

# Oil and gas management

[Environment](#), [Nature](#)



## **Abstract**

The Gulf of Mexico incident is an occurrence that many people in the United Kingdom and Mexico, who were affected, would like to forget as it had immense environmental and economic impact to them. This paper is going to describe the extent to which the Deepwater Horizon disaster in the Gulf of Mexico is considered to have led to a meaningful reform of the regulation of the offshore oil and gas industry on the UK continental shelf. These include well planning and control, environmental protection, emergency response, authority for stopping operations off, catastrophic BOP's failure, the significance of simple checks, protection of the whistle-blowers, and a summary or conclusion of the described measures.

## Introduction

An explosion took place on the Deepwater Horizon drilling rig on 20 April 2010 leading to the death of 11 workers. The region is in the Gulf of Mexico and was under contract to the British petroleum. It is still not yet known the extent of the damage that took place both on the environment and the communities around. Among the errors that led to the incident is the fact that the two pods of control on the BOP of the Deepwater Horizon showed that there was an error in a vital valve in one of the pods of control, and that the other pod of control did not have adequate charge on the batteries; it is believed that these faults were there during the time that the accident happened. There was at least a single working control pod needed to run the automatic mode function that would have helped in closing up the BOP. The automatic mode function should have taken place in an automatic manner,

without being aided, when the hydraulic line together with the electric cables were destroyed in the explosion. The automatic mode function is a very important system of backup. This paper is going to describe extent to which the Deepwater Horizon disaster in the Gulf of Mexico is considered to have led to a meaningful reform of the regulation of the offshore oil and gas industry on the UK continental shelf.

### Well planning and control

The reforms that were recommended by the panel included making sure that the Well Life Cycle Practices Forum remained in place permanently. It is also required that the professional, influential representatives from the HSE and the industry meet on a regular basis to decide, review and always improve values and standards for good practice in the well integrity as well as management of application in the UKCS. The Macondo blowout is taken into consideration by the standards and consists of operating practices, sufficiency and consistency of the safety vital equipment (particularly BOPs), testing and maintenance of hardware; proficiency and training of personnel; organizational and human features. They share these standards with the partners in the industry and international regulators and the organizations that set the standards.

In consideration of the Macondo, it was also required that the following are considered;

Whether a change in the control of well standards it essential to necessitate at least two barricades to be in place (besides the BOP) during the moving of a well to a situation that is not balanced with the zone of production, and;

Whether there is any change required to make the operators provide notice warning about each time a situation is arrived at where the BOP together with one other barricade to a release is attained.

### Protecting the Environment

The DECC and the industry are required to work hand in hand for the purposes of developing and adopting improvements like:

The concept of Environmental Assurance plan that possibly uses the Environmental Management System or the Environmental Statement as living equipment for engendering a concept of goal-setting to environmental policies intended to continuously improving, especially in relation to the low-frequency incidents that have high impact.

The identification and cohesive treatment of the generic features of documents of environmental assurance to enable the devotion of more effort to some other more localized or particular areas of possible risk and impact, via more rigorous use of internet systems.

The industry has also been challenged to take greater ownership of the available regulatory requirements of the environment, which include appraisal of the contractual arrangements for the preparation and keeping up-to-date the required documents making them into tools for driving improvements in the environmental evaluation and protection. The regulator is also required to continue working with the industry so as to make identifications of the ways in which the available requirements of reporting, particularly about compliance to the environmental requirements, may be rationalized or even simplified. Additionally, there might be more that should

be done to show the need for, and resultant value of the comprehensive environmental evaluations that is required of them, with a need and aim of offering increases scope for approaches that are innovative to the improvement of the standards of the environment.

It has also been recommended that the documents of guidance that relate to the offshore environmental effect evaluation, regulatory activities and enforcement should be revised and reviewed on a regular basis, initially following the changes in the procedures that came up from the Macando and consequently taking into consideration any other applicable or relevant occurrences, for the reinforcement of the continuous culture improvement of the UKCS and ensuring that operators are well acquainted with the present requirements and expectations of environmental best practice.

