



Department
of Energy &
Climate Change

OFFSHORE OIL AND GAS IN THE UK

Government Response to an Independent Review of the
Regulatory Regime

December 2012



Ministerial Foreword

The UK oil and gas industry is one of the UK's biggest success stories of the last fifty years. The industry forms an important part of the economy. It employs over 400,000 people, has attracted billions of pounds of investment to the UK, provides billions of pounds of taxation revenue to the public purse and has produced some 40 billion barrels of oil equivalent (boe) so far. There are perhaps a further 20 billion boe, or more, of reserves left to produce and future investment and production will continue to contribute to economic growth in the years ahead.

The UK's successful offshore industry is underpinned by a robust safety and environmental regulatory regime. This has evolved, taking account of our experience over the last 30 years including the tragic Piper Alpha incident in 1988 and is now widely regarded as one of the very best in the world. The regulatory certainty provided by our regime underpins the confidence that is needed to continue to attract substantial investment in the North Sea at a time when global competition for such investment, buoyed by high oil and gas prices, is stronger than ever.

However, the tragic events of 20 April 2010, when the Deepwater Horizon drilling rig, working on the Macondo well in the Gulf of Mexico, exploded leading to the deaths of eleven personnel and the loss of 4.9 million barrels of oil to the sea, provided a salutary reminder to industry and regulators alike of the need for the highest standards of safety and environmental control in this potentially hazardous industry. This disaster made it vital for the industry and Governments, all around the world, to learn from this tragedy to try and ensure that such an event never happens again.

The UK was no exception and as part of efforts to make sure that we learned all we could from the Macondo disaster the Government appointed Geoffrey Maitland, Professor of Energy Engineering at Imperial College London, to chair an independent review panel to consider the findings from official Macondo reports and their relevance to the oil and gas industry in the UK.

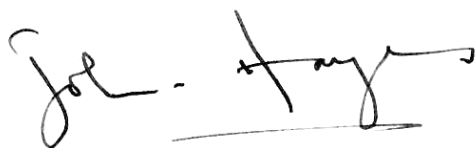
The panel's report, published in December 2011, acknowledged the strengths of the UK's regulatory regime but made a number of recommendations for further improvements across eleven themes. This is an important and extremely valuable report and we would like to express our thanks to Professor Maitland and his panel for the careful and thorough work that they undertook.

The Department of Energy and Climate Change (DECC), the Health and Safety Executive (HSE) and the Maritime and Coastguard Agency (MCA) have worked together to ensure that the Government's offshore regulatory framework, for which we share responsibility, takes full account of the lessons from Macondo and remains world-class. We should especially like to acknowledge and welcome the positive, constructive and highly material contribution made by Oil and Gas UK (OGUK), the industry trade body, to our response to the Maitland Review. Many of the review's recommendations were aimed at the oil and gas industry and it is heartening and reassuring to see how enthusiastically the industry has been able to respond to the challenges laid at its door.

Our responses are set out in full in this document. Some of the recommendations have been accepted in full; others partially accepted; while for some recommendations both regulators and industry thought that safety issues could best be achieved through an alternative approach. Where appropriate there are clear timelines for delivery.

The responses show that for the regulators and industry alike the emphasis remains on maintaining a vibrant UK oil and gas industry which is supported and underpinned by a continuously improving, fit-for-purpose regulatory regime which puts safety and environmental protection to the fore.

This is not the end of the process. A new senior oversight group, comprising DECC, HSE and MCA, will supervise the successful implementation of the Maitland Review recommendations that are still being delivered as well as ensuring that the offshore regime remains fit for purpose in the longer term.



John Hayes
Minister of State for Energy



Mark Hoban
Minister for Employment

Part 1: Background to Deepwater Horizon, the Maitland Review and summary of responses

On 20 April 2010, the Deepwater Horizon drilling rig, working on the Macondo well in the Gulf of Mexico, exploded leading to the deaths of eleven personnel and the loss of 4.9 million barrels of oil to the sea. While the offshore UK oil and gas regime is regarded as one of the strongest in the world, the Government wanted to ensure that the UK considered the findings from the official Macondo reports and their relevance to the oil and gas industry in the UK.

The Government asked Geoffrey Maitland, Professor of Energy Engineering at Imperial College London, to chair an independent review panel to carry out this task. Mick Temple (retired BAA Development Director and currently a Member of the Faculty of Sustainability Leadership at the University of Cambridge) and Professor John Shepherd (Research Fellow in Earth Systems at the University of Southampton) provided their considerable expertise to the panel.

The independent panel published its report in December 2011. The report made recommendations around ten key themes: well planning and control, environmental protection, emergency response, learning from incidents and best practice, implementation assurance, competency and training of the workforce, workforce engagement, liability and insurance, regulator issues and technology development.

A Steering Group comprising membership from DECC, HSE, MCA and OGUK have carefully considered the Maitland Review recommendations. Part 2 of this response document sets out how the Government as regulator or industry as operator has responded to each recommendation. The Steering Group has responded positively to the majority of the recommendations and has implemented them in full; some of the work is ongoing and, where this is the case, work plans with appropriate dates for completion are in place and detailed in the response.

There were other recommendations, where after full and careful consideration, we concluded that an alternative approach was more appropriate to achieve a similar outcome. Where this is the case, we provide a full explanation of the work that was undertaken to reach our alternative conclusions.

We believe that by building on the strengths of the current offshore UK regime, implementing the majority of the independent panel's recommendations and developing alternative approaches to other recommendations, the offshore UK oil and gas sector will continue to improve.

