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THE N'KOSSA FLOATING CONCRETE PRODUCTION STORAGE BARGE

Claude Valenchon*

ABSTRACT

A contract for design and construction of a concrete production storage barge was awarded by Elf Congo to Bouygues Offshore on 18 August 1993. The international bid tender specified a steel hull barge, however, bidders were allowed to propose an alternative design of concrete. In this case, it was possible to show that a concrete hull for the production storage barge (FSO or FPSO) was cost competitive with a steel storage barge.

The N'KOSSA Offshore Oil Development

The N'KOSSA Field development consists of two fixed steel drilling platforms located in 170 m of water offshore Congo. A production barge adjacent to one of the drilling platforms and two storage/loading vessels, one for oil and one for LPG, are used for export.

Main Characteristics of the Production Support Barge :

Length	220 m
Width	46 m
Depth	16 m
Concrete volume	26 000 m ³
Concrete strength	70 MPa
Construction manhours	600 000
Construction schedule	12 months (August 1994 - July 1995)

The six topside modules of the barge are the heart of the N'KOSSA Field production support facilities. These include accommodation for 160 personnel in addition to providing the following main process functions :

Oil treatment, separation and desalination	18,500	m ³ /day
Dehydration and condensate extraction	13,000	m ³ /day
Production of LPG	1,300	t/day
Gas reinjection at 420 bars	11,500	m ³ /day
Water injection at 245 bars	18,000	m ³ /day
Electric power generation and distribution	3 x 25	MW

It is anticipated that this concrete barge will fulfill its functions on site without interruption for 30 years. This aspect was decisive in Elf Congo's choice of a concrete barge, due to the *excellent durability and corrosion resistance of concrete* in a marine environment as well as *its superior fatigue resistance*.

* Bouygues Offshore