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FACT SHEET

# INTERNAL CORROSION ISSUES
# OFFSHORE WIND FOUNDATIONS (OWF)

Implementing an effective corrosion control system through complete service and solution from Intertek.

**Intertek provides an end-to-end solution for potential corrosion issues in OWF foundations; From initial inspection using Intertek's Ariel compact subsea robot, to providing detailed analysis of the corrosion risks, our experts can help minimise the operation and maintenance (O&M) risks associated with corrosion.**

## OWF history

Initially, many offshore wind foundations were designed to be water and airtight so that any corrosion of the monopile foundations (both in the trapped seawater and the associated air space) would naturally stop as the dissolved oxygen was depleted. Even those with free-flowing seawater can face issues with corrosion.However, it was soon identified that this approach was not practical due to leaking cable seals (allowing ingress of aerated seawater) and/or regular opening of the air tight hatch (fully replacing the oxygen in the air space), which meant that there was no effective internal corrosion control, thereby running the risk of metal loss and localised thinning of the monopile but also, more crucially, introducing problems associated with corrosion fatigue of the monopile structure.

## Current codes

Current codes now recognize this problem and require an effective corrosion control system to be incorporated within the monopile, this could include one or more of:

- Internal protective coatings
- Cathodic protection or
- Chemical treatment (to the trapped seawater).

## Intertek's end-to-end solution

This identified issue can't be seen from above the airtight deck, and inspection of J tubes and visible elements do not show the full scale of possible corrosion. Intertek's Ariel is a compact subsea robot, designed to quickly (up to 155mm/s) crawl the foundation, subsea, and use onboard phased array ultrasonic testing (PAUT) and cameras to accurately inspect and record the condition of the foundation.

Ariel can be deployed by the asset's own O&M team with Intertek's remote support, or Intertek can send it's own team to perform this service. Using Ariel, the same service can also inspect the status of any cathodic protection, plus the quality of welds, coatings and other physical elements subsea.

In addition, Intertek can assist with sampling of the trapped seawater (and bottom mud) and chemical & microbiological analysis to confirm the overall conditions within the monopile, including for the risk of microbiologically influenced corrosion (MIC).

In support, Intertek CAPCIS can provide expert analysis of the corrosion risks associated with the monopile and provide corrosion control design options, covering selection of protective coating systems, design of internal galvanic anode or impressed current cathodic protection systems, for both new build and retrofit applications.

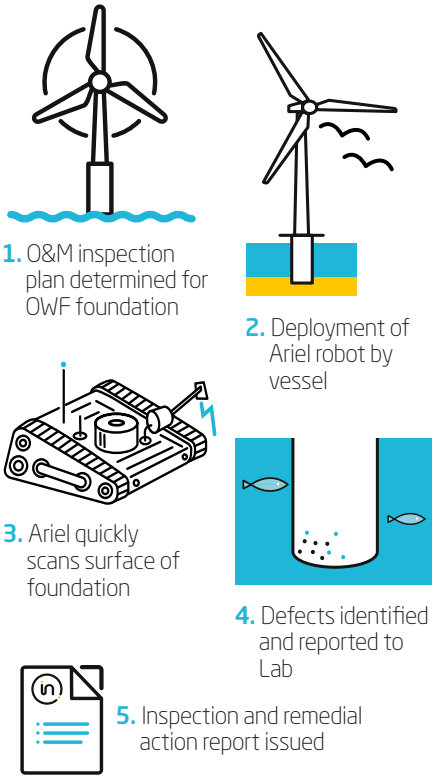


Figure 1 - Corrosion

**FOR MORE INFORMATION**

07485925655

offshorewind@intertek.com

intertek.com/wind/