Some of the key responses to the panel's recommendations are set out in the table below:

Key Theme	Key responses
Well Planning and Control	<ul style="list-style-type: none"> the Well Life Cycle Practices Forum (WLCPF) will remain in place permanently; the WLCPF has issued guidelines that reflect good industry practice as recommended by the panel; following consideration of the panel's recommendation on changes to well control standards (i.e. whether at least two barriers should be in place) the WLCPF concluded that current practices are fit for purpose.
Environmental Protection	<ul style="list-style-type: none"> OGUK is taking forward the Environmental Assurance Plan concept; DECC has undertaken a review of its environmental regulatory regime and associated guidance; an independent annual review of selected Environmental Statements and Oil Pollution Emergency Plans will take place; stand-by capping devices, with a regular maintenance schedule, are now available on the United Kingdom Continental Shelf (UKCS).
Learning from Incidents and Best Practice	<ul style="list-style-type: none"> OGUK has published guidance on the appropriate and effective use of Operational Risk Assessment and on assurance and verification; asset integrity and process safety training is being updated and rolled out on a permanent basis.
Competency and Training of Workforce	<ul style="list-style-type: none"> the WLCPF has produced guidelines on the competency of wells personnel; fit-for-purpose well control drills and exercises are measured against operator specific safety case standards to ensure that realistic worst case scenarios are tested; the WLCPF is working with Step Change in Safety to develop guidelines on how human factors can impact on well integrity.
Workforce Engagement	<ul style="list-style-type: none"> Step Change¹ has developed a workforce engagement toolkit; OGUK has commissioned the Offshore Petroleum Industry Training Organisation (OPITO) to develop additional developmental training for elected safety representatives and has also initiated a programme of interviews that, amongst other things, will examine how operators are engaging the offshore workforce on environmental matters.
Liability and Insurance Issues	<ul style="list-style-type: none"> DECC and OGUK have published separate guidance on how petroleum licensees on the UKCS can demonstrate financial responsibility for drilling exploration and appraisal wells - this takes effect from 1 January 2013; DECC and OGUK have agreed that the processes for financial responsibility will be considered at the highest management levels in each company.
Regulator Issues	<ul style="list-style-type: none"> DECC and HSE have: <ul style="list-style-type: none"> Developed strategies to recruit and retain specialist inspectors and managers; Agreed a new and enhanced Memorandum of Understanding; and Established a new senior oversight group to provide assurance that the offshore regulatory regime remains fit for purpose.

Table 1 – Key Themes

¹ Step Change is a cross-industry partnership with the remit to make the UK the safest place to work in the worldwide oil and gas industry. (www.stepchangeinsafety.net/)

We believe that Government and industry responses to the independent panel's recommendations, alongside other ongoing work, will ensure that the UKCS offshore oil and gas industry builds upon its existing high standards by: protecting the environment; engaging and safeguarding its workforce; introducing new mechanisms on financial responsibility and responding to emergencies.

Part 2: Detailed responses to the independent panel’s recommendations

WELL PLANNING AND CONTROL

Recommendation 1.1.1

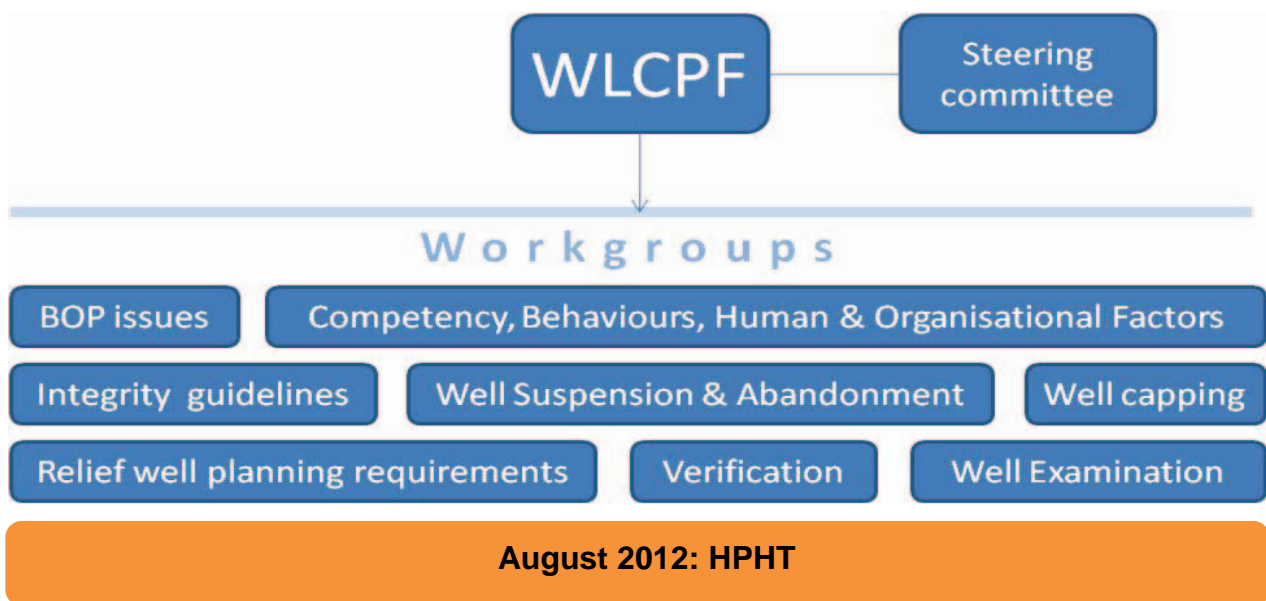
The Well Life Cycle Practices Forum (WLCPF) remains in place permanently.

