

The environment means business for oil and gas

by I. Thomas, Lloyd's Register

Converging environmental standards are a window of opportunity to be more efficient and productive



Ian Thomas
Principal Consultant,
Lloyd's Register

Environmental standards in the oil and gas industry are ever-changing and often underestimated. Governments in Europe and globally have established best practices to preserve, protect and improve the quality of the environment and ensure the prudent, rational use of resources. These standards apply to exploration and production activities, across asset types (Figure 1). Environmental impacts and compliance issues are wide ranging (Figure 2). Notably, they include reducing, as far as possible, the occurrence of major accidents; protecting the environment and dependent economies against pollution; and establishing suitable response mechanisms in the event of an incident.

Challenges to date

Meeting evolving environmental standards has proved challenging for an industry facing a downturn. Operating in a tough economic climate, where costs must be cut and all eyes are on the balance sheet, hasn't helped. It has been tempting to see the maintenance of certified management systems covering Health, Safety, Environment and Quality (HSEQ) as one overhead too many. The signs are there, as organisations defer transition to the new ISO standards (9001 and 14001) or, worse still, consider dropping certification on the grounds that the costs involved are increasingly difficult to justify. All the while, major environmental incidents continue to appear in the media.

What is required right now is the very opposite stance. A rethink will not just be to the benefit of the environment, but also to efficiency and productivity because standards are converging.

Convergence means new opportunities

European and UK standards are maturing, taking an enterprise risk management route that can only make them more relevant to the industry. Two events are driving positive changes.

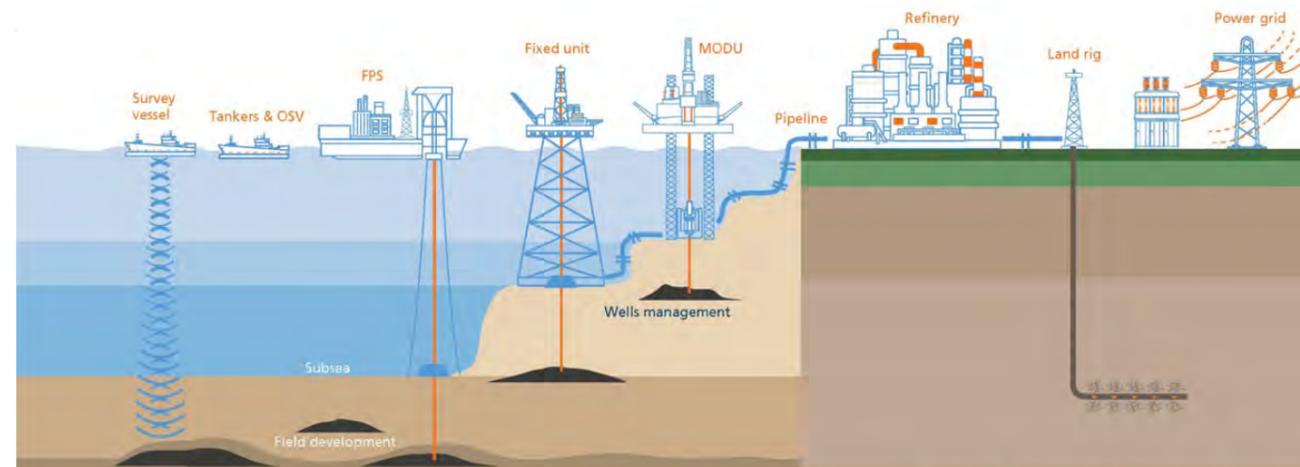
First, the EU Directive (2013/30/EU) on the Safety of Offshore Oil and Gas Operations, and Safety Case Regulations (SCR 2015) in the UK, require a coordinated approach to risk management. This comes in the form of a combined Safety and Environmental Management System (SEMS). In the past, management systems for safety and environment have largely been treated as separate entities.

The revised standards promote integration, facilitating compliance and continual improvement. This really is good news for business, however there are nuances that need to be understood. A major accident hazard (MAH), such as a fire or explosion, is a well-established industry term. A major environmental incident (MEI) means an event that has occurred as a result of an MAH. All other incidents, however serious, are classed as pollution incidents, from gas leaks to excursions of oil in water and breaches in atmospheric emissions' permits. Used properly, SEMS should help operators drive down costs and limit liability in all areas mentioned.

Secondly, the requirement for a combined SEMS, which needs to be met by July 2018 for existing production assets, coincides with the timetable to transition from ISO 14001:2004 to ISO 14001:2015 for environmental management and ISO 9001:2008 to ISO 9001:2015 for quality management. ISO model changes mean the suite of standards share a similar structure. With this convergence lies a prime opportunity for the industry to review and align SEMS documentation, taking maximum advantage of common management system elements.

