

A new future for managing environmental issues

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Introduction

Operators are faced with an increasing administrative and cost burden in managing their environmental risks. The Montara and Deepwater Horizon incidents have led to intense scrutiny, exposing conventional management approaches as inadequate. Also, onshore activities such as hydraulic fracturing attract growing concerns by stakeholders and demand other regulators to review their ways of implementing environmental regulations. There is therefore a need for all involved to ensure greater transparency and accountability regarding potential environmental risks and their management.

International energy consultancy Xodus Group has developed a novel and more effective approach for the management of environmental issues; one that recognises and proactively manages external expectations as well as addressing the environmental impact. This approach offers better alignment with other business objectives

and increased confidence in compliance with the existing legislative framework and is currently being applied by GDF SUEZ E&P UK Ltd for the drilling programme and operational phase of the Cygnus Field, a southern North Sea gas development project, Fig. 1.

The approach mirrors the intent of Lord Cullen's Safety Case review in that it offers a way to maximise the benefits of both prescriptive and goal setting regulation. This is done by creating a platform for open dialogue around important issues, which aims to achieve full integration of environmental management into the operation and maintenance of offshore E&P operations.

It is fully aligned with the international standard on environmental management systems ISO14001 which features the concept of continuous improvement and includes a commitment to comply with pertinent legislation.

