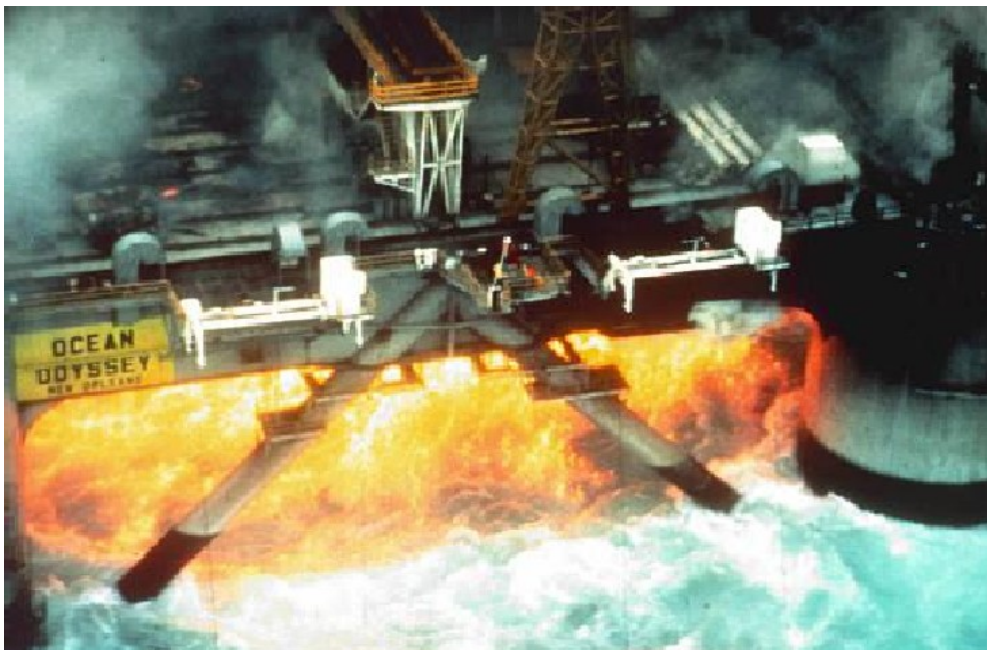


Wells Group

Strategy and Business Plan 2010-13

Playing Our Part in Lifecycle Well Integrity



Introduction

Wells Group mission

To ensure that major accident hazard risks to people from well and well related activities are properly controlled; and to prevent a catastrophic well incident.

Wells Group Priorities

Wells Group is part of the Offshore Division (OSD) of the Health & Safety Executive and has an important responsibility for enforcing health and safety law at onshore and offshore drilling operations in Great Britain. The group is staffed by inspectors with extensive wells related industry experience, and dedicated support staff.

This plan supports the strategy "[The Health and Safety of Great Britain // Be part of the solution](#)" and follows the format of HSE's [Business Plan](#). The group's activities will be targeted at meeting HSE's strategy and the Departmental Strategic Objective of the Department for Work and Pensions, DSO 3, which is to "improve health and safety outcomes in Great Britain through progressive improvement in the control of work related risks".

The nature of the work of Wells Group leads to this strategic contribution being concentrated on five key areas:

- Avoiding catastrophe;
- Creating healthier, safer workplaces;
- Investigations and securing justice;
- Building competence; and
- Taking a wider perspective.

The group also contributes to other parts of the strategy through the way that it delivers its plan in these five areas.

OSD's wells inspectors are the only source of oil and gas drilling expertise in UK government and provide advice to DECC, SEPA, EA and Local Authorities.

Operating Environment

The United Kingdom Continental Shelf (UKCS) is one of the largest producers of offshore oil and gas in the world and remaining reserves are likely to be equivalent to those already produced. Exploration and production are likely to continue for the foreseeable future.