Such a novel approach offers numerous advantages. Integration will minimise compliance work and duplication of activities. It will avoid implementing a piecemeal, often protracted approach to addressing compliance requirements, as is invariably the case when seeking to address 'low hanging fruit'. In addition, there are significant productivity benefits to be realised from a dovetailed approach, covering not just quality and environmental management, but safety management (ISO 45000:2015), asset integrity (ISO 55001:2015) and energy management (ISO 50001:2015). After all, why shouldn't activities for reducing spills, for instance, be linked to maintenance? Why can't energy efficiency regulations be an opportunity to cut costs and improve environmental performance at the same time? Now, they can.

Added value can be achieved by using the common elements of ISO 14001 environmental management and ISO 50001 energy management standards to address other EU Directive compliance requirements for 2018. ISO 50001 is strongly recommended as the best path forwards; its management system model is based on continual im-



	Wells	Subsea	Field	Tankers & OSV	FPS	Fixed Unit	MODU	Refinery	Land Rig	Power Grid	Pipeline
Development	✓	✓	✓							✓	✓
Concept	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FEED	✓	✓	✓	✓	✓	✓	✓			✓	✓
Sale & Purchase	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Construction		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Commissioning		✓		✓	✓	✓	✓	✓	✓	✓	✓
Operations	✓	✓	✓		✓	✓		✓	✓		✓
Decommissioning	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓

Figure 1. Operational activities, oil and gas exploration and production

	Spills, blow out & leaks	Air emissions	Water use & disposal	Soil & Stability	Noise & Vibration	Processes & Major Accident / Environmental Hazards	Hazardous Substances & Chemicals	Solid wastes	Biodiversity (Flora, Fauna & Ecology)	Physical presence, navigation hazard, aesthetic	Resource use (Community and natural)	Community impacts (Social, economic, heritage, aesthetic, cultural, land use & transportation)
Oil & gas exploration Offshore	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓
Oil & gas production offshore	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓
Oil & gas exploration Onshore	✓	✓	✓	✓	✓	✓	✓	✓				✓
Oil & gas production onshore	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓
Offshore & and onshore renewables (wind, wave, solar)									✓	✓		✓
CHP power generation & transmission	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Marine operations	✓	✓	✓			✓	✓	✓	✓			
Mining of natural resources	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Decommissioning	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓

Figure 2. Environmental impacts and compliance issues

provement (like ISO 9001 and 14001), making it simpler and more efficient for organisations to integrate energy management into their overarching quality and environmental management activities. By screening an energy portfolio and thinking strategically, the result can be assets that cost less money to run, daily.

Further value can also be realised by combining the common elements of the asset integrity ISO 55001 framework into a unified approach to HSEQ risk management, assurance and compliance. In addition, applying aligned procedures will help meet OSPAR requirements. OSPAR Recommendation 2012/5 promotes a Risk-based Approach to the Management of Produced Water Discharges from Offshore Installations and is intrinsically linked to ISO 140001 (environmental management).

Business tool, not barrier

The possibilities with the new ISO standard model are vast. A further opportunity is worth highlighting: using ISO 14031 (environmental performance evaluation) to coordinate environmental objectives and targets, deriving the best value possible. Several of our clients have adopted this approach, which allows owners and operators to think more creatively about their environmental risk management responses. Once the objectives and metrics are clear, a range of solutions can simply be brought into play on an ongoing basis, from enhanced procedures, calibration techniques and maintenance regimes to personnel training.

With an integrated approach, an environmental management system becomes a business tool, rather than an operational barrier. It helps manage risk aspects and impacts across an asset's lifecycle, from steady state to life extension and, ultimately, decommissioning.

Looking at the oil and gas landscape and horizon, there are a couple more compelling reasons to adopt an integrated approach.

Environmental expectations are evolving

An important shift is the elevation of environmental risk from the field to board level. New standards put the environment into a company's corporate management policy, lifting it from a paragraph or two to a matter of strategy and leadership. Elsewhere, environmental management requirements will also grow. As expectations of what constitutes an environmental risk becomes clearer to industry, the scope will broaden.

Environmental management systems, like their safety counterparts, have always considered risk.

What has changed with recent revisions to ISO standards is that oil and gas companies now need to understand the context of their operations when managing risk. This is a major development, raising the prominence of some broad themes. These include addressing climate change issues in the context of operations. Regulations are applying increasing pressure to reduce emissions and there are many mechanisms for managing issues associated with climate change and energy management. The repercussions of operating in a challenging marketplace are other key considerations. Low oil prices influence many factors, such as the availability of competent staff in the industry and the right equipment. These can affect the way a company, and a country, is able to manage its environmental impacts. On the UK's horizon, owners and operators must consider another significant factor: Brexit's impact on industry regulations.

