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Offshore Facilities Load Out: Case Study of Jacket Superstructure Loadout by Strand Jacking Skidding Method

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Abstract : Objectives: This paper shares the case study on the engineering analysis, data analysis, and real-time data comparison for qualifying the stand wires' minimum breaking load and safe working load upon loadout operation for a new project and, at the same time, eliminate the risk due to discrepancies and unalignment of COMPANY Technical Standards to Industry Standards and Practices. This paper demonstrates “Lean Construction” for COMPANY’s Project by sustaining fit-for-purpose Technical Requirements of Loadout Strand Wire Factor of Safety (F.S). The case study utilizes historical engineering data from a few loadout operations by skidding methods from different projects. It is also demonstrating and qualifying the skidding wires' minimum breaking load and safe working load used for loadout operation for substructure and other facilities for the future. Methods: Engineering analysis and comparison of data were taken as referred to the international standard and internal COMPANY standard requirements. Data was taken from nine (9) previous projects for both topsides and jacket facilities executed at the several local fabrication yards where load out was conducted by three (3) different service providers with emphasis on four (4) basic elements: i) Industry Standards for Loadout Engineering and Operation Reference: COMPANY internal standard was referred to superseded documents of DNV-OS-H201 and DNV/GL 0013/ND. DNV/GL 0013/ND and DNVGL-ST-N001 do not mention any requirements of Strand Wire F.S of 4.0 for Skidding / Pulling Operations. ii) Reference to past Loadout Engineering and Execution Package: Reference was made to projects delivered by three (3) major offshore facilities operators. Strand Wire F.S observed ranges from 2.0 MBL (Min) to 2.5 MBL (Max). No Loadout Operation using the requirements of 4.0 MBL was sighted from the reference. iii) Strand Jack Equipment Manufacturer Datasheet Reference: Referring to Strand Jack Equipment Manufactured Datasheet by different loadout service providers, it is shown that the Designed F.S for the equipment is also ranging between 2.0 ~ 2.5. Eight (8) Strand Jack Datasheet Model was referred to, ranging from 15 Mt to 850 Mt Capacity; however, there are NO observations of designed F.S 4.0 sighted. iv) Site Monitoring on Actual Loadout Data and Parameter: Max Load on Strand Wire was captured during 2nd Breakout, which is during Static Condition of 12.9 MT / Strand Wire (67.9% Utilization). Max Load on Strand Wire for Dynamic Conditions during Step 8 and Step 12 is 9.4 Mt / Strand Wire (49.5% Utilization). Conclusion: This analysis and study demonstrated the adequacy of strand wires supplied by the service provider were technically sufficient in terms of strength, and via engineering analysis conducted, the minimum breaking load and safe working load utilized and calculated for the projects were satisfied and operated safely for the projects. It is recommended from this study that COMPANY’s technical requirements are to be revised for future projects’ utilization.

Keywords : construction, load out, minimum breaking load, safe working load, strand jacking, skidding
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