to the system, therefore measures had to be taken to protect the cells and tubing during the loading out works.

The Solution

GEO-Instruments installed a system of 10 Hydrostatic Levelling Cells.
HLCs detect settlement or heave by measuring changes in pressure in a continuous fluid circuit and comparing those to a reference cell positioned away from the works area. HLC systems are capable of sub-millimetre accuracy at high frequencies with data automatically collected 24 hours-a-day. Effective collaboration with Balfour Beatty allowed the installation and monitoring of the operations to run as smoothly as possible and led to successful delivery of the project. In order to prevent damage to the system sensor positions were chosen carefully and metal coverings and sandbags were used to project key parts of the circuit.

Application
Deformation Monitoring

Technique
Automated Instrumentation

Market
Infrastructure
Energy

Client
Balfour Beatty
EDF Energy

Project Duration
3 months

Instrumentation
Hydrostatic Levelling Cells (HLCs)

Keller companies
GEO-Instruments