In addition, since the incident of the Deepwater Horizon, some other interim environmental regulation and inspection steps that have been taken by the United Kingdom include the increasing of the number of yearly environmental inspections to the drilling rigs, besides hiring three more inspectors. This consequently increased the total number of the inspectors of the drilling rigs to ten, and this includes one inspector who is senior.

Considering the less widespread areas of responsibility of the DECC in comparison to the HSE, it together with its prototype agencies have all worked with fewer inspectors as compared with the HSE. The HSE has 114 professional inspectors, whereas the DECC has about ten inspectors. The onshore offices and offshore installations are visited by DECC inspectors for the inspection of the management systems and records. They also go there to interview individuals and appraise the conditions of the site, practices and

standards.

The increased number of the site inspectors is expected to enable the DECC raise the number of inspections on the environment done on the mobile drilling rigs across the country from an average of seven to at least 16 on yearly basis immediately. The Cabinet Secretary referred to the inspectors' movement between the private and public sectors. This might render it very difficult for the recruitment and maintaining of inspectors that are highly qualified in the future. The offshore inspectorate of the DECC describe their strategy of environmental inspection as one that is risk-based. This means that of the rigs that are presently carrying out activities of drilling, nearly twenty four of them, which translates to about twenty percent are on gas reservoirs; however, the DECC argue that this inherently does not pose much risk to the environment in comparison with those that operate on oil reservoirs. Hence, this is taken into consideration, together with the site of the rig and the well's nature, the DECC aims to inspect the rigs that carryout drilling activity on particular oil reservoirs.

### Responding to Emergencies

Arrangements for giving response to the incidents of oil spilling that pose potential danger to the marine environment were established by the OilPollutionEmergency Plans. The plans intend to prevent pollutions as such and minimize or decrease the effect that might come with it. The Oil Pollution Emergency Plans are risk evaluations that are applicable to a particular installation or field. Their focus is on the worse-case instance; as a result of the incident at the Gulf of Mexico, the United Kingdom operators are

not expected to do extra modeling for the installations of deepwater, which include a more appraisal of the predictions of oil spill beaching. These plans are also appraised by the Maritime Coastguard Department and some other related consulters like the Maritime Management Agency and the related inshore statutory agency.

Witnesses were asked about the way they had changed their ways of operation in the United Kingdom deepwaters since the occurrence in the Mexican Gulf. Some of them said that they do not believe they had basically changed in any manner. This was due to the strong regulatory era that was the Cullen's legacy of inquiry into the incident of Piper Alpha. However, with regard to establishing any changes in regulation in reaction to the tragedy of the Deepwater Horizon, they were wary of making universal and global changes that might not be proper for them from incident to incident, the kernel of what is in the safety case era.

There is a feeling that the industry appears to be reacting to incidences after they have occurred instead of having anticipations and making proper planning for the high-consequence events that are low in probability. It is beyond reasonable doubt that the industry and BP's inability to respond because it was not prepared in a proper manner was not acceptable. The black swans' occurrence appears to be more frequent nowadays. The United Kingdom has high regulatory standards of offshore, as shown by the Safety Case Regime, which was established in reaction to the 1998 Piper Alpha incident. The regulatory framework of the United Kingdom is on the basis of flexible and goal-getting approaches that are stronger than those that the Deepwater Horizon operated under. Despite the high standards of regulation

in the United Kingdom, they are concerned that the industry of offshore gas and oil is giving a response to disasters instead of anticipation worst-instance cases and making proper planning for the high-aftermath, low-probability occurrences.

### Role of the Offshore Installations Manager

We are informed from both the industry and the regulator that there were individual offshore installations that always have the power to shut down the well. Bridging documents were created between the systems of the owner of the rig and the operator systems of the well to ensure that issues like who has the final word or say are properly agreed before any operation is commenced. The HSE stated that there will normally be one individual who is actually responsible for matters safety on the rig, which is the Offshore Installations Manager, the contractor of drilling. There are huge financial implications of delaying the operations of drilling even just for very short periods. In the instance of the Deepwater Horizon, we find that the BP had the aim of drilling the Macondo well for a period of 51 days only, at about 96 million dollars. It was expected that the platform of drilling would be taking off as early as 8 March 2012; however, the Macondo well unexpectedly took a longer period. By the 20th April, the day that there was the blowout, which killed eleven individuals, the rig was already late by 43 days, and this would have led to an extra cost of 21 million dollars in lease fees only. There is a danger that those who are responsible for making decisions to stop operations could feel economic pressure not to do so if was possible.

