

FLOATING PRODUCTION STORAGE AND OFFLOADING PROJECT

PROJECT DETAILS

Client:	A Global Oil & Gas Company
Location:	Barents Sea, Norway
Completion Date:	December 2014
Contract Scope:	Engineering Design and Material Supply of Electric Heat-Tracing and Tubing Bundle, Control and Monitoring System using ABB DCSI
Applications:	Temperature Maintenance, Freeze Protection, Anti-icing/De-icing
Technology:	nVent RAYCHEM Self-Regulating Heat-Tracing Systems, ABB Industrial IT Control System, RAYCHEM RTB Tubing Bundles



KEY CHALLENGES

As this was one of the first oil fields developed in the Barents Sea, it inherently brought with it many challenges including effective protection from the Arctic climatic conditions and icing of the platform. The client, together with another global oil and gas player, chose to develop the field using Sevan Marine's cylindrical Floating Production Storage and Offloading (FPSO) concept. This FPSO is designed to operate under the challenging conditions found in the Barents Sea. When packaged with a de-icing strategy for the decks, handrails and stairs, it is equipped to meet the strict environmental requirements stipulated for operations in the Arctic climate.

The severe Arctic conditions and de-icing requirements; limitation of electrical power load (in order to limit the overall FPSO weight); and very little experience with the NORSOK design presented some challenges, as well as standardization of the Control & Monitoring System.

SOLUTION

nVent regional teams were able to successfully execute this project through extensive internal collaboration and detailed communication with key customer stakeholders. The European team provided Arctic climate experience, and executed the Control & Monitoring design and packaging requirements. Meanwhile, the Asia Pacific team provided extensive Marine/FPSO knowledge, and executed the Electric Heat Tracing & De-icing Design portion.

Winterization of the escape way was executed by utilizing Humovoll's Deck Coating Solution, which is dependent on RAYCHEM Self-Regulating Heating Cable Technology. nVent design team was involved in the customer's 3D modeling work (PDMS) which allowed for fast responses to design revisions and updates, such as the placement of junction boxes and end seals.

Through the use of nVent RAYCHEM TraceCalc Pro, the client was offered a quick and easy guide to the layout of their heat-tracing design, which included managing heat loss, and minimizing the number of circuits and electrical loads. This design map was created while providing an automated heating cable and component selection at the same time using nVent's proprietary software solution.

PRODUCTS

To meet the needs of this challenging application, nVent offered the following Heat Management System:

- RAYCHEM Self-Regulating Heating Cables for Temperature Maintenance and Freeze Protection
- nVent RAYCHEM NGC-30 Multi-Circuit Heat Tracing Control, Monitoring and Power Distribution System
- OneCo Stainless Steel Junction Box and Connection Accessories
- Engineering, Design and Project Management Services

BENEFITS

Utilizing nVent Heat Management System, the client was able to meet all of the requirements set for this project. Pairing RAYCHEM Self-Regulating Heating Cable Technology with the NGC-30 Controllers substantially reduced the energy consumption with accurate power output to minimize the heat loss of the pipes and vessels. A centralized Control & Monitoring System provided information on the status of heat-tracing circuits, and better reporting enabled predictive maintenance which reduced costs and improved overall performance.

With decades of experience in designing, manufacturing and installing heat management systems, nVent was able to provide a comprehensive solution to satisfy the customer's unique needs. The use of multiple heat trace technologies, heat tracing circuits, and power distribution panel boards ultimately led to the overall success of this project.

nVent provides unique solutions for various applications and offers a full suite of optimization strategies customized for a given application resulting in the highest reliability and performance at a reduced CAPEX/OPEX for the project.

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