



DIGITAL SOLUTIONS

SESAM™

FNCorrosion - for fixed and floating structures

Effectively identify areas of under and over-protection throughout the asset lifecycle with FNCorrosion, Sesam's tool for managing the risk of corrosion. The software sets itself apart in the market as an integrated part of a structural design system.

Corrosion protection systems - whether using sacrificial anodes or active impressed current systems - can make or break an offshore project. Corrosion material losses can be a limiting factor for life extension projects, and the geometrical complexity of modern optimized structures can cause difficulties in assuring adequate protection. Sesam's FNCorrosion module is a groundbreaking corrosion software solution with 3D simulation capabilities, and has been used on numerous maritime and offshore projects. It keeps pace with the increasing complexity of marine structures and the demands placed upon them.

Sesam's FNCorrosion tool, lets you visually simulate, test and evaluate cathodic protection systems throughout the asset lifecycle. The software provides the ability to visualize the surface

potentials and current density in 3D and run multiple 'what-if' scenarios showing the levels of protection around the submerged structure. It provides assurance that the selected cathodic protection system will protect fixed and floating structures and any subsea equipment.

The corrosion models can assess through-life protection around submerged structures. The electric field is solved around a panel model for galvanic series materials. Areas of under-protection can be identified, which left unchecked would be subject to gradual material loss. Areas of over-protection can be identified, which may locally entrain hydrogen into the structure, causing embrittlement.

View impact of design changes

With Sesam you can view the simulated system and answer key questions:

- Is my structure adequately protected
 - upon installation before polarization?
 - when anodes are depleting near end of life?
 - over a range of coating integrity assumptions?
 - over the range of sea-water temperature and salinity?
- Will new subsea structures place extra demand on my corrosion protection system?
- Will my existing corrosion protection solution protect my structure from cessation of production until decommissioning?
- Can I retrofit a cheaper alternative

Visualizing the protection levels through computer simulation offers unrivalled decision support. Engineers can see ahead of time how the components will interact and highlight areas of concern on a vessel or offshore structure. For existing structures, the simulations can inform strategic places to measure material losses and corrosion potentials.

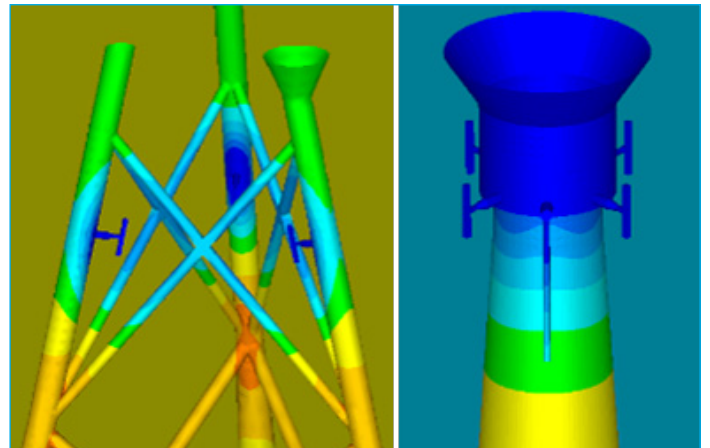
FNCorrosion can be used for:

- Assurance of corrosion protection coverage around structures
 - System optioneering
 - What-if scenarios
- Assessing variation in protection due to:
 - Structure polarization
 - Structure materials
 - Surface coating integrity
 - Anode depletion
 - Sea-water temperature and salinity
 - Installation of nearby structures

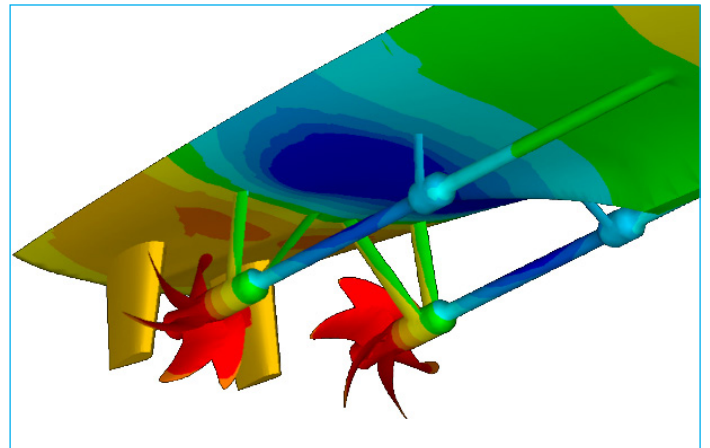
FNCorrosion is a Frazer-Nash Consultancy software tool that includes modelling (case setup GUI) and analysis (solver). The Sesam modules GeniE and Xtract are required for mesh generation and visualization of the results.

Sesam software offers a complete toolkit to support design optimization and strength assessment during an asset's entire lifecycle.

Read more about Sesam on:
www.dnvgl.com/offshore-maritime-engineering



Surface corrosion potentials on a jacket and monopile concept



Surface corrosion potentials on a naval surface ship



Images courtesy of Frazer-Nash Consultancy Ltd