### Catastrophic BOP's failure

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The last defense line against the Macondo incident was a device known as the 'blind shear ram', which is part of the BOP found on top of the wellhead, and more than a mile below the ocean floors' surface. If the oil's upward pressure and the gas that is in the reservoir became more than the heavy drilling fluid's downward pressure, and all the other resources for controlling the well failed to operate, the two blades of the blind shear ram, were expected to slice through the pipe of the drill and then help in sealing the well. If the BOP had worked as expected, the whole incident would not have occurred and all the lives would not have been lost. Taking into account the single blind-shear ram's failure to run the blowout preventer of the Deepwater Horizon, which appeared to be one of the major causes of the blowout of the well of Macondo, it was recommended that the Safety and Health Executive particularly review the case for prescription that the United Kingdom Continental Shelf's blowout preventers are well equipped with the two blind shear ram.

Whereas the flexibility of the safety regulation regime of the United Kingdom seemed to have performed properly, it was also been seen that for fail-safe devices like blowout preventer, the administration or the government has adopted minimum, strict standards of safety or show that these would not actually be an economical, last-resort against catastrophes.

#### Importance of simple checks

An appraisal of the two pods of control on the BOP of the Deep-water Horizon as a result of the incident showed that there was an error in a vital valve in one of the pods of control, and that the other pod of control did not have

adequate charge on the batteries; it is believed that these faults were there during the time that the accident happened. There was at least a single working control pod needed to run the automatic mode function that would have helped in closing up the BOP. The automatic mode function should have taken place in an automatic manner, without being aided, when the hydraulic line together with the electric cables were destroyed in the explosion. The automatic mode function is a very important system of backup.

It is of great concern that the simple failures of various systems were not identified during the process of inspection. As a consequence, a programme has been implemented across the global drilling operation to make sure that the equipment operates the way it is designed to do. Another thing that has been done to ensure that such preventable incidences do not repeat include fundamentally improving the testing procedures of the blowout preventers, which consists of making sure that the systems of backup work and are properly tested in the process of drilling a well. This is another instance of the industry giving a response to an accident instead of anticipating a possible problem, even though the new regime is highly welcome. It is believed that the authorities have to make sure that the offshore inspection regime of the United Kingdom could not be susceptible to simple faults like having a battery that does not have sufficient charge, to go without being noticed.

Need to protect the whistle-blowers

Owing to the immense economic pressure of keeping a drilling rig functional, it is of great concern to various stakeholders that the workers who attempt to talk about safety matters might be or even feel like they are intimidated by their seniors. The whistle-blowers are not in a position of calling a halt or bringing to a stop some things and the managers and clearly attempting to makemoneyfor the organization. Their primary responsibility is not protecting the environment. Some contradicting reports were found from the HSE regarding harassment and aggravation on the rigs as well as the industry's assurances that honest whistleblowers will be given a hearing and protection. The government has also ensured that there are discussions with the unions and industry about the further actions that are required for the prevention of representatives of safety from feeling or being intimidated by their seniors such that they do not report a danger.

## Conclusion

Following the fatal incidence that occurred in the Mexican Gulf, it is important that there is clarity on the hierarchy and identity of the liable stakeholders to make sure that the government, and thus the taxpayers, doe not need to pay for the outcomes of the offshore accidents. Any lack of hierarchy and clarity on the liability will hamper the compensation payment to those that are affected by the incident of the offshore. It is recommended that it needs to be a requirement of the process of licensing that it proves their capability to pay for the outcomes of any incident that could happen. It is recognized that these measures could actually be added to the cost of

investment in the new United Kingdom gas and oil production and encourage the Treasury to consider this during incentives to investments as such.

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