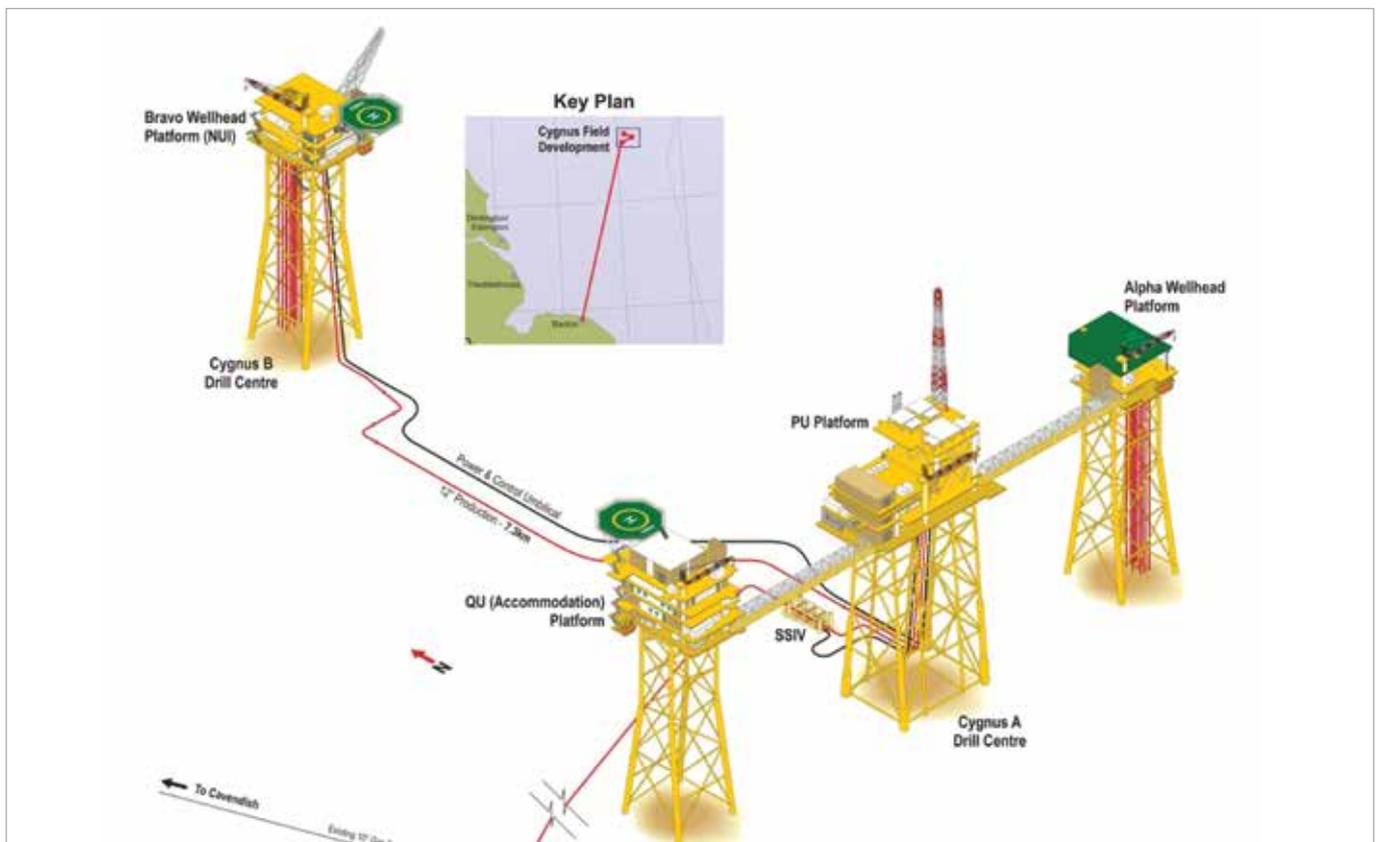


Figure 1 – The Cygnus field is the sixth largest gas field in the southern North Sea and the largest to be discovered in the last 25 years within the Southern Gas Basin.



The environmental management plan

Due to the specific way that the environmental management plans are developed, they offer a structured approach to better alignment in the management of environmental issues and increased confidence in compliance with the existing legislative framework and corporate requirements. Central to this method is a single document which details the technical scope description, purpose and methodology, as well as the planning and implementation of environmental management. The document is essential to the company’s environmental management system as it bridges the gap between operational objectives and stakeholder expectations and provides an audit trail between high level objectives and individual tasks and responsibilities as depicted in Fig. 2.

The outputs from the assessment are used to inform and populate the tools, systems and processes that drive and control operations on the asset. The Environmentally Critical / Important Equipment are captured within the Maintenance Management System with appropriate levels of maintenance and inspection applied to each.

The roles and responsibilities (either onshore or offshore) that are necessary to ensure that the issue management strategies are implemented and followed are captured in the job descriptions for each position. The training and competence requirements for each position in order that these individuals are able to fulfill their role and deliver on their responsibilities, are then captured in the Training and Competency Management System.

The actions that are required to ensure that the plant and equipment on the asset are operated in line with the issue management strategies are then incorporated into the relevant operating procedures. The focus of the asset management team, as well as those in compliance assurance roles, is therefore on ensuring that maintenance and inspection routines are carried out, personnel are managed in line with HR processes and operating procedures are followed.

Plan, implement, check and review

The need for environmental protection is generally not disputed and much has been done to reduce industrial and consumer related pollution. However, building an effective environmental management system according to the ISO 14001 cycle of plan, implement, check and review is not easy and is not as simple as writing a policy and ensuring its execution. Effective implementation of such a system requires alignment with other company commitments such as structural integrity and financial liability. In reality, enhancing environmental performance is limited by the opportunities for improvement. Forcing through improvements generally results in tension within the organisation, lack of alignment and buy-in and bulky procedures that gather dust on the shelf.

This approach encompasses a side-by-side assessment of the differing societal perspectives by compiling a list of issues (or environmental business risks) from a comprehensive analysis of interactions between activities and environmental and social sensitivities; the equivalent of a safety HAZID, with a twist.

For each of the resulting 40 to 60 environmental issues, an objective assessment of ecological impacts is prepared while being conscious of the limitations of environmental science, such as its struggle to assess cumulative impacts. On the more subjective side of the equation, the expectations of stakeholders, such as their motivation and influence is considered. Finally, legislation and company standards are reviewed to ascertain any differences in these three assessments.

Two main response strategies are distinguished: impact reduction which is reducing the physical environmental impact by, for instance, reducing the use of resources, by reducing emissions or discharges or by reducing noise emissions. The other response strategy is risk communication which is increasing the acceptance of the risk by better explaining the acceptability of the risk, by challenging the motives of stakeholders or by sharing control with stakeholders. A combination of the two strategies is often required.