The offshore oil and gas industry comprises around 300 installations ranging from unattended gas platforms to large oil and gas production platforms and includes floating production installations and Mobile Offshore Drilling Units (MODU's). This industry is a major contributor to the UK economy. The North Sea is one of the most challenging and hostile working environments for oil and gas extraction in the world. Around 34,000 personnel are directly employed by UK offshore oil and gas companies and their major contractors.

Production from the UK offshore oil and gas industry is declining, but there is a continuing programme of bringing new oil and gas fields on stream. New developments may have difficult technical features such as deep water, high temperatures or high pressures which extend beyond previously experienced operational parameters. We must ensure that safety standards are maintained both by established oil companies under pressure to cut costs and by the new players who now operate in extending the life of some fields.

Avoiding catastrophe

Strategy Goal:

- To reduce the likelihood of low-frequency, high-impact catastrophic incidents while ensuring that Great Britain maintains its capabilities in those industries strategically important to the country's economy and social infrastructure.
- The catastrophic loss of control of a well can cause great harm to those working on the well and threaten others who work on the offshore installation. There is also potential harm to the environment if a well is not properly managed.
- Our aims are to embed a highly developed safety culture in the drilling industry and to ensure that systems are in place for effective well integrity management. We will engage with relevant stakeholders in the drilling sector to stimulate improvement through the efforts of those best placed to influence change.

Our objectives to progress these aims are:

Objective 1:

To deliver effective regulation of dutyholders to reduce the likelihood of catastrophic events.

To progress this objective we will:

Continue to deliver key interventions at major hazard operators and dutyholders engaged in wells related activity.

This work will include assessing safety cases and safety reports; inspecting well notifications; inspecting offshore installations; and investigation of accidents and dangerous occurrences involving wells or drilling operations. Onshore we will have more limited interventions which will include inspecting selected land oil and gas drilling sites including coal bed methane well sites.

Wells Group have a large contribution to make towards this goal as work on wells is, for most installations, a significant contributor to risk. The major accident hazards concerned are well blow-out, fire, explosion and the release of toxic substances. The recent global incidents involving Montara (Australia), Aban Pearl (Venezuela) and the Deepwater Horizon (USA) show the very high cost in terms of human life and the environment if things go wrong. An analysis of well lifecycle integrity challenges can be found at Annex 1.

Inspect well notifications, weekly well operations reports, thorough review summaries, combined operation notifications; and assess safety cases to inform the regulation of major accident hazards. Installation duty holders must demonstrate that major accident hazards are identified, consequences understood and appropriate control measures provided to reduce risks, and that there is an effective management system offshore on the installation and at their onshore support functions. We will undertake prompt, effective, consistent and transparent assessment of safety cases in accordance with our published procedures.

Well notifications are a subset of safety cases. Well operators are required to notify HSE of certain well operations, with the relevant operational details including the well and site specific hazards. We will subject well notifications for higher risk or novel operations wells

(such as wells drilled in more than 300m (~1000ft) water depth or high pressure, high temperature wells) to an additional degree of scrutiny.

Weekly wells reports provide a check that notified operations are being followed. These notifications will be inspected to ensure that risks from well specific hazards are as low as reasonably practicable (ALARP). We will require evidence from well operators and safety case duty holders demonstrating that they are including improvements in well design and construction operations and are applying lessons learnt from wells incidents that have occurred worldwide.

Capture and analyse a range of data including notifiable incidents, their severity and the extent of our interventions in response to well notifications. The analysis will be used to prioritise our pro-active intervention work.

Engage with senior managers in well operations through industry forums to gain commitment for a continuous improvement in standards. We will work with Oil & Gas UK, Step Change and the International Association of Drilling Contractors (IADC) to promote safety leadership. Through this approach we will contribute to HSE's strategy goal "To encourage strong leadership in championing the importance of health and safety in the workplace".

Participate as members in the work of the Oil Spill Prevention and Response Advisory Group (OSPRAG) to ensure that the lessons from Deepwater Horizon are learned on the UKCS. Information about the causes of this disaster is likely to emerge over the coming years and it is important that the UK carefully considers the recommendations which emerge, benchmark them against UK practice and implements improvement where there is a clear benefit.

