DIGITAL SOLUTIONS · SESAM™

CEFRONT DESIGNS COST-SAVING CORROSION PREVENTION SYSTEM USING SESAM TOOL

Customer story – Cefront

Cefront Technology seized the opportunity to enhance designs of cathodic protection systems for their customer Seafarming Systems' floating offshore fish farms using Sesam's FNCorrosion. Using Sesam, better control of the structure's cathodic protection system is ensured, maintenance needs are reduced, and corrosion protection lasts longer.

Cost savings with FNCorrosion

With FNCorrosion, Cefront is confident that Seafarming Systems' offshore fish farm designs are sufficiently protected against corrosion to last 10 years, with no need for replacing the anodes. That is significantly longer than the previous first-generation design created without the tool.

"Last year we did generation one," says Ragnar Thunes, Vice President Technology at Cefront. For generation one, the cathodic protection system was done by a third party. They calculated the weight and number of anodes, then 'guesstimated' locations and distribution. "For generation two," says Thunes, "we had the opportunity to calculate ourselves. Since we had the tool, I checked the previous configuration of the corrosion prevention system applied to the cage. I could see it was only good enough to provide adequate protection for the as-built condition and the anodes would rapidly erode, as the coating effectiveness reduces over time," he says.

"With FNCorrosion, we were able to calculate five, 10, 15 years down the road and ensure that adequate protection was provided. We increased the number of anodes. We will have less maintenance, less replacement in the operational phase of the fish farm. It's believed to be much better and will save cost," he says.

Marine technology innovation

Thunes is one of the founders of Cefront Technology, which was started in 2013. Based in Arendal in southern Norway, Cefront delivers marine technology solutions to shipping, offshore and renewable energy markets worldwide, with a focus on early-phase developments. Their experience is within marine hydrodynamics, structure, rules and regulation, project management and naval architecture. Thunes started his career working as a structural engineer at Det Norske Veritas, and has also worked for Sevan Marine, where he used Sesam software.

"FNCorrosion is quite easy to use. You get results quickly and they are presented graphically. You can iterate, so it's useful for optimizing the design. We are definitely sticking with Sesam."

- Ragnar Thunes, Vice President Technology at Cefront

"When we started the new company, Cefront, we didn't have any software, so we started using the Sesam package," says Thunes, noting that Sesam is used by Cefront for ship designs, offshore fish farms, wind and wave energy support devices (floating structure) and turrets, both for load, mooring and structure. "Then we had a project where we saw we needed to do some simulations for corrosion," he says.

Prior to purchasing FNCorrosion, Cefront had the option of bringing in a third party or doing simple calculations themselves. "The rules give some simplistic formulas for calculating the number of anodes you need versus the area to be protected. But you don't really know if the anodes are placed correctly, or what kind of protection you actually have," he says.

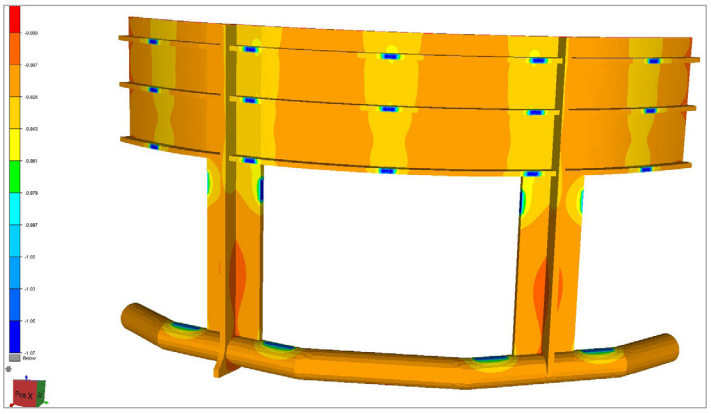
"Through a newsletter, I saw that Sesam had started with the FNCorrosion tool. Since I already had the Sesam package, it was brilliant to be able to use the same tools for modelling and then get simulations, instead of going to a third party to get the work done," he says. "It wasn't very difficult." The use of FNCorrosion saved cost on third party analysis and resulted in better system performance.

Importance of graphic interface

"FNCorrosion is quite easy to use. You get results quickly and they are presented graphically. You can iterate, so it's useful for optimizing the design," says Thunes. In the fish farming industry, there are usually very tight deadlines. "The cage has to be completed and put in the sea on a certain date, you can't slip up. It's a little bit stressful. You have to get the design right the first time around."

Now he is confident that the fish farm Cefront has designed with Seafarming Systems will withstand the conditions of the Norwegian Sea with very low maintenance costs, based on the predictions from FNCorrosion.

"Of course, it depends on the actual breakdown of the coating," he says. "But with the system we have put in place now and the number of anodes, we expect that we don't need to do anything regarding replacement of the anodes for at least 10 years. We spent a little bit more money on the anodes but we will save a lot on maintenance," says Thunes.



FNCorrosion results

CEFRONT IN BRIEF:

Based in the maritime cluster in Southern Norway, Cefront Technology delivers marine technology solutions to shipping, offshore and renewable energy markets worldwide as an independent privately owned marine technology provider focused on early-phase developments.

Cefront Technology has leading engineering resources with extensive industry and/or academic experience within marine hydrodynamics, structure, rules and regulation, project management and naval architecture. The company has been involved in the development, project management, and commercialization of numerous marine solutions for the high-end shipping and offshore markets. Cefront Technology personnel have also been involved in the establishment and development of various successful start-up companies within the marine area. Cefront Technology also provides advisory services to complex shipping and offshore projects, as well as venture capital, know-how and hands-on follow up to third party marine development projects.

PROFILE

- Customer name: Cefront
- Website: cefront.com
- Market: Shipping, offshore and renewable energy
- Product: Sesam

BRIEF ACCOUNT

Why we chose DNV GL – Digital Solutions

- We know the people, service and software of DNV GL
- Competence level is high
- Excellent support from DNV GL – Digital Solutions

This is what we gained:

- Access to knowledge and the products we need
- Ability to deliver best product to customer
- Easy-to-use tool with graphic interface eases quick optimization of the design
- Compared to simulation service offered by third parties, doing modelling ourselves gives better control and is much more cost-effective