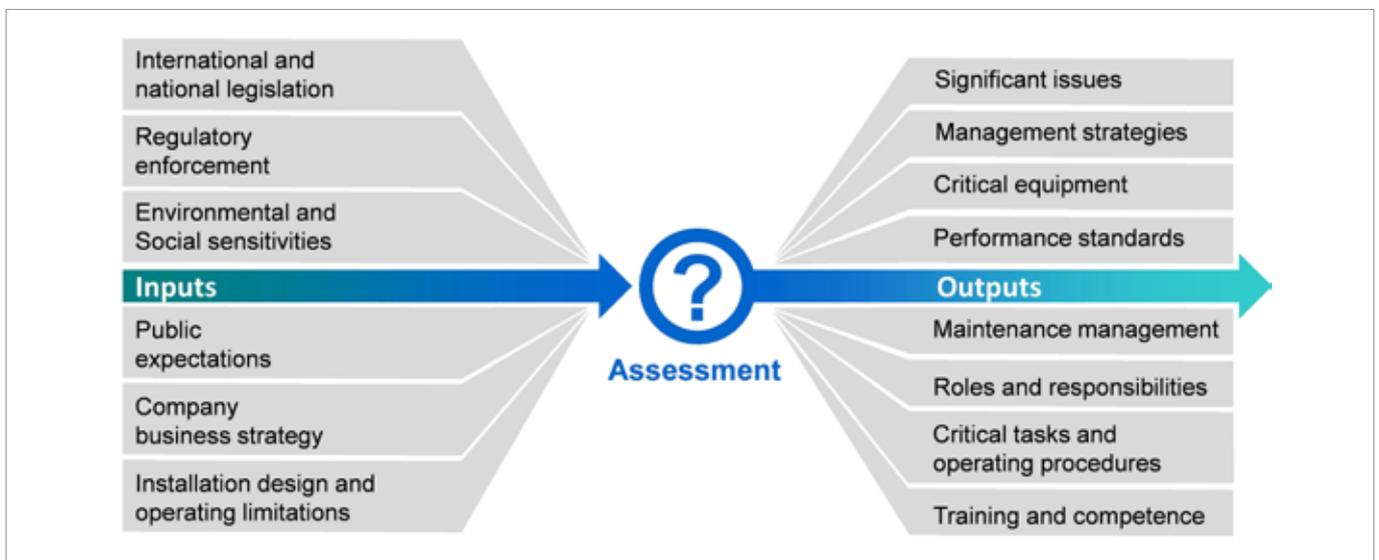


Figure 2 – Environmental management plans offer a path towards unlocking the benefits of goal setting regulation and away from prescriptive regulation.



Issue management

One answer may be to shift and widen the perspective of environmental management from impact reduction to issue management as shown in Fig. 3. This can have wide ranging implications.

By changing the objective of environmental management to issue management, everything that is part of the issue is managed under the heading of the issue, including the misalignment of expectations between the company's HSE department and operational department and between the operator and the regulator. This explicit representation creates buy-in, and the formulation of realistic management strategies. By broadening the subject, issues become clearer and their management more focused while confidence in meeting regulatory requirements and expectations also increases. This can be demonstrated in the following three examples:

- Offshore oil in produced water discharges are currently regulated by a blanket discharge standard of 30 mg/l and tolerated exemptions for some gas platforms. Chemical treatment is essential. Monitoring studies have not revealed any concerns, yet the regulator is pressing towards water injection and compliance with the oil-in-water standard. Goal setting regulation has the potential to reopen the dialogue and create alternative solutions.
- Production chemicals are not only screened for their environmental properties but in the UK additional administrative assurance layers are enforced with little environmental benefit such as application forms, local impact assessments and reporting. There is potential to streamline the system and free up resources.

- The Macondo oil spill disaster has awakened the industry to strengthen its oil spill prevention and response potential. Spill prevention is one of the last remaining areas of UK offshore environmental regulation that is goal setting and the industry has an opportunity to demonstrate to its stakeholders that this is done responsibly.

A risk based approach

The approach aligns with the Oil & Gas UK Environmental Assurance Plan (EAP) initiative. This results in a different management structure where the system is built from the bottom up, i.e.: developing issue specific management strategies with input from the line, identifying tasks and responsibilities and collating those in procedures as and when required. It is therefore specific and responds to real-time changes and can be applied at any stage of the project development process, from inception to decommissioning, and is fully aligned with ISO 14001.

The most recent example of the application of this approach involved a new regulator (NOPSEMA) in Australia who had been rejecting a large number of environmental approval applications. The new approach was applied and plan approval was given almost instantly. The main barrier encountered before using the approach was to satisfactorily demonstrate to NOPSEMA that proposed operations' environmental impacts were reduced to a level As Low As Reasonably Practicable (ALARP). The approach allowed attention to be concentrated on the issues that deserved to be formally addressed (either due to scientific, industry, regulatory or stakeholders concerns), and how they could be managed. ALARP demonstration became the by-product of the issue management dialogue.

