

PS Practical Experience in Rig Move and Workover Operations in an Amphibious Terrain: A Case Study of Escravos Beach Rig Move and Workover Operations*

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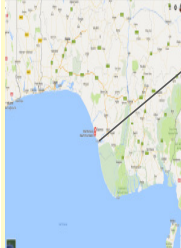
Abstract

The exploration and production of oil and gas mostly occurs in remote locations, so as to minimize human exposure and Health Security Safety and Environment (HSSE) risks. Shell Companies in Nigeria are not any different having operated for over 50 years in Nigeria with the largest footprint of all the international oil and gas companies operating in the country spanning over land, swamp, shallow waters, and offshore terrains. Shell Petroleum Development Company, the operator of a joint venture (the SPDC JV) between the government-owned Nigerian National Petroleum Corporation – NNPC (55% share), Shell (30%), Total E&P Nigeria Ltd (10%), and the ENI subsidiary Agip Oil Company Limited (5%) focuses mostly on onshore and shallow water oil and gas production in the Niger Delta with about 60+ producing oil and gas fields and a network of approximately 5,000 kilometers of oil and gas pipelines and flow lines spread across the Niger Delta. Escravos Beach is over 60 km from the closest major city, Warri, a major oil and gas zone in the Niger Delta. It is bounded by the Escravos River to the East, Chevron Canal to the North and the Atlantic Ocean to the South and is covered with predominantly mangrove forest especially along the creeks and consists of a number of natural and man-made waterways (rivers, creeks and canals). Unlike most other onshore operations, this location can only be accessed via the waterways; thus requiring the rig equipment and every other equipment to be channeled via the waterways and subsequently on land to arrive at the site. The amphibious nature of this operation requires a combination of onshore and swamp requirements with increased HSSE exposure, logistics requirement, and cost. This poster aims to highlight the practical experience garnered in the rig move and workover operations of Rig XYZ which operated in the Escravos Beach region.

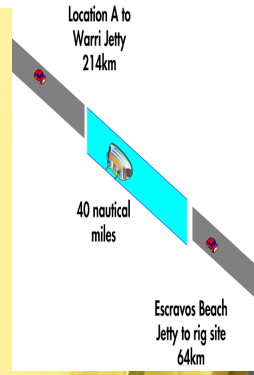
Practical Experience in Rig Move and Workover Operations in an Amphibious Terrain: A Case Study of Escravos Beach Rig Move and Workover Operations



- > 6,000 kilometres of flowlines and pipelines
- 60 producing oil and gas fields
- Ca. 700 producing wells
- 46 flow stations & 7 gas plants
- 2 major oil export terminals



Escravos Beach



Land onshore asset which can only be accessed via the waterways.

Planning



Route Survey/Assessment

- The distance between both jetty facilities.
- Jetty accessibility
- Security of the water ways
- Jetty entrance dimension vis-à-vis the equipment dimensions
- Hazards along the water way such as the tidal current, community activities, etc.

Rig Move Equipment Requirement. Two alternatives:

- Offload equipment from the trucks onto the barge and re-load same onto stand-by trucks on arrival at the Escravos Beach Jetty; or
- Drive trucks onto the barge and drive off the barge at Escravos Jetty and on to the rig site.

Execute

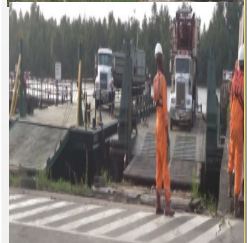
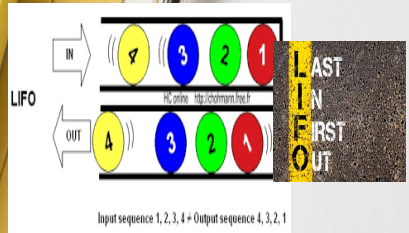
PROPOSED MARINE RIG MOVE PLAN FOR AMPHIBIOUS MOVEMENT FROM WARRI TO ESCRAVOS

TOTAL LOADS=41 (36 COMPACT LOADS, 51 RIGHTS LOADS)

CONVOY OF 17 TRUCKS AND 3 BARGES/POPs (21 TRUCKS + 3 BARGES)

Day	Activities	Proposed No of Loads Dispatched	Controlled
01/02/20	Load 1-10 (10 compact loads)	10	7
02/02/20	Load 11-20 (10 compact loads)	10	7
03/02/20	Load 21-30 (10 compact loads)	10	7
04/02/20	Load 31-41 (10 compact loads)	10	7

Sequenced convoy movement



Rig Move Supervisors; Journey Management

Recommendations

- Proper sequencing
- Determine equipment requirement
- Conduct a detailed route survey.
- Early engagement of stakeholders
- Optimise tidal movement
- Ensure all HSSE requirements are met
- All lifting equipment must be certified prior to rig move.
- Ensure back up equipment are provided

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