SAFETY REGIME FOR FPSOs AND FSUs in Nigeria – A case for the domestication of the MARPOL Convention and implementation of the guidelines relating to FPSOS and FSUS

Floating Production Storage and Offloading (FPSO) vessels are specialised vessels used in the production and storage of crude oil located in deep – water fields offshore, while Floating Storage Units (FSUs) are used for the offshore storage of produced oil. They are a relatively new concept in the maritime and offshore oil and gas industries with the construction of the first dating back to 1977 used by Shell on its "Castellion field" in Spain Mediterranean. FPSOs are now being used in a number of deepwater projects all over the world and are becoming increasingly popular as they form an economic and convenient means of developing offshore fields and also sometimes marginal fields, located far away from any existing infrastructure. Currently there are about 100 units operating in different parts of the world. Examples of some FPSO/FSU deepwater projects in Nigeria include Shell's 'Bonga', ExxonMobil's 'Erha', ChevronTexaco's 'Agbami', Elf's 'Amenam' and 'Usan', Total's 'Akpo' fields and Addax's "Okwori"fields.

FPSOs straddle both petroleum and maritime boundaries and are subject to a number of legislation and rules that do not usually apply to conventional ships and production platforms, all aimed at ensuring the safety of the environment where the FPSO/FSU is operating. These legislation and rules are the coastal/shelf state legislation, flag state regulations, class rules and international conventions and when properly harmonised, results in a safety regime. A brief review of these legislations, the safety regime of other jurisdictions as well as the situation prevailing in Nigeria, is considered below with appropriate recommendations.

SHELF STATE LEGISLATION

These are the laws of the country where the FPSO/FSU is located and covers a variety of issues ranging from maritime, petroleum and offshore laws to the regulatory framework for the acquisition, operation, safety, maintenance and decommissioning issues. It applies to all activities on the continental shelf of the coastal state and precedes the maritime (flag state) rules but will normally refer to flag state rules on maritime issues.

FLAG STATE RULES

These are the laws of the country whose flag the unit is flying and deals primarily with safety issues. Flag states usually adopt and implement the safety regulations given in the conventions issued by the International

Maritime Organisation (IMO), the United Nations body for maritime affairs. The degree to which IMO requirements are enforced for FPSOs/FSUs will depend on the flag state. It is therefore useful to check and verify the relevant flag authority's position early in a project.

CLASS RULES

These are the rules and regulations of classification societies. Classification is a comprehensive verification service, which shows that a set of requirements (class rules) is met during the design, construction and maintenance of the FPSO or FSU. The aim is to ensure that the required safety standard is built in, observed and maintained throughout the life of the unit.

SAFETY REGIME OF FPSOs/FSUs – OTHER JURISDICTIONS[1]

Industrialised countries are normally well regulated and have comprehensive rules for activities on their continental shelf as well as a clear and well - defined regulatory authority responsible for safety issues. The owner or operator is usually fully responsible to the authorities for all safety-related aspects and activities. In fulfilment of this duty, the owner/operator has to establish verification programmes. These programmes can include and utilise verification activities such as class rules.

In the UK, the owner/operator has overall responsibility for safety issues. He is responsible for establishing a written verification scheme for the safety elements of the project. The scheme has to be verified by an Independent Competent Person (ICP) appointed by the Petroleum Authority, who ensures compliance with the scheme. Classification societies are normally allowed to act as ICPs and although there is no formal requirement for an FPSO to be flagged or classed, classification covers a majority of the safety critical elements and may be used to document partial compliance with offshore regulations.

In Norway, the regulator is the Norwegian Petroleum Safety Authority (PSA). The operator also has overall responsibility for safety objectives and has to develop a comprehensive verification programme. Also, classification can be used to document partial compliance with the regulations. The PSA has an AoC scheme contained in section 21 of its Framework Regulations. AoC is defined as "an acknowledgment from the PSA to the effect that a mobile drilling facility's technical condition and the applicant's organisation and management system are assessed to the best of the directorate's judgment to be in conformity with the relevant requirements of Norwegian shelf rules". The AoC is

[1] Regulatory Supervision of FPSOs by Tore Slidnes

mandatory for drilling units, and will be for FPSOs operating in Norwegian waters from 2008.