Response: OGUK

Industry agrees that the WLCPF (which was established by OGUK in December 2010 as a response to the Oil Spill Prevention and Response Advisory Group (OSPRAG)² Technical Review Group Recommendations) should remain in place permanently.

The Forum acts as a focal point for government bodies and others to access industry thinking and will continue to meet on a regular basis to discuss well-related issues and to help well-operators on the UKCS implement learning from relevant incidents and share good industry practice through the collaborative production of guidelines.

The workstreams and structure of the WLCPF will change over time to respond to evolving industry needs and demands; for example, in August 2012 the High Pressure High Temperature (HPHT) work group was established. The current structure (October 2012) is:



² OGUK established the Oil Spill Prevention and Response Advisory Group (OSPRAG) to provide a focal point for the sector’s review of the industry’s practices in the UK, in advance of the conclusion of investigations into the Gulf of Mexico incident.

Recommendation 1.1.2

Competent, authoritative representatives from industry and HSE meet regularly in the WLCPF to agree, review and continuously improve standards for good and best practice in well integrity and control for application in the UKCS.

Response: OGUK

The members of the WLCPF comprise senior members of well-operators and well management companies, typically well and drilling managers, who review and agree guidelines for improving standards in well integrity and control for UKCS wells. HSE and DECC have a standing invitation to attend meetings and are sent relevant updates.

Recommendation 1.1.3

The standards take account of the Macondo blowout and encompass operating practices, adequacy and reliability of safety critical equipment (especially Blow Out Preventers (BOPs)), hardware maintenance and testing; personnel training and competency; human and organisational factors.

Response: OGUK

The WLCPF acknowledges the panel's use of the term "standards" and do not interpret this to mean prescriptive guidelines, but in keeping with the UK goal setting health and safety regulatory regime which is viewed as world-leading and fit-for-purpose, the WLCPF have produced and issued guidelines that reflect good industry practice. The guidelines will help well-operators reduce risks to As Low As Reasonably Practicable (ALARP).

Table 2 provides details of current and future publications. These guidelines are being continuously reviewed and improved. Reviews for each title will take place between one and three years or when any relevant operational issues need to be incorporated.

The Forum agrees with the panel that the guidelines should take account of the Macondo blowout. All guidance produced by the WLCPF does this but also takes account of any other relevant industry incidents and opportunities for shared learning.

It should be noted that within the goal setting regime, each well-operator has its own set of standards and procedures which are continually reviewed against current industry good practice and incorporating lessons learned from incidents. There are also worldwide industry standards (e.g. from the American Petroleum Institute (API), International Standardisation Organisation (ISO), International Association of Drilling Contractors (IADC) and International Well Control Forum (IWCF)) which UK companies may choose to follow.

In response to the panel's specific recommendations on what should be taken into account, the WLCPF points out:

- the Well Integrity Guidelines (issued in July 2012) together with the existing guidelines for the suspension and abandonment of wells cover the entire life cycle of the well – from first design to final abandonment;
- the guidelines on subsea BOP systems and Step Change in Safety’s document on verification cover the adequacy and reliability of safety critical equipment (especially BOPs);
- guidelines on competency of wells’ personnel cover the training and competency issues; there is also a workgroup currently collating case studies to produce a document focussed on helping wells’ personnel understand how human and organisational factors can impact on well integrity.

Title	Publication date	Review Date(s)
Guidelines for well-operators on well examination – issue 1	Nov 2011	Issue 2: Nov 2014
Guidelines for well-operators on competency of well-examiners – issue 1	Nov 2011	Issue 2: Nov 2014
Guidelines on relief well planning – issue 1 (subsea wells)	Jan 2012	Issue 2: subsea, platform and Jack up: Jan 2013 Issue 3: Jan 2016
Guidelines on competency of wells personnel – issue 1	Jan 2012	Issue 2: Jan 2015
Example of competency profiles for wells personnel – issue 1	Jan 2012	Issue 2: Jan 2015
Guidelines for the suspension and abandonment of wells – issue 4	Jul 2012	Issue 5: July 2015
Guidelines for the qualification of materials for the suspension and abandonment of wells -issue 1	Jul 2012	Issue 2: July 2015
Guidelines on subsea BOP systems – issue 1	Jul 2012	Issue 2: Subsea and Surface BOP systems: Q1 2013 Issue 3: Late 2016
Well integrity guidelines – issue 1	Jul 2012	Issue 2: Q1 2014 Issue 3: Q1 2017
Information on the deployment of the OSPRAG capping device – Issue 1	Q2 2013	TBC following issue 1 publication
Guidelines on human factors in well integrity	Q1 2013	TBC following issue 1 publication

Table 2 – List of WLCPPF publications and planned documents

Recommendation 1.1.4

The standards are shared with international regulatory and industry partners and standard setting organisations.

Response: OGUK

The WLCPF agrees that the guidelines should be shared with other organisations. This is facilitated to some extent by the existence of the WLCPF which provides a platform through its forum and workgroup meetings for sharing best practice between industry partners.

Several of the WLCPF members and workgroup members also sit on other committees, such as ISO, API, IADC and the International Association of Oil and Gas Producers' (OGP) Well Expert Committee (WEC). WLCPF members are encouraged to make contact with their company's representative on other committees to ensure that work is not unduly duplicated and to minimise confusing or conflicting guidance. Additionally, the WLCPF (through OGUK staff) have direct contact with national oil industry associations such as OGP, the Norwegian Oil Industry Association (Norsk olje og & gass) and the Netherlands Oil and Gas Exploration and Production Association (NOGEPa). OGUK has shared copies of both draft and final versions of the WLCPF guidelines with these organisations. HSE has shared WLCPF guidelines with other regulators through the International Regulators Forum (IRF).

