Fugro LOADTEST
O-cell® Technology at E.ON power plant in Hungary

Client:	E.ON Erőművek Kft
Main Contractor:	Porr Epitesi Kft
Foundation Contractor:	BRK Speciál Mélyépítő Kft

E-ON Power Plant Gyönyü, Hungary

Assembly of 2x330mm O-cells in Ø880mm pile, pre-fitted with a concrete tremie pipe Gönyü, Hungary

Installation Gönyü,Hungary

Bi-directional testing setup in Hungary

Project Description:

E.ON Erőművek is responsible for establishing and operating power plants producing hundreds of megawatts (MW) in Hungary. The first power plant of its kind in Hungary is the Gönyü Power Plant with a gross capacity of 433 MW which, thanks to the most advanced technology that is available today, boasts a net efficiency of 59%.

In 2008, LOADTEST performed the first Osterberg cell (O-cell®) bi-directional load test for a power plant in Hungary. Although many tests have been performed in the region, the O-cell® method for testing the foundation provided numerous advantages over traditional top-down load testing.

Advantages:

The O-cell method is capable of achieving high loads and in a safer manner than can be achieved with traditional top-down loading methods. The current O-cell World Record is 320 MN in a single pile.

The O-cell method doesn't require expensive anchor piles or reaction beams or transportation/erection costs of heavy kentledge.

The O-cell method is also advantageous in congested construction areas or over water. The O-cell method allows for test piles to be subsequently integrated into the structure as a working pile.

Bi-directional load test arrangements:

The loading assembly for the foundations for the power plant in Hungary consisted of two 330 mm O-cells at the same elevation, located 14 m above the toe of the 27 m deep pile. The pair of Osterberg cells was chosen to give a loading capacity of up to 7.6 MN with space for a standard tremie pipe. Strain gauges were used to assess the skin friction load transfer of the pile to above and below the O-cell assembly.

The test results distinguished between movements for end bearing and skin friction; allowing the designer to understand the load - settlement behavior of the pile.

Conclusions:

The pile was tested to the desired load of 5.6MN providing valuable information on load-settlement behaviour, vital for the safe construction of the power plant.

www.fugro-loadtest.com