In the US Gulf of Mexico, jurisdiction is shared between the Mineral Mining Service (MMS) and the US Coast Guard (USCG). The MMS issues production permits based on a review and audit of production facilities and a statement from a Certified Verification Agency (CVA), usually a classification society, while the USCG issues Certificate of Inspection (COI) for floating production facilities.

In Australia, the National Offshore Petroleum Authority (NOPSA) is the regulator and has an established "safety case regime". The licensee/duty holder has overall responsibility for safety. A verification plan must be agreed between the licensee and NOPSA and an independent verification body (usually a classification society) verifies and ensure compliance by the licensee with the agreement between it and the NOPSA.

In Canada, there are two regulatory authorities on the East Coast: Canada Newfoundland Offshore Petroleum Board (CNOPB) and Canada Nova Scotia Offshore Petroleum Board (CNSOPB). Production units must comply with the drilling, installation and production regulations of these boards and be issued with a Certificate of Fitness from an approved certifying authority, usually a classification society. In addition, all floating units are required to comply with Transport Canada Marine Safety Regulations.

SAFETY REGIME – THE NIGERIAN EXPERIENCE

In Nigeria, there is no specific offshore legislation or regulatory framework. There are various legislations, the Merchant Shipping Act and Petroleum Act and their subsidiary legislations CAP M11 and P10, Laws of the Federation of Nigeria 2004, which incorporate aspects of safety and environment, but they are not offshore specific. International conventions on safety issues though ratified are yet to be domesticated. Jurisdiction appears to be shared between various agencies, the Department of Petroleum Resources (DPR) of the Nigerian National Petroleum Corporation (NNPC) and the National Maritime Authority (NMA) soon to be known as NAMASA (National Maritime Administration and Safety Agency) amongst others. The DPR is responsible for enforcing safety and environmental regulations and ensuring that those operations conform to national and international industry practices and standards, while the NMA is responsible for registration, survey, and safety of ships and prevention of pollution amongst others. The functions of these agencies overlap and in practice, it is sometimes difficult to determine the exact regulatory body and rules applied. Due to lack of a uniform structure, current

operators use classification and international maritime certificates on a "best practice" approach.

THE MARPOL CONVENTION

The International Convention for the Prevention of Pollution from Ships (MARPOL), adopted by the (IMO) on 2nd November 1973, is the main convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. It is a combination of two treaties adopted in 1973 and 1978 respectively. The convention was adopted mainly as a result of the Torrey Canyon Disaster, which involved an oil tanker spilling about 120,000 tons of crude oil into the sea in the English Channel. At the onset, the Convention was restricted to the regulation and prevention of oil pollution by oil tankers through its Annex 1. However, the Convention has been subjected to successive amendments and widened to include different pollutants. There are currently six technical annexes, Annex 1-6. The MARPOL convention was ratified by Nigeria on 13th May 2002 but is yet to be domesticated into Nigerian laws.

The convention contains a lot of provisions, which are not relevant to FPSOs and FSUs because the Annex 1 was formulated principally for the prevention of pollution by oil tankers trading from port to port. The IMO's Marine Environment Protection Committee (MEPC) realising the complex issues which would arise if the convention were applied in its totality to FPSOs and FSUs, assigned the subcommittee on Bulk, Liquids and Gases (BLG) with the task of revising the applicability of Annex 1 to FPSOs/FSUs. The BLG recommended specific rules to guide the operation of FPSOs/FSUs known as the "Guidelines for the Application of the Revised MARPOL Annex 1 to FPSOs and FSUs ("the Guidelines")[2].

THE GUIDELINES FOR FPSOs and FSUs

The Guidelines were approved by the MEPC in July 2003 with a recommendation for adoption by member states as soon as practicable, but not later than 2 years after the date of approval. However member states can decide on the timing and degree of implementation. For example, the Bahamas gave full effect to the Guidelines from 1st of August 2005 while the US has stated its intention to retain the requirement for double hull for FPSOs/FSUs intending to operate in US coastal waters. In 1992, Annex 1 of the convention was amended and made it mandatory for new oil tankers to have double hulls. This requirement is however, not applicable to FPSOs and FSUs under the convention, unless opted for by the coastal state.