How we will monitor performance against this objective:

all well notifications prioritised for hazard potential and all high risk wells subjected to our highest level scrutiny process;
safety cases assessed to statutory deadlines;
effective involvement in OSPRAG, analysis of information from Deepwater Horizon and implementation improved risk control measures where necessary.

Creating healthier, safer workplaces

Strategy Goals:

- To specifically target key health issues and to identify and work with those bodies best placed to bring about a reduction in the incidence rate and number of cases of work-related ill health.
- To set priorities and, within those priorities, to identify which activities, their length and scale, deliver a significant reduction in the rate and number of deaths and accidents.
- To improve health and safety outcomes in Great Britain we will prioritise our resources to address those well operations activities where the risks of ill health, injury or death are highest.

Our objectives to progress this aim are:

Objective 2:

To deliver effective and efficient interventions.

To progress this objective we will:

Conduct a planned inspection programme and a fit for purpose investigation and enforcement programme to target risk.

Our approach to inspection will combine local knowledge of the duty holders (well operators, installation duty holders and contractors) gained through safety case assessment, inspection and investigation, with good overall knowledge of the offshore sector.

We will concentrate on the inspection of management systems that provide integrity of the well throughout its entire lifecycle, and how this management system delivers well integrity while promoting; leadership, asset integrity, competence and safety culture. We will also review wells related occupational safety and health during our inspections.

We are committed to building stakeholder confidence and to facilitate this we will endeavour to maintain the confidence of the people we are protecting by meeting with offshore staff and their safety representatives at each installation visit. We will explain the purpose and the findings of the visit and we will listen to the concerns and views of the workforce. Through this approach we will contribute to HSE's strategy goal "To reinforce the promotion of worker involvement and consultation in health and safety matters.....".

We will also assist OSD's Inspection Management Teams (IMT) when they inspect offshore installations or investigate accidents on the drill floor. An integral part of this work is to provide new inspectors who have no offshore experience with an appreciation of the risks from wells and appropriate in-house training.

How we will monitor performance against this objective:

- annual review of progress against intervention plans
- delivery of wells training and advice to offshore inspectors

Investigations and securing justice

Strategy Goal:

- To investigate work-related accidents and ill health and take enforcement action to prevent harm and to secure justice when appropriate.
- Investigating complaints and incidents is an important lever for improving health and safety standards. It enables us to determine causes, learn and share lessons, and ensure necessary measures are in place to prevent recurrence. Investigation also provides the basis for enforcement action to secure justice.
- When appropriate we will seek to prosecute those who behave in a reckless way or where there has been a serious breach of duty. Our aims are to investigate complaints and incidents consistently and enforce health and safety law in accordance with the enforcement policy.

Our objective to progress this aim is:

Objective 3:

To deliver high-quality investigation and enforcement work.

To progress this objective we will:

Investigate those incidents which meet HSE's incident selection criteria and complaints that meet HSE's agreed risk-based criteria. Where consistent with HSE's enforcement policy, we will seek to prosecute those who commit serious breaches of the law.

Where necessary formal enforcement action will be taken, the type of enforcement will be guided by well inspectors applying the [Enforcement Management Model](#). This framework helps inspectors to make fair and consistent enforcement decisions in line with HSE's [Enforcement Policy Statement](#). Enforcement action should be proportional to the health and safety risks and the seriousness of the breach and targeted, consistent, transparent and accountable.

How we will monitor performance against this objective:

annual review of enforcement activity involving wells operations;
HSE's rolling audit programme of investigation and enforcement decisions;

Building competence

Strategy Goal:

- To encourage an increase in competence, which will enable greater ownership and profiling of risk, thereby promoting sensible and proportionate risk management.
- It is important that everyone understands what information they need and where to access it, together with the skills and training necessary to ensure safe and healthy working practices.
- HSE's aims are for employers and employees to confidently identify whether they can manage their own risks, meeting the requirements of legislation, and where to seek advice and support.

