OGP

International Association of Oil & Gas Producers

...Finding & producing oil & gas – some basic facts

Producing oil and gas offshore

Since many of the world's reserves of oil & gas are found beneath the sea, offshore production facilities are vital in meeting the growing global demand for hydrocarbons.

Some offshore fields are located within sight of the coast in only a few metres of water. Others are in waters several kilometres deep and a 24-hour's sail from the nearest landfall. Different sea depths and wave and weather conditions demand different engineering solutions for offshore production facilities.

For example, conventional steel structures tend to be used in shallower waters close

to the coast to produce natural gas. In the North Sea, where waters can be hundreds of metres deep, large concrete structures have been floated out to rest on the sea bed. Such concrete structures can weigh as much as 850,000 tonnes.

In other deepwater locations, steel structures taller than the Eiffel Tower form the focal point of deviated wells that can stretch for several kilometres in every direction. Depending on location, stationary platforms such as these offload their production via pipeline or dedicated tankers, which moor at specially-designed buoys.

Platforms can be designed to accommodate personnel (ranging between 10 and 200) or can be unmanned, depending on the extent of the reservoir. They are run by a platform manager who manages the workforce, which will include operations and maintenance engineers and technicians, drillers and support staff, such as health, safety and environment (HSE) advisors, medics, caterers and cleaners. Workers operate in shifts ensuring that the platform operates around the clock. Apart from downtime for maintenance or emergency situations, platforms produce 365 days a year.

Increasingly, in particularly deep waters, operators are relying on floating production, storage and offloading facilities, (FPSOs). They are usually adapted from ocean-going oil tankers. The oil is produced from sub-sea wells in deep and ultra-deep waters and transported upwards to the FPSOs through flexible lines. Once their tanks are full, they can either offload cargos to relay tankers or, in rare cases, disconnect from their wells to carry their own cargo to port.

FPSOs are, by definition, mobile. That means they can be taken off a field when it reaches the end of its productive life. Once permanent structures are past their useful life, there are a variety of options for disposal.

They can be toppled and converted into artificial reefs that encourage marine life diversity. This is practised successfully in the Gulf of Mexico. Alternatively, they can be left in place with their topsides removed and the upper parts of their supporting structures dismantled to prevent their becoming navigational hazards to shipping. Or, they can be dismantled and taken to shore for recycling. Depending on their size and case-by-case decisions by national authorities, this is done in the North Sea in line with a decision by the Oslo and Paris (OSPAR) Convention on the protection of the North-East Atlantic.

About OGP

OGP represents the upstream oil & gas industry before international organisations including the International Maritime Organisation, the United Nations Environment Programme (UNEP), Regional Seas Conventions and other groups under the UN umbrella. At the regional level, OGP is the industry representative to the European Commission and Parliament and the OSPAR Commission for the North East Atlantic. Equally important is OGP's role in promulgating best practices, particularly in the areas of health, safety, the environment and social responsibility.

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