[2] IMO MEPC Circular 406

Some important aspects of the Guidelines include:

* Survey - enhanced survey programme are now required for FPSOs/FSUs in order to ensure a satisfactory standard of structural integrity. The requirement for enhanced survey for oil tankers was deleted from the MARPOL and is being given effect to through the Safety of Life at Sea (SOLAS). It was however, re-introduced into the Guidelines, because the SOLAS does not apply to the vast majority of FPSOs and FSUs. Also, in-water surveys of FPSOs and FSUs is still acceptable but must be carried out under conditions, which do not compromise safety and pollution prevention;
* Double sides/collision risks – double sides are now required for the hulls of new, purpose built FPSOs/FSUs as a collision avoidance measure, while appropriate measures are to be taken to address collision risks for converted tankers. No upgrade is required for existing FPSOs/FSUs. The exact details of collision avoidance measures such as navigational warnings, safety zone etc is left to the discretion of the flag state.
* Limitation of oil outflow – under the Guidelines, the maximum oil outflow is limited to 30,000 m3. This may place a restriction on the allocation of ballast tanks on the FPSO/FSU. This requirement is applicable only to VLCC (Very Large Crude Carrier) size FPSOs and FSUs, which form the bulk of some of the deepwater projects in Nigeria presently.
* Discharge requirements - more explicit requirements are to be applied in the discharge of contaminated seawater. Options for discharge include sending it ashore, incinerating, separating/discharging or adding it to the production stream;
* Application of MARPOL damage stability requirements may cause restrictions on allowable topsides or hulls of smaller size (Aframax) FPSOs.
* FPSOs/FSUs are not allowed to transport oil to ports or terminals except with the specific agreement of the flag and relevant coastal states, which should be obtained on a voyage basis. When undertaking any voyage away from their normal operating station for whatever purpose, FPSOs/FSUs are required to comply with the discharge provisions of MARPOL Annex 1 for oil tankers.

The Guidelines apply to both self – propelled FPSOs/FSUs units and units without propulsion arrangements, whether registered in a national shipping register or unregistered. They apply when the units are located at their operating station, either during abnormal and rare circumstance of voyages made by the FPSO for dry - docking, repair or maintenance work or destruction of the platform in extreme environmental or emergency conditions.

The Guidelines apply to contracts for the construction or conversion of FPSOs placed on or after July 2003. In the absence of a building or

construction contract, the keel laying date for purpose-built new construction FPSOs/FSUs or the commencement date of the ships conversion should be used. FPSOs/FSUs contracted, built or converted before the above date need not be upgraded.

CONCLUSION

The Guidelines is a welcome development as the MARPOL contains a lot of provisions, which would have been unduly burdensome to FPSO/FSU operations. With the gradual increase in the number of FPSOs being deployed offshore Nigeria, it is time for the government to take a more active approach in regulating activities on the continental shelf. A starting point will be to domesticate the MARPOL convention, adopt the Guidelines through the formulation of specific offshore/safety regulations with requisite local amendments. Adequate attention should be given to collision risks, discharge of contaminated seawater and issues of survey possibly with the involvement of classification societies. In Azerbaijan in the former Soviet Union, a classification society is running a project with the Azeri Safety Authorities and about four multinational oil companies operating there to develop a safety regime for offshore E&P activities. Finally adequate enforcement of regulations through agencies designated to supervise and ensure compliance, cannot be over-emphasised. In this regard, government agencies need to be educated on the need for inter – agency co-operation. For example, there should be more co-operation and exchange of information between the safety unit of the DPR or NNPC and the NAMASA to achieve the desired safety objectives, safer seas and cleaner waters in Nigeria. Finally, current operators must also be co-operative, professional and aware of their responsibilities towards the coastal authorities.

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