In order to improve dissemination of the guidelines, the WLCPF will investigate how industry has adopted and implemented the existing guidelines. The well integrity workgroup will be holding a guideline workshop in Q2 of 2013.

The Forum is also actively exploring ways in which to better publicise the guidance produced. For example, high level introductory packs for all current publications are being developed to aid the delivery of the guidelines throughout individual companies.

Recommendation 1.2.1

The WLCPF should also promptly consider:

- **whether a change in well control standards is necessary to require at least two barriers to be in place (in addition to the BOP) when moving a well to an under-balanced situation with a producing zone open**

Response: OGUK

The WLCPF has carefully considered this recommendation. Following further deliberation the forum has concluded that there is no significant added value from a change in well control guidance and installing a second barrier above the first barrier is not recommended for the following reasons:

1. If a second barrier is placed slightly shallower (closer to the top of the well) than an existing barrier, it is not possible to sufficiently pressure test that second barrier.
2. In many cases the additional "barrier" would have to be removed before moving to the next operation (a plug set above a liner lap for example). If the inflow test is performed with two mechanical barriers in place, then the operator would not know which of those barriers is intact.
3. It is not possible to install a fully independent barrier in close proximity to the main designed barrier because it is not possible to test the barriers independently.
4. An additional mechanical barrier would not mitigate the requirement for competent people to implement the detailed procedures which manage the change in pressure.

On this basis the WLCPF believe that one active (a mechanical, inflow tested) barrier plus the BOP (a potential barrier) maintains well integrity, while displacing to a light fluid. These physical barriers should be supported by competent personnel and adequate testing and monitoring procedures.

The WLCPF has incorporated this information into the Well Integrity Guidelines (issued in July 2012) which provides guidance for operators on good practices that should be adopted for carrying out these operations.

The WLCPF believes that these guidelines are examples of how industry is committed to the ongoing process of sharing good industry practice relating to well integrity and barriers.

Recommendation 1.2.2

The WLCPF should also promptly consider:

- **Whether any change is necessary to require operators to give notice advising each time a situation is reached where the BOP plus one other barrier to a release is reached.**

Response: OGUK

The WLCPF has carefully considered this recommendation and believes a change in reporting legislation is not required as the forum remains confident that the existing requirements of RIDDOR (the Reporting of Injuries, Disease and Dangerous Occurrences Regulations 1995) to report the use of well control equipment to HSE is appropriate for the purposes of risk management and industry education.

RIDDOR includes the requirement for well-operators to report to the HSE each time a BOP is used in well control (i.e. when the active barrier has failed). Several papers on this have been published, for example:

- An Analysis of OSD's³ Well Incident Database; Results can Improve Well Design and Target Well Control Training, Andy Hinton, Health and Safety Executive, Offshore Europe Oil and Gas Exhibition and Conference, 7-10 September 1999, Aberdeen, United Kingdom (SPE⁴ 56921); and
- Kicks in Offshore UK Wells - Where Are They Happening, And Why?, J.D. Dobson, SPE, Health and Safety Executive, SPE/IADC Drilling Conference and Exhibition, 17-19 March 2009, Amsterdam, The Netherlands (SPE 119942).

³ The Health and Safety Executive's Offshore Safety Division.

⁴ SPE – Society of Petroleum Engineers

ENVIRONMENTAL PROTECTION

Recommendation 2.1

Industry and DECC should continue to work together to develop and adopt improvements such as:

- **the “Environmental Assurance Plan” (EAP) concept, possibly using the Environmental Statement (ES)/Environmental Management System (EMS) as living tools to engender a goal-setting approach to environmental regulation aimed at continuous improvement, particularly in relation to low-frequency, high-impact incidents**
- **the identification and unified treatment of generic aspects of environmental assurance documents, to allow more effort to be devoted to other more specific or localised areas of potential impact and risk, through more extensive use of online systems, etc.**

Response: OGUK, DECC

Industry and DECC are working together to address this recommendation.

The EAP provides a draft concept of a risk-based approach to environmental regulation. OGUK has produced a proposed EAP framework which has been agreed with DECC as the basis for moving forward. The OGUK Environment Directorate has subsequently arranged for four case study examples of an EAP to be prepared for review in early 2013.

If the review of the case study examples concludes that the EAP concept should be progressed, DECC will review the existing legislation, online procedures and the departmental approval processes to determine how their systems would need to change (taking into account changes to online procedures currently being undertaken) to allow for a goal setting approach to environmental regulation. OGUK would then issue a firm proposal on the EAP to industry at a meeting of the OGUK Environment Forum in mid 2013.

Recommendation 2.2.1

The panel also challenges the industry to take greater ownership of existing environmental regulatory requirements, including review of contractual arrangements for preparing and updating the relevant documents, to make them into tools that drive improvements in environmental assessment and protection.

Response: OGUK, DECC

The OGUK Environment Forum has considered this recommendation and retains confidence in the existing contractual systems between operators and their contractors. The Forum believes these are fit for purpose as the ‘standard’ contracts provide a contractual mechanism to remedy any poor performance. This is usually contained within

the “performance examination and defective performance” clauses within the terms and conditions of the contract. This section typically contains a sub-clause that states that “where the company has found the services or part thereof not to have been performed in accordance with the Scope of Work the contractor shall immediately take all action necessary to correct the work”.

However, it is recognised that under the administrative requirements of the current regulatory regime, quality control by both operators and contractors is an issue. The most appropriate mechanism to address this issue would be the development of an EAP (see previous response) that included a declaration that the document had been reviewed by the relevant operator. This will reduce the potential for errors in preparing and updating documents by eliminating duplication within submissions, and will ensure that documents are not submitted until they have been approved by the relevant operator.