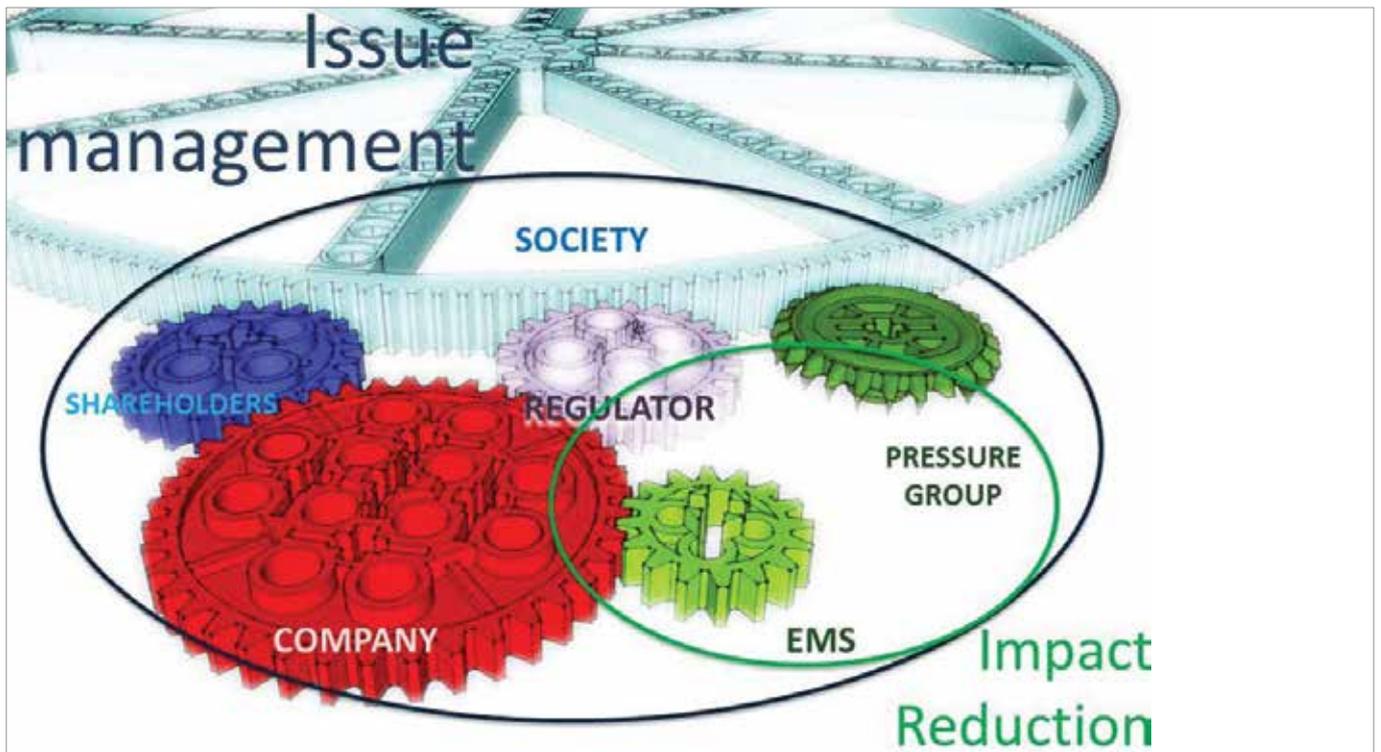


Figure 3 – Issue management recognises society as the bigger force in the equation, driving both the development and the environmental agenda.



Conclusion

The concept of a risk based approach to managing Health and Safety is not new to the oil and gas industry. A key recommendation from the Piper Alpha inquiry was to move the industry from a largely prescriptive safety regime to a goal setting one. The subject approach facilitates a similar shift for the management of environmental issues. Whilst this is still work in progress, the positive feedback received to date during the process of implementing the approach gives confidence that it will deliver unparalleled levels of alignment, engagement, transparency and assurance on the management of environmental issues pertinent to the Cygnus Field across GDF SUEZ E&P UK Ltd, regulatory bodies and other stakeholders.

Author biographies



Jos Tissen

Jos Tissen has over 33 years' international experience in the oil and gas industry, 27 years of which in specialising in the management of environmental issues. Experience includes upstream oil and gas operations as well as refining in diverse roles including operational support, project support and consultancy. He has mainly worked in Scotland and in the Netherlands.



Ian Buchan

Ian Buchan has over 20 years' experience in the environmental management of the offshore oil and gas industry in the UK. Experience includes specialising in oil spill response and contingency planning, hydrocarbon release prevention and upstream environmental management and compliance assurance for offshore operations.