Our objectives to progress these aims are:

Objective 4:

To support employers and employees in improving health and safety knowledge.

To progress this objective we will:

Encourage industry to develop industry guidance, standards and, where appropriate, conduct research to improve understanding on wells related risks and how they can be controlled. We will contribute to the development of standards where there are gaps and develop and publish guidance to inspectors where necessary to increase our effectiveness.

This will include work to identify risks from emerging technology and contributions to research with an appropriate content to ensure effectiveness of our regulatory activity. We will continue to give advice to contribute to relevant health and safety interests and concerns of the offshore industry.

Proactively engage with new well operators. We will seek to influence new well operators by engaging with them and emphasising their duties and responsibilities on the UKCS.

Maintain high levels of communication. The wells group shares HSE aims to be an open organisation, sharing information with others where reasonably possible. We will adopt the language, style and type of communication that best fits the need. We will share information with other parts of HSE and will publish our internal guidance on HSE's web site whenever it is possible to do so.

How we will monitor performance against this objective:

- feedback from stakeholders on the usefulness of our published information;
- timely response to requests from the Information Centre on wells matters.

Taking a wider perspective

Strategy Goal:

- To take account of wider issues that impact on health and safety as part of our continuing drive to improve Great Britain's health and safety performance.
- Wells Group aims to take account of wider issues in addressing its current and future priorities and to anticipate the potential implications of future challenges.

Our objectives to progress these aims are:

Objective 5:

To contribute to the Government's international and domestic strategies by ensuring the safety of existing and emerging technologies

To progress this objective we will:

Provide technical expertise regarding the engineering and operation of boreholes and storage caverns for underground gas storage facilities. When resources permit we will also provide advice on the potential hazards of other emerging energy technologies such as carbon capture and storage (underground storage of CO₂ through boreholes), coal bed methane extraction and underground coal gasification.

How we will monitor performance against this objective:

- feedback from colleagues who have lead responsibility for the regulation of these technologies.

Our objectives to progress these aims are:

Objective 6:

To deliver improvements in safety standards through work with suppliers and other key stakeholders.

To progress this objective we will:

Work with the North Sea Offshore Authorities Forum (NSOAF) wells working group to exchange experiences and attempt to ensure common standards apply across the region. Active members of the group are the safety regulators from the UK, Norway, the Netherlands, Denmark and Germany and the group has links with regulators from other offshore regions who sometimes also attend. We will actively seek improvements in well control training which were identified in the recent NSOAF Wells Working Group joint well control training position paper. Contact is also made with other regulators via the International Regulators Forum.

We will establish working relationships with all relevant trade associations in an effort to achieve our objectives.

Liaise with the Department of Energy & Climate Change (DECC) and exchange information on well integrity issues that could significantly affect the environment. DECC have responsibility for the promotion, licensing, and environmental implications of the offshore oil and gas industry.

Work with UK industry and international stakeholders to secure improvements in national and European standards. When resources permit, wells inspectors also take part in the preparation of safety related industry guidance on well operations

How we will monitor performance against this objective:

- Good relationship with other NSOAF members and development of common approach;
- Technical input provided to relevant standards.

Annex 1

Well Lifecycle Integrity Issues

The risks to the wells group achieving its purpose and the control measures in place to target the risks are shown in Table 1. For each risk, primary and secondary controls are identified. The risks are assigned to a risk hierarchy based on the likelihood of the risk occurring and the consequence.

These risks include:

- Reduced competency
- Reduced tolerances and safety factors
- Inadequate maintenance
- Inadequate understanding of leading edge technology
- Not complying with programme & poor management of change
- Poorly conducted operations & low commitment to effective safety management systems
- Unsuitable design
- Inadequate subsurface information
- Ageing infrastructure

Well integrity is the biggest influencer in achieving our objectives of reducing risks from wells and associated activities. The main challenges are related, unsurprisingly, to challenges confronting the industry as a whole in respect of integrity of plant and structures. Some of the leading factors to be considered are:

Reduced competency of the staff involved in well operations. There is an ageing workforce and a loss of well engineering experience from the majors on the UKCS that is difficult to replace in the smaller contractors and independent operators.

