

## **Benchmarking of Petroleum Tanker Discharge Operations at a Nigerian Coastal Terminal and Jetty Facilitates Optimization of the Ship-Shore Interface**

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**Abstract :** Benchmarking has progressively become entrenched as a requisite activity for process improvement and enhancing service delivery at petroleum jetties and terminals, most especially during tanker discharge operations at the ship - shore interface, as avoidable delays result in extra operating costs, non-productive time, high demurrage payments and ultimate product scarcity. The jetty and terminal in focus had been operational for 3 and 8 years respectively, with proper operational and logistic records maintained to evaluate their progress over time in order to plan and implement modifications and review of procedures for greater technical and economic efficiency. Regular and emergency staff meetings were held on a team, departmental and company-wide basis to progressively address major challenges that were encountered during each operation. The process and outcome of the resultant collectively planned changes carried out within the past two years forms the basis of this paper, which mirrors the initiatives effected to enhance operational and maintenance excellence at the affected facilities. Operational modifications included a second cargo receipt line designated for gasoline, product loss control at jetty and shore ends, enhanced product recovery and quality control, and revival of terminal-jetty backloading operations. Logistic improvements were the incorporation of an internal logistics firm and shipping agency, fast tracking of discharge procedures for tankers, optimization of tank vessel selection process, and third party product receipt and throughput. Maintenance excellence was achieved through construction of two new lay barges and refurbishment of the existing one; revamping of existing booster pump and purchasing of a modern one as reserve capacity; extension of Phase 1 of the jetty to accommodate two vessels and construction of Phase 2 for two more vessels; regular inspection, draining, drying and replacement of cargo hoses; corrosion management program for all process facilities; and an improved, properly planned and documented maintenance culture. Safety, environmental and security compliance were enhanced by installing state-of-the-art fire fighting facilities and equipment, seawater intake line construction as backup for borehole at the terminal, remediation of the shoreline and marine structures, modern spill containment equipment, improved housekeeping and accident prevention practices, and installation of hi-technology security enhancements, among others. The end result has been observed over the past two years to include improved tanker turnaround time, higher turnover on product sales, consistent product availability, greater indigenous human capacity utilisation by way of direct hires and contracts, as well as customer loyalty. The lessons learnt from this exercise would, therefore, serve as a model to be adapted by other operators of similar facilities, contractors, academics and consultants in a bid to deliver greater sustainability and profitability of operations at the ship - shore interface to this strategic industry.

**Keywords :** benchmarking, optimisation, petroleum jetty, petroleum terminal

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