Recommendation 2.2.2

The panel recommends that the Regulator should continue to work with the industry to identify ways in which existing reporting requirements, especially regarding environmental compliance, might be simplified or rationalised, and that more might be done to demonstrate the need for, and consequent value of the detailed environmental assessments required of them, with a view to providing increased scope for innovative approaches to the improvement of environmental standards.

Response: DECC, OGUK

DECC agrees with the recommendation and has improved and simplified the reporting and non-compliance systems on the UK Oil PORTAL. The electronic Petroleum Operations Notice Number 1 (PON1)⁵ has now been fully rolled out to industry for the reporting of environmental incidents. DECC and HSE have both established dedicated “liaison email accounts” that provide a quick and effective route for exchanging information that is of interest to regulators, such as inspection or compliance report findings or matters of mutual interest or concern. DECC and HSE continue to work together to develop methods of improved sharing of their operational intelligence, under the auspices of the Memorandum of Understanding (see responses to recommendation 9). The requirement for an environmental assessment in relation to any non-compliance is already risk-based, and detailed assessments are only required for incidents with the potential to result in a significant adverse impact.

The development of an EAP would also provide the mechanism to improve and simplify, where required, environmental reporting requirements. This will therefore be taken forward by the working group set up to address Recommendation 2.1.1 above.

⁵ A PON1 is a petroleum Operations Notice which is used to report oil and chemical releases and Permitted Discharge Notifications from offshore installations and pipelines.

Recommendation 2.3

Guidance documents relating to offshore environmental impact assessment, enforcement, regulatory activities, etc. should be regularly reviewed and revised, initially in the light of changes in procedures arising from Macondo and subsequently taking account of any other relevant incidents, to reinforce the UKCS continuous improvement culture and to ensure that operators are fully aware of current requirements and environmental best practice expectations.

Response: DECC, OGUK

DECC agrees with this recommendation and carried out a review of the environmental regulatory regime and associated guidance following the Macondo disaster which introduced new internal procedures to strengthen the review and prioritisation processes associated with Mobile Drilling Units (MoDU) drilling operations. Supplementary guidance was issued to industry via a number of letters that have now been collated into one summary and placed on the DECC website at:

http://og.decc.gov.uk/en/olgs/cms/environment/leg_guidance/deepwater/deepwater.aspx#.

This guidance included changes to the Oil Pollution Emergency Plan (OPEP) requirements, which have been consolidated into the relevant regulatory guidance and published on the DECC website at:

http://og.decc.gov.uk/en/olgs/cms/environment/leg_guidance/oprc.aspx.

In future, DECC will review all relevant guidance documents on an annual basis, and maintain a “Frequently Asked Questions” document in the period between the reviews in relation to all the guidance documents and this will be updated as required. Where necessary the guidance will then be updated and re-issued annually.

In addition DECC continues to work with industry via the Oil Spill Response Forum (OSRF)⁶ and its subgroups, particularly the OPEP subgroup. This sub group was established to:

- review the requirements of regulators and operators for OPEPs;
- identify gaps and initiate activities to close any gaps;
- to strengthen arrangements; and
- improve guidance.

The outcomes of this work will be incorporated into OPEP guidance in early 2013.

⁶ A cross Government/industry group co-chaired by OGUK and DECC whose objective is to further develop and maintain an effective, robust and sustainable oil spill response capability for upstream operations on the UKCS.

Recommendation 2.4

A selection of approved Environmental Statements (ESs) and OPEPs, with a focus on high-risk wells, are periodically subjected to independent peer review by selected environmental experts (academics, independent consultants, members of the UK Environment Groups) to ensure that there can be continuing confidence that the identification and analysis of key issues is robust and evidence-grounded, incorporating the best scientific/engineering practice, and that routine and unquestioned practice is challenged and lessons learned.

Response: DECC, OGUK

DECC has considered how this recommendation can be implemented given that:

- expert independent consultants already prepare ES or OPEP documents for oil and gas companies and so DECC believes that there may be issues identifying and appointing independent consultants who would not have a conflict of interest in carrying out a peer review on DECC's behalf; and
- the UK Environment Group (i.e. Marine Scotland, Marine Management Organisation (MMO), Joint Nature Conservation Council) are already involved in the formal consultation processes for both ESs and OPEPs (depending on location) and their comments are focussed on their particular areas of expertise. As such, they already send comments to DECC.

There have been two independent reviews of oil and gas ESs completed since the implementation of the Offshore Petroleum Production and Pipe-lines (Assessment of Environmental Effects) Regulations 1999, one undertaken by a Non-Governmental Organisation (NGO) and the other, more comprehensive review, undertaken by an academic institution. DECC has therefore contracted Genesis Oil and Gas Consultants (Genesis) to establish an annual review procedure to provide assurance that ESs and OPEPs are robust and fully meet the requirements of the relevant legislation. Genesis will manage the contract, but the reviews will be undertaken by independent academic bodies, which are currently being identified.

The Whale and Dolphin Conservation Society (WDCS), considered the possibility of involving a consortium of NGOs in the review process and subsequently confirmed that they do not consider it appropriate to participate in the process.

The aim is to have the review process in place by the end of 2012, and a number of randomly selected (possibly six) ESs and OPEPs will then be reviewed on an annual basis starting from 2013.

Recommendation 2.5.1

Where appropriate, DECC guidance for OPEPs should be updated to reflect the findings of OSPRAG's oil-spill modelling review.

