

Internal Corrosion Protection
Lynn and Inner Dowsing
Client - Centrica



Cathodic protection of the inside of the monopile with sacrificial anodes

RES Offshore led the technical development of the monopile internal cathodic protection system for the Lynn and Inner Dowsing Offshore wind farm. Sacrificial anodes, ventilation and flushing systems were retrofitted on all 54 foundations in 2013 and monitoring has shown that the required protection potentials are being achieved.

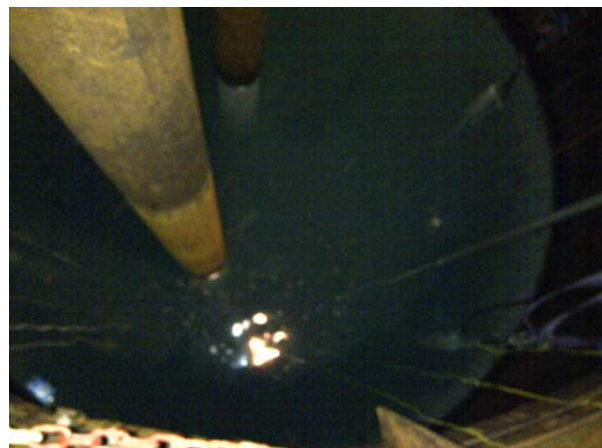
Having completed remedial works on the grouted connections, significant corrosion was found on the monopile and transition piece which challenged the design assumption of an air tight environment. Following a review of the original design basis, it was decided that in order to ensure a 20 year design life, internal corrosion protection of the monopile was required.

Unexpected water chemistry effects from an initial trial system led to additional works being required (mainly flushing of the internal water) which has proved to be successful. For both water flushing and gas venting, RES developed passive systems to ensure a minimal extra burden on the operation of the wind farm.

The design is fully compliant and has been certified to the updated DNV J101 code regarding internal corrosion.

RES Offshore service included:

- Specification, coordination and management of full and scaled onshore and offshore trials.
- Defining installation procedures and equipment.
- Engineering solutions for ventilating dangerous Hydrogen gases and flushing to maintain water chemistry around the anodes.
- Management of DNV-J101 re-certification
- Provision of experienced offshore support



Project management of the design and installation included the following skills and activities:

KEY ACTIVITIES

Design and management of the corrosion protection solution
Experienced offshore support
Verification of the design
Specification of monitoring equipment
Health & Safety management



External Ventilation

Internal Water Flushing Solution