

Minimizing FPSO Downtime With Corrosion Protection During Fabrication

Floating production storage and offloading (FPSO) units are on the upward trend in the oil and gas industry because of their flexibility to meet changing demands in an unpredictable market. Yet, without good preservation strategies during construction and delivery, FPSO fabricators and owners can be in for a negative surprise when they encounter corrosion problems during FPSO commissioning or thereafter. VpCI® Technologies offer practical and effective solutions to avoid these unwanted corrosion-related downtime episodes to promote smoother commissioning and better durability.

A CORROSIVE ENVIRONMENT

FPSO topside equipment is often built near ocean ports and spends the rest of its service life in a marine environment. High temperatures, humidity, and salt spray create a perfect atmosphere for corrosion propagation. To make matters worse, certain types of equipment must be flushed or hydrotested during construction and commissioning, introducing corrosives that threaten to compromise the internal integrity of the equipment. For FPSO fabricators, the consequences are more serious than simply failing to deliver goods with a pleasing appearance. Far worse, corrosion on critical equipment can delay commissioning or cause more serious problems down the road, including high-cost, emergency shutdowns from corrosion-related failures on turbines or electrical systems. While corrosion consequences can be drastic, a few simple preservation strategies in key areas will go a long way toward preserving equipment until the time of commissioning.

PRESERVING ELECTRICALS AND ELECTRONICS

Electricals and electronics are the brains and nerve centers of a FPSO. Without them, operations would halt. Fortunately, electricals and electronics are some of the easiest components to protect by placing VpCI® Emitters inside the housings. VpCI® Emitters comes in multiple sizes—from the VpCI®-101 Device that protects 28 l of space to the VpCI®-308 Pouch that protects 1 m³—and release Vapor phase Corrosion



Inhibitors that fill the enclosure, adsorbing on metal surfaces as a protective molecular layer. A quick spray of ElectriCorr™ VpCI®-239 on electrical connections—especially those that are not enclosed—offers added protection. These materials typically do not interfere with electrical/electronic operation and can often be left in place for ongoing corrosion protection during everyday use.

PROTECTION DURING HYDROTESTING

In addition to electronics, FPSOs encompass many fluid systems, including piping, pumps, valves, and compressor skids that may need to be hydrotested or flushed. This activity can introduce moisture and sometimes even chlorides (e.g., if seawater is used) and is a prime opportunity to apply corrosion protection. Products such as those in the VpCI®-649 Series can be added to the hydrotest water for protection during hydrostatic testing and can be dosed at higher concentrations for extended periods of preservation. These hydrotest additives are both film-forming and vapor-phase corrosion inhibiting for protection of hard-to-reach areas inside valves or systems that are capped subsequent to hydrotesting.

PRESERVING TANKS, VESSELS, AND FLOW PATHS

Another means of internal protection is to apply VpCI®-337 or CorroLogic® Fogging Fluid VpCI®-339. These Vapor phase Corrosion Inhibitors can be fogged into flow paths of gas turbines and other rotating equipment. They also work inside tanks, vessels, and other enclosed voids that could otherwise be difficult to protect. Removal is usually not needed prior to commissioning. If fogging is not preferred for

one reason or another, VpCI®-308 Pouches can be placed inside the voids to release Vapor phase Corrosion Inhibitors through a breathable packaging membrane. These pouches can be taken out quite easily before equipment commissioning.

EXTERNAL PROTECTION

Turbines and other equipment fogged with VpCI® Technology are often wrapped in VpCI® Films such as VpCI®-126 HP UV Shrink Film and MilCorr® VpCI® Shrink Film—both to protect equipment externals and to trap Vapor phase Corrosion Inhibitors inside the equipment. Films are better than tarps for protection in outdoor environments because they create a barrier to external elements and contain corrosion inhibitors to actively mitigate corrosion. If needed, they can be fitted with access panels for easier inspection during the preservation period.

THE MOMENT OF TRUTH

Commissioning is the moment of truth when the relative success of preservation is revealed. Fortunately, Cortec® VpCI® Technologies are not only highly effective at inhibiting corrosion but also typically require little to no removal effort before the equipment can be used, promoting maximum uptime by streamlining the commissioning process.

Source: Cortec®

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Alfen and Nybro Energi Partner to Accelerate Renewable Energy Transition in the Nordic Countries

Alfen N.V., an energy solutions specialist at the heart of Europe's energy transition to limit climate change, has successfully installed a 5 MW/5 MWh TheBattery Elements™ energy storage system for municipal energy company, Nybro Energi. This project is part of Alfen's ongoing support for Sweden's energy supply needs as the country increases emphasis on renewables and electrification.

The system was commissioned in April for use on the Swedish ancillary services market and started operations in May. It features a proven industrial modular energy storage solution for stationary applications ranging from 1 to 100 MW+. TheBatteryElements modular outdoor building blocks can be added to each other to achieve high energy density according to the requirements.

Nybro Energi has a proud history of pioneering green energy solutions. Since the 1970s, it has used biofuels to produce both heat and electricity for Nybro, a town in southern Sweden, and started using another plant that generates power from waste in 2016. It has also set up a wind farm, and solar panels cover the roofs of the city's industrial buildings.

"We're proud to provide Nybro with Alfen's TheBattery Elements, which offer modular energy storage to help create a greener and balanced energy landscape for Sweden, one of the first countries in the world to adopt a net-zero emissions target, which it intends to achieve by 2045," commented Stephanie Schockaert, commercial director for Alfen's Energy Storage Solutions business.

This project ensures stable energy supply through ancillary services for Swedish transmission system operator, Svenska Kraftnät, which include primarily frequency containment reserves, real-time grid frequency balancing and peak shaving during cold winter days. Notably, surplus heat from the waste incineration plant complements the electricity stored by the system.

"Alfen was our top choice for the battery system procurement as we were looking for a flexible solution with an effective price and design that catered to Svenska's transmission system needs," added Niklas



Lindvall, Business Area manager at Nybro Energi. "The system has been operational in the ancillary services market for a while now, and our satisfaction remains unwavering."

Alfen has been developing energy storage systems since 2011 with installations in many European countries, and it has over 525 MWh of energy capacity contracted. Its solutions are underpinned

by 2 key products tailored for different markets and applications but based on the same design principles to ensure optimal performance, flexibility, modularity and longevity. Alfen also offers end-to-end solution and network integration expertise, further extending the support for grid services and businesses seeking efficient energy management.

Source: Alfen N.V.

Allison Transmission Honors Guild Technician Skills Competition Finalists

Matt Kagarise from Penn Power Group was named Grand Champion of the Allison Guild Technician Skills Competition.

Four additional finalists were recognized including Alex Lindberg, Clarke Power Services, Inc.; Antoon Vossen, Wajax Power Systems; Lance Geiss, Interstate Power Systems; and Tyler Yannacito, Stewart & Stevenson.

The finalists competed head-to-head by rotating between 5 hands-on timed skills stations designed to gauge each technician's understanding and troubleshooting abilities related to Allison 1000-4000 Series diagnostics, service, repair and chassis integration. Each station was hosted and judged by Allison Regional Customer Support Managers, Allison Service Engineers and Allison Product Training personnel.

Source: Allison Transmission