Reduced tolerances and safety factors in well design and operations. Well costs are extremely high and whilst it is acceptable to challenge excessive design tolerances, there is a clear and present risk that cost cutting, aligned with loss of experience will have an adverse effect on well integrity, particularly in extended life of field situations.

Inadequate maintenance of development wells, those used for production or reservoir support. This situation directly threatens integrity of active wells and the safe abandonment of older or damaged wells.

Primary controls for these highest priorities are through inspection of both offshore operations and onshore wells related safety management systems, coupled with inspection of the statutory wells notification.

Other risk factors include:

Leading edge technology is vital to the sustainability of the North Sea, thereby enabling production from existing reservoirs and the development of new ones. Most of which pose new challenges such as; distance from the wellhead or difficult reservoir conditions. The control of risks to as low as reasonably practicable in such an environment where reliability and performance data is theoretical is a major challenge to industry and regulator. It requires a partnership approach to managing innovation where safety is incorporated into design. Controls are: adequate assessment at the well notification stage; intelligence from investigation of failures; and conducting joint research.

Annex 1

Non-compliance with agreed drilling and workover programmes and poor management of change. Non-compliance with well operations programmes are of concern to us. There is evidence that changes are not properly controlled as a result of some duty holders either not having a suitable management of change process or from not following it. Operations are therefore conducted outwith the risk assessment envelope increasing risks of both loss of integrity and drill floor and deck related occupational incidents.

Poorly conducted operations and low commitment to effective safety management systems could lead to fatal and major injury accidents (and near misses) to well operations staff. The key factors are inadequate risk assessment, poor job organisation and inadequate monitoring and supervision of work.

A number of further areas of potential risk require continuing vigilance particularly in an environment of cost cutting, reducing competency and experience. These are:

Unsuitable well design, designs that are fundamentally flawed.

Reliance on inadequate subsurface information, In spite of the maturity of the UKCS there is evidence of such defects. The inspection of well notifications helps monitor and control their likelihood.

Ageing infrastructure. Rig packages on platforms, old MODU's and drilling equipment needs to be managed effectively to reduce injury and incidents. Inspections by the wells group will feed into OSD's Ageing Infrastructure Project where appropriate.

Annex 1

Table 1 – Well Engineering & Operations Risk Hierarchy and Control Measures

Risk Hierarchy Ranked*	Agent of risk [Drivers]	Well Engineering & Operations Control Measures – Ranked*					
		1. Well Notification Inspection	2. On site Inspection	3. Research & Standards	4. Investigation of Incidents & Complaints	5. Weekly Operations Reports Inspection	6. Safety Case Assessment
1	Reduced competency [Age profile / shortage of people, unattractive industry, contracting out for services]	Secondary	Primary	Primary	Secondary		
2	Reduced tolerances and safety factors. [Cost cutting, legitimate redesign]	Primary		Primary		Secondary	
3	Inadequate maintenance [Cost cutting]		Primary		Secondary		Secondary
4	Inadequate understanding of leading edge technology [Sustainability]	Primary		Secondary	Secondary		
5	Non compliance with programme & poor management of change [Cost cutting, competency]		Secondary			Primary	
6	Poorly conducted operations & low commitment to effective SMS [Planning, competency, monitoring and supervision, risks assessment / SMS]	Secondary	Primary			Secondary	
7	Unsuitable design (Eng & Ops) [Cost cutting, competence]	Primary	Primary	Secondary	Secondary	Secondary	
8	Inadequate subsurface information [Available technology, water injection, lack of analysis, cost cutting]	Primary			Secondary		
9	Ageing infrastructure [Cost, market conditions, competency]	Secondary	Primary	Secondary			Secondary

* Risk hierarchy ranking highest (1) to lowest (9) – Control measures ranked (1) to (6).