Where does a business start? Recent work with an oil and gas exploration and production company operating in the North Sea at multiple fields provides a practical way forward. The company, which places the safety of its people, integrity of its assets and protection of the environment as top priorities, has done an outstanding job of deriving its safety and environmentally critical elements (SECEs) from its different operating scenarios. (SECEs are defined by the EU Offshore Safety Directive

and, in the UK, by SCR 2015.) This is the first step, enabling the right integrated procedures to be developed and the appropriate verification scheme implemented. While we are also seeing some good practices elsewhere, to date the opportunities are yet to be grasped more widely.

Supply chains are growing more complex

As the economics for the oil and gas business tighten, supply chains get bigger and more complex. This is true for organisations of all sizes in the marketplace, from the major players to micro operators. Contractor management presents a major, ongoing challenge, as headlines about major incidents highlight. Clearly, more can go wrong as a supply chains lengthen. An operator's expectations must be communicated to, and understood by, every contractor and intermediary it uses, and followed up with the appropriate assurance processes.

The need for robust contractor management is set out in the DECC Guidance and Reporting Requirements in relation to OSPAR Recommendation 2003/5. We know how problematic this is currently; delivering a programme of independent audits, inspections and reviews as a certifying body is a large part of our everyday work. Suitable systems, procedures and interface documentation must be in place to link the systems of operator and contractor. The objective is for the operator's EMS principles, environmental policy and relevant environmental goals, objectives and targets to

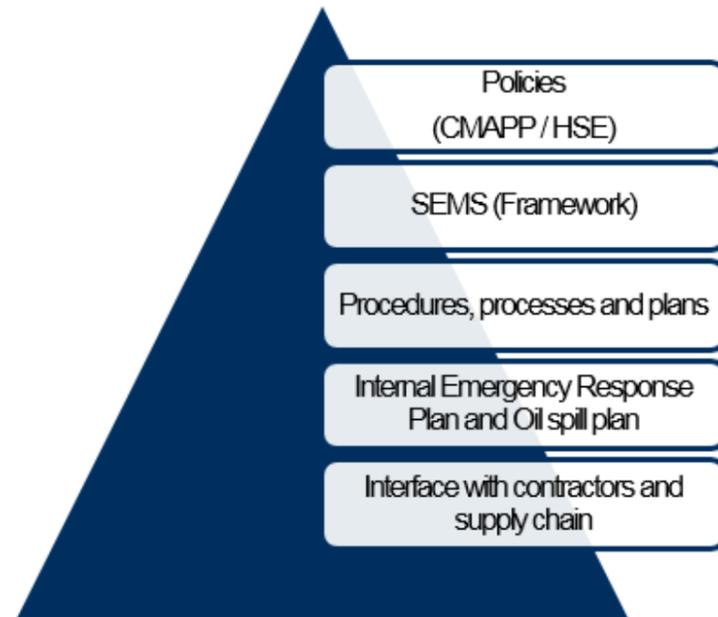


Figure 3. EMS hierarchy

environmental goals, objectives and targets to be managed through the contractor's EMS. If both operators and contractors have certification to ISO 14001 (environmental management) and potentially other related ISO standards, the complex is made remarkably straightforward. Environmental advisors can be involved, where required, early on. Expensive errors and costly incidents can be avoided.

Concluding with a short answer

'Do we really need to do this?' is a common industry question to new environmental requirements. The answer is yes for owners and operators looking for help with the bottom line, meeting ever-growing compliance re-

quirements and safeguarding corporate reputation. Converging environmental standards present a unique opportunity to integrate solutions covering numerous operator and supply chain risk management issues. It offers greater value for money and improved performance during exploration and production, throughout asset lifecycles and across the industry's increasingly complex supply chains. And what's more, with the drive to maximise economic recovery, demands for non-financial corporate reporting and revisions to the Insurance Act 2015 to all be considered, who could afford not to have an aligned, integrated management system?

These efficiencies make a difference, especially in a difficult market. Arguments for convergence and streamlining of management

system documentation are especially compelling in a time when the industry is looking to achieve cost savings, promote efficiencies and attain benchmark standards for safety and environmental protection. The alternative is to swim against a tide of growing environmental regulations, missing out entirely on the advantages offered by a regulatory trend for closer alignment. Now is the moment to ensure owners and operators get value for money from their HSEQ management system.

Lloyd's Register is a leading, independent provider of asset integrity, compliance and specialist risk consulting services to the energy industry.