



ARMS Reliability Delivers Fully Optimized Reliability-Centered Maintenance Build for FPSO Capital Project

OVERVIEW

A leading global specialist for Floating Production Storage and Offloading [FPSO] vessels within the oil and gas industry engaged ARMS Reliability to help optimize the maintenance build of a new FPSO capital project in Mexico.

ARMS' client was responsible for the engineering, procurement, construction, mobilization, installation, operation, and maintenance of the FPSO that will operate in Mexican waters.

Utilizing its proprietary Asset Strategy Management platform OnePM® and the world's largest component strategy library, the ARMS team began the project in January 2020 and completed it in three phases.



Optimal digital strategies and enriched master data result in greater productivity at lesser cost



Projected three-year project completed within nine months and foundation set for future efficiency gains



Risk is clear, visible, justified and managed at every level to achieve performance goals

PHASE 1: Planning for Success

During Phase 1 of the FPSO capital project maintenance build, the ARMS team developed the documentation that would serve as the foundational plan for the FPSO's whole maintenance program. The Reliability-Centered Maintenance documentation consists of two parts: the Reliability and Integrity Guide and the Supporting Asset Class Documents.

The **Reliability and Integrity Guide** defines standard practices for developing, executing, and continuously improving a cost-effective Asset Management Program for the fleet. The guide's purpose is to make sure the FPSOs can fulfill the business' availability requirements without compromising safety or environmental performance. Additionally, the guide ensures operational consistency of standards and methodology throughout the region.

The **Supporting Asset Class Documents** are a dozen "child" documents that dive deeper into details, rules, and exceptions within each asset class. They are like footnotes that facilitate specific maintenance governance and define criticality consequence matrices at the asset-class level.

PHASE 2: Building for Efficiency

During Phase 2 of the FPSO capital project maintenance build, the ARMS team began implementing the Maintenance Philosophy Guide, using ARMS' proprietary OnePM® software. With inputs from the ARMS team's expertise, client data, and Original Equipment Manufacturer [OEM] manuals, OnePM® was used to conduct the criticality assessment, perform the maintenance strategy build, and enable the rapid deployment of the maintenance strategies across the vessel.

During the **Criticality Assessment**, OnePM® was used to evaluate all 50K+ assets using criteria defined during Phase 1, and each asset received a criticality level of 1-5. The criticality levels help determine every asset's most valuable maintenance strategy and gives visibility into the risk of each asset.

During the **Maintenance Strategy Build**, similar assets were first grouped together into equipment types according to Component Maintenance Failure Mode and Effects Analysis [FMEA] Templates. The templates were then populated to incorporate client-specific details, OEM manual recommendations, and all relevant data particular to the various equipment types.

With these templates completed, OnePM® deployed the equipment type strategies to assets and created asset strategy variations. These variations account for asset details such as criticality levels, appropriate regulations, and Operation Assurance Tasks.

Finally, the ARMS team simulated the maintenance recommendations for all equipment types, in order to optimize the asset models.

PHASE 3: Ready for Efficacy

During Phase 3 of the FPSO capital project maintenance build, the ARMS team used OnePM® to populate the client's CMMS load sheets and Primary Maintenance Instructions [PMI] documents, as well as develop forecasts for labor, spares, and maintenance, and a spares optimization plan.

Using OnePM®, the ARMS team incorporated the FPSO's rules set for OnePM® to rapidly group all 50K+ assets and their associated tasks into inspection routes and planned maintenance. Then, OnePM® auto-generated all load sheets and PMI documents – a job that traditionally would have taken several months to complete – within a matter of minutes and enabled the client to seamlessly upload the Excel sheets into CMMS. Additionally, the PMI documents were improved, with an updated format, clearer task descriptions, and a feedback section to facilitate continuous improvement.

The ARMS and client team also used OnePM® to prepare budget forecasts – tailor-made to the client's labor, spares, and maintenance – for the first 20 years of the FPSO vessel's life, providing a detailed depiction of what to expect every year for the next two decades. The team delivered a spares optimization plan as well, outlining the recommendation of spares to stock and the cost benefits associated over the coming years.

THE BENEFITS



Superior Performance

ARMS' involvement and use of OnePM® in the FPSO capital project maintenance build standardized the FPSO vessel's maintenance data within a central system, as well as providing complete, connected, and consistent master data. These optimal digital strategies and enriched master data will ultimately mean greater productivity at lesser cost – and therefore, superior performance – for this vessel.



Exceptional Efficiency

Using OnePM® saved tremendous time, labor, and cost not only for the deployment portion of the build, but also for the maintenance build overall; the ARMS team was able to complete what historically would have been a three-year project within nine months. And with the completion of this first maintenance build, future FPSO vessel builds will begin with about 40% of the work already done. Additionally, maintenance strategies, as well as future updates and changes, can be deployed throughout the client's whole fleet in a single click, resulting in exceptional efficiency.



Managed Risk

OnePM®'s risk justification and visibility will help the client manage their risk, achieve performance goals, and leverage best practices for continuous improvement. Data-driven risk justification for every recommended maintenance task helps personnel understand the value in each task and eases decision-making, as the risks – whether cost-, environmental-, or safety-based – are made clear. OnePM® also provides full risk visibility, so that the client can manage their risk at an asset level, grouping by system, area, or vessel, and view their risk over time, adjusting their maintenance strategies accordingly.



OnePM® supports the process of Asset Strategy Management to deliver the optimal balance of cost, risk and performance, continuously. Learn how.

DISCOVER ONEPM®



ARMS Reliability - Representative Vendor in Gartner 2018, 2019, 2020 & 2021 Asset Performance Management Market Guide

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