CASE STUDY

HIGHER STANDARD OF OPERATIONAL READINESS THANKS TO MAINTENANCE AND INTEGRITY BUILD FOR NEW DEEPWATER FPSO

A leading international maritime company, operates an ultra-deepwater Floating Production Storage and Offloading (FPSO) vessel capable of producing 180,000 barrels of oil per day (bpd). Positioned offshore in a highly productive oil field, this FPSO plays a critical role in extracting and processing vast oil reserves in the area. The client's operations are subject to stringent regulatory requirements and high operational standards, necessitating a robust maintenance program to ensure continuous and efficient performance.

AMBITIONS: ENSURING COMPLIANCE

The client faced significant challenges in ensuring compliance with strict regulatory standards while maintaining high operational efficiency. The complexity of the project, given its ultra-deepwater location and the use of advanced subsea separation technology, required a comprehensive maintenance strategy. The client needed a structured approach to identify Safety Critical Elements (SCE), conduct Equipment Criticality Analysis (ECA), and develop a maintenance program that aligns with their operational readiness and commissioning schedules.

APPROACH: COMPREHENSIVE MAINTENANCE PROGRAM

MaxGrip was contracted to develop a detailed Maintenance & Integrity Build for the FPSO. Over an 18-month period, our team of maintenance engineers worked closely with the client's operations readiness and maintenance execution teams to deliver a comprehensive maintenance strategy.

Safety Critical Elements

MaxGrip began its engagement by working closely with the client to identify Safety Critical Elements (SCE) at the equipment and tag level within the asset register. This involved utilizing a detailed SCE identification logic and established performance standards to ensure all critical components were thoroughly covered. Understanding the criticality of each piece of equipment was paramount, so MaxGrip conducted an in-depth criticality analysis. This work prioritized equipment based on the consequences and probability of failure, focusing on health and safety, environmental impact, and financial implications. The holistic approach ensured that the overall criticality of each piece of equipment was accurately assessed.

Maintenance Strategy

Based on that work, MaxGrip developed a comprehensive maintenance strategy. Over 350 documented maintenance strategies were created, covering all equipment classes and critical main packages. This strategy included 6,000 Preventive Maintenance (PM) plans and the cataloging of materials to be developed into Bills of Materials (BOMs).

Furthermore, detailed step-by-step work instructions and Maintenance, Repair, and Operations (MRO) spare parts planning were provided to facilitate smooth implementation. To ensure these strategies were actionable, MaxGrip collaborated with the client’s operations readiness team to seamlessly integrate the maintenance plan into their Computerized Maintenance Management System (CMMS). MaxGrip took care of the data development and template population for the CMMS while the client’s team tested and migrated the data resulting in a smooth go-live.

Validation and Implementation

MaxGrip's team ensured that the maintenance strategies were not only developed but also optimized to meet the client's unique operational needs. Extensive workshops and review sessions were conducted with the client's discipline engineers and operations personnel to finetune the maintenance plans.

This collaborative approach ensured that the maintenance resource schedule was optimized, aligning with the asset’s shutdown and turnaround requirements, thus maximizing operational efficiency.

BENEFITS

HIGHER STANDARD OF OPERATIONAL READINESS

MaxGrip's involvement in this ultra-deepwater FPSO project enabled the client to achieve a higher standard of operational readiness and regulatory compliance, ensuring the long-term success and reliability of the FPSO operations.

The creation and implementation of the maintenance program resulted in:

- Regulatory Compliance: The comprehensive maintenance strategy ensured the operator met and exceeded regulatory compliance challenges and audits.
- Operational Efficiency: The detailed maintenance strategies and PM tasks ensure improved equipment reliability and availability. It also optimized resource scheduling which ensured efficient use of maintenance resources.
- Seamless CMMS integration: All maintenance strategies, PM tasks, and spares were successfully integrated into the CMMS, supporting the asset's operational and maintenance needs.
- EMS (Equipment Maintenance Strategy, FMEA & SCE) Documentation: Thorough documentation of Maintenance Plans, SCE identification and ECA provided the client with a clear understanding of critical equipment and maintenance priorities.
- Enhanced Maintenance Planning & Scheduling: The structured maintenance plan facilitated better planning and execution of maintenance activities, contributing to overall project success.

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MaxGrip is a global Asset Performance Management consultancy that enables asset-intensive organizations to improve their bottom line by optimizing asset performance and accelerating digital transformation. Our experts work with leaders in a broad range of industries, including Oil & Gas, FMCG, Power Generation & Distribution, Water and Wastewater, Infrastructure and Metals and Mining.

Learn more about our solutions and clients at maxgrip.com. Or contact us via info@maxgrip.com.