Response: OGUK, DECC

DECC agrees with this recommendation. The Oil Spill Modelling review is under the remit of the OGUK/DECC jointly chaired Oil Spill Response Forum (see recommendation 2.5.2) and the output of that workgroup will be fed to the Oil Spill Response Forum OPEP Workgroup that is undertaking a thorough review of the existing DECC OPEP guidance. The guidance will be updated as necessary and the outputs of the modelling review will be considered for inclusion when they are available.

Recommendation 2.5.2

Oil Spill Response Forum (OSRF) explores and stimulates improved oil-spill modelling techniques both at surface and subsea.

Response: OGUK

The OSRF agrees with this recommendation and an Oil Spill Modelling Work Group has been established with a number of work streams to address this recommendation. In addition to Operators and Regulatory Bodies, the Work Group includes UK modelling experts, the Met Office Hydrodynamic Unit and the Marine Ecosystem Department of Marine Scotland. The membership of the Work Group reflects the highly complex nature of surface and subsurface spill modelling.

The initial element of the work programme will be a study to examine the existing models with respect to the three primary environments for which they are used (i.e. Shelf (<200m); shelf break (200-2000m) and Deepsea (> 2000m)). The Centre for Environment, Fisheries and Aquaculture Science (CEFAS) and Marine Scotland are currently undertaking a study to:

- Identify existing oil impact models and driving flow fields.
- Review the scope of each model and the physical/chemical/biological processes included.
- Review the processes, resolutions and methodologies required to generate sufficiently accurate flow field information.
- Review the parameterisation of each process and the perceived sensitivity of that process to overall outcomes.

The study report, due at the end of December 2012, will identify issues and weaknesses associated with each model and propose recommendations.

The results of this study will be assessed in combination with the outcomes of parallel work being undertaken by the API and the OGP. The outcomes will be discussed with the commercial providers of the models to encourage development to address any issues identified.

The requirement for UK guidelines on the use of models in contingency planning and in spill response will then be determined in early 2013.

Recommendation 2.6.1

Given the wide diversity of circumstances and environments in which capping devices might be called upon, the panel recommends regular testing of their deployment in a range of scenarios, including during the course of relevant offshore National Contingency Plan (NCP) exercises.

Response: OGUK, DECC

The WLCPF acknowledges the value in testing industry's ability to deploy a capping device and believes that the exercises and work described below sets out a robust alternative approach to the panel's recommendation. The UK industry has already demonstrated that it can deploy a capping device (e.g. as demonstrated during the Emergency Equipment Response Deployment Exercise, information below) and believes that deploying the capping device (or a simulated cap) in other scenarios would bring limited benefits for the reasons outlined below.

However, benefits would be gained by further enhancing the current deployment procedures and this is a current focus of the WLCPF. Working collaboratively on such a project, will allow the industry to share good practices for eventual deployment of the capping device. This would help reduce the time taken to deploy the cap, or to reduce the impact of variables which may influence the overall deployment time.

As with all operational testing exercises, risks would be incurred by testing the deployment of the actual capping device. The WLCPF believes these risks outweigh the limited benefits in physically deploying the caps under test conditions for a number of reasons:

- Testing deployment cannot fully simulate the scenario in which a well is blowing out. The operations that can be tested would mirror routine work carried out by industry on a regular basis (e.g. deployment of large subsea valves – “Christmas Trees”);
- Following immersion in seawater, saltwater could enter the internal parts of the capping device. If this were to occur, then the cap would need to be stripped down, inspected, and redressed once recovered to prevent corrosion. This process risks damage to the body of the cap and would make the cap unavailable to industry for a period of time; and
- Much of the functionality of the cap (lifting apparatus, opening and closing the gate valves) can be tested onshore during the cap's routine maintenance schedule. The OSPRAG capping device went through extensive factory acceptance testing and System Integrity Testing (SIT) onshore in August 2011. This included testing that the capping device and third party supplied equipment packages interfaced correctly and operated as intended. The SIT was designed to mimic the offshore completion programme, which helped to highlight any safety issues, gain experience in handling the cap and work organisation, and stimulate thought and discussion to identify areas where improvements could be made.

In July 2011, the UK offshore industry (through Total E&P UK) successfully ran the Emergency Equipment Response Deployment (EERD). The exercise was designed to realistically test all the deployment aspects of the cap itself. This involved testing the deployment of a simulated capping device (a large subsea valve specially modified to replicate the weight and size of the then unfinished OSPRAG capping device).

The learning from the EERD make it easier for operators to plan the deployment of a capping stack and to perform the operation should it be necessary.

The OSPRAG final report contains a summary of the EERD and is available at: <http://www.oilandgasuk.co.uk/publications/viewpub.cfm?frmPubID=412>

The Demonstrating UK Oil Spill Response Capability Report contains more in-depth details: <http://www.oilandgasuk.co.uk/publications/viewpub.cfm?frmPubID=416>

The test took place West of Shetland in a water depth of 300 metres, and involved the following stages (all at the seabed):

- Equipment to apply dispersant directly at the well head was demonstrated using an environmentally friendly dye;
- Giant shears and a diamond cutter were used to sever a section of marine riser. This demonstrated the capability to clear the well site of debris to enable access to the wellhead for the capping device;
- Deployment of the simulated capping device and locking on to a replica wellhead; and
- Retrieval of all equipment used in the test.

The UK's response to a major oil spill resulting from a deep water offshore drilling incident within the UKCS (and similar to that experienced in the Gulf of Mexico) was tested during Exercise Sula, a live multi-agency emergency response exercise designed to test the United Kingdom National Contingency Plan for Marine Pollution from Shipping and Offshore Installations. The exercise was conducted in real time over a two day period in May 2011 and demonstrated both the UK's national and the offshore industry's preparedness, response and counter-pollution measures were appropriate and capable of effectively dealing with such an incident.

The exercise scenario simulated a subsea well blowout West of Shetland and included the aerial spraying of dispersant, the deployment of booms to protect the Shetland coast, and the planning and co-ordination of deploying a capping stack. Whilst the capping stack itself was not mobilised, the procedures necessary for its mobilisation and deployment were initiated and were vigorously scrutinised during the exercise.

The full Exercise Sula report is available at: http://www.dft.gov.uk/mca/exercise_sula_-_18-19_may_2011_-_final_report.pdf

In 2012 the WLCPP formed a new workgroup which is developing more detailed deployment procedures and methodology, with results expected to be available by the end of 2012. The group carried out a "table top exercise" in June 2012 to help identify new areas where improvements to deployment procedures can be made.

Recommendation 2.6.2

Because such devices are not part of an offshore installation, a mechanism needs to be developed to bring them under the jurisdiction of the regulatory regime.

Response: OGUK, DECC

The current regulatory arrangements already address part of this recommendation:

- The Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995 (MAR) provide that any structures and devices on top of a well shall be treated as part of the well and that any well that is connected to an offshore installation will be deemed to be part of that installation. This means that when the capping device is connected to a well, which is in turn connected to an offshore installation then the capping device will be deemed to be part of the installation and so the Offshore Installations (Safety Cases) Regulations 2005 and the Offshore Installations (Prevention of Fire and Explosion, and Emergency Response) Regulations 1995 (PFEER) will apply. This means that when the capping device is deployed it must be fit for purpose and therefore must be maintained in an efficient state, efficient working order and in good repair;
- If the capping device is applied to a single well and the well is not connected to an installation, the deployment and operation of it will be covered by Article 5 of the Health and Safety at Work etc. Act 1974 (Application outside Great Britain) Order 2001. This Order applies the prescribed provisions of the Health and Safety at Work Act 1974 to certain specified activities in relation to energy structures and other structures within the territorial sea, including wells and any activity in connection with them. For the purposes of this Order, any structures and devices on top of a well are treated as forming part of the well.

HSE and DECC agree that third party inspection of the capping device, while awaiting deployment, would be the appropriate way to achieve regulatory compliance, and that these arrangements should form part of the industry's strategy to demonstrate that the device is fit for purpose and that it has been maintained in an effective state, effective working order and in good repair.

The WLCPPF consider that the equipment owners should carry the responsibility for ensuring that the testing and maintenance of the capping devices is completed, and should provide certification (and verification) to this effect aligned with the requirements under the Offshore Installations (Safety Case) Regulations 2005.

Recommendation 2.6.3

Given the need to ensure that any stand-by capping device will perform its key function, we recommend that the Regulators and Industry should agree requirements for:

- their regular maintenance
- appropriate testing of their ability to operate on demand
- appropriate training for their deployment and operation
- verification that these activities have been properly conducted.

Response: OGUK, DECC

Regulators and industry agree with this recommendation. The following capping devices are now available (or currently being built) for the UKCS. This list does not include those capping devices owned by individual operators.

Organisation	Location	Notes
OSPRAG	Aberdeenshire, UK. Via Oil Spill Response Limited (OSRL)	The OSPRAG capping device has been available for use since autumn 2011
Wild Well Control (WWC)	Aberdeenshire, UK Via WWC	The WWC stack has been designed so that it can be airlifted in modules to any location worldwide
Neptune Subsea Engineering	Aberdeenshire, UK Via Neptune	The Neptune capping device has been available since 2010
Subsea Well Response project (SWRP)	Via OSRL This will be located in four locations worldwide including one in Europe (Norway)	Four capping stacks are due to be built, with the first equipment due to be completed by January 2013. In 2013 the equipment will be moved to four strategic storage locations in Northern Europe, South America, Africa and Asia-Pacific, for international deployment

Table 3 Location of capping devices

The OSPRAG capping device will be subject to a regular maintenance schedule. Tests, checks and inspections will take place as follows:

- 3rd month - Inspection;
- 6th month – Inspection and Testing;
- 9th month – Inspection; and
- 12th month – Inspection and Testing.

HSE and DECC consider such a maintenance schedule would be appropriate for all capping devices that could be used on the UKCS, with certification provided to confirm that the maintenance has been undertaken and verification carried out by an independent third party.

The maintenance programmes use field proven procedures to ensure the reliability and readiness of the equipment. The OSPRAG capping device is stored in a warehouse environment to protect it from environmental degradation.

As outlined in the response to recommendation 2.6.2, the WLCPF recommend that the maintenance activities are conducted by (or on behalf of) the equipment owners, who should also provide certification that these activities have been carried out.

Based on the EERD, in which physical deployment of the OSPRAG capping device was planned and demonstrated, the WLCPF believe that the skill-sets required to deploy the capping device (e.g. ROV and lifting equipment) are routinely tested in industry through similar standard operations (e.g. deployment of large subsea valves, or Christmas Trees). Therefore, existing training provisions and operational experience are sufficient to cover the scenarios that could arise during an incident.

The WLCPF considers that in the case of specific skills (e.g. those related to the control of a free-flowing well which cannot be tested) the operator would always call in specialist well control companies.

As part of the OPEP review process, where appropriate, operators have to provide the following information:

- whether a capping device is appropriate for the particular well;
- the name of the company providing the capping device and its storage location; and
- the logistics and time frames involved in transporting the cap from the storage location to a suitable harbour; from harbour to the installation location and deploying the cap onto the well.

Recommendation 2.7.1 and 7.2.2

The research and development relating to subsea application of dispersants should continue, to better understand the potential benefits of this approach for different water-depths and oil release flow-rates, compared to surface spraying or natural dispersion.

The industry should define (through representative bodies such as the Oil Spill Response Forum) optimised dispersant systems and injection processes which give maximum benefits with low toxicity in accelerating dispersal and degradation to minimise the risks of oil reaching the shoreline or damaging bird and sea life.

Response: OGUK, DECC

The OSRF Oil Spill Treatment Options Workgroup is responsible for this work and agrees with this recommendation. The analysis to identify critical gaps in understanding which will influence regulatory decision making on the use of dispersant on a subsea oil release has been completed by CEFAS and has made 13 key recommendations.

Four work packages have been selected and CEFAS has provided two proposals and are undertaking two scoping studies. The work packages are:

- Toxicity and inhibitory effects of dispersants and dispersed oil on oleophilic microbial communities
- The use of dispersants in subsea releases: testing and formulation studies
- Ecological impacts: benthos, fisheries and food chain
- Preparedness: equipment and procedures for environmental monitoring

The final work scopes will be developed after the scoping studies have been completed in December 2012 and are expected to be delivered through a joint industry project commencing mid 2013.

The priority that is being given to this work has also taken into account programmes of work that are being developed by the API and by the OGP in order to ensure that the required understanding is obtained in the most effective manner without unnecessary duplication. The timescales for delivering these programmes (which are technically complex) are not within the Work Group's control. However the Work Group is monitoring these timescales and will review the work and when it will be delivered should the timeframe not meet the UK requirements.

Recommendation 2.7.3

The regulatory bodies should develop subsea application guidelines for dispersant and injection process selection.

Response: DECC

The OSRF Subsea Dispersants Work Group is responsible for this work and agrees with this recommendation. DECC, MMO, Marine Scotland and MCA are members of the group who are currently preparing a programme of work to address this recommendation. This work is linked to the response to 2.7.1 and 2.7.2 and will be done once the relevant work above is completed. The details will be incorporated into the OPEP regulatory guidance.

Recommendation 2.7.4

There is a requirement for speedy clarification of the regulatory position and relevant competent authorities in relation to dispersant use in near-shore and offshore areas.

Response: DECC

DECC agrees with this recommendation and has produced a regulatory position paper that includes draft guidance in relation to the advice and approval processes, in conjunction with the MMO, Marine Scotland and the Northern Ireland Environment Agency. This is available at http://og.decc.gov.uk/en/olgs/cms/environment/leg_guidance/oprc/oprc.aspx

EMERGENCY RESPONSE

Recommendation 3.1.1 and 3.1.2

The point at which command responsibility for the containment/clean-up operation should transfer from operator/contractor to the Secretary of State's Representative (SOSREP)/Government is clarified in the NCP. The roles and responsibilities of the various organisations and personnel involved following such a transition should also be clarified.

The NCP should clearly state who should assume overall command and control of all aspects of oil spill containment and response operations, including safety, regardless of location, should there be conflicting interests between cells.

Recommendation 3.2

The establishment of a communication function with authoritative and unambiguous responsibility to brief media and Government Ministers in the event of an incident of national significance

Recommendation 3.3.1 and 3.3.2

The MCA instigates a training programme for all potential members of the Marine Response Centre (MRC) and DECC maintains its training commitment for the Operations Control Unit (OCU). Particular attention should be paid to the numbers of support staff required to ensure that sufficient resilience is in place to maintain a qualified presence during a protracted incident.

The MCA training programme for local authority personnel should continue, thus ensuring a mechanism is in place to ensure non-statutory authorities have capability to conduct clean-up on the shore.

Response: MCA, DECC

MCA is responsible for the National Contingency Plan (NCP) and is leading the review of the existing NCP, one of the aims of which is to consider the relevant recommendations from the Maitland Review.

A NCP Steering Group has been established to oversee and deliver the review; membership of the Group includes MCA, Department for Transport, DECC, Cabinet Office, the SOSREP, Department for Communities and Local Government, OGUK and the Chamber of Shipping. This work includes considering Maitland Review recommendations 3.1, 3.2 and 3.3, including:

- determining the parameters that trigger changes in command responsibility for containment/clean-up operations from operator/contractor to SOSREP /Government;
- developing communications
 - via a protocol to enable discussion between Heads of Response Centres;
 - to enable briefing and the dissemination of direction and guidance across all response levels, including media briefings;
- establishing a system for testing and training for the NCP including testing the deployment of counter-pollution response and well control equipment with the oil and gas industry.

The NCP Steering Committee has carefully considered recommendation 3.1.2 and evaluated the current system. The Steering Committee believes that the current system already provides the SOSREP with sufficient delegated powers to provide for the necessary level of co-ordination and conflict resolution at sea when managing overall incident response. Changes to the NCP will incorporate this assessment.

The Government recently held a consultation on the draft NCP, which closed on 12 November 2012. The feedback from the consultation has initiated a further evaluation of the format, structure and content of the plan.

Recommendation 3.4.1

The Panel considers that only through more frequent testing of the full range of response cells which would be mobilised in the event of a major incident can the requisite experience be gained by the key individuals involved. It does not consider that the present frequency is sufficient to ensure this, and therefore recommends that:

- **the frequency of the NCP exercises should be increased to at least every three years to ensure a high level of response preparedness by all parties.**
- **a programme of smaller scale exercises should be initiated by the MCA in a similar manner to those conducted by DECC and the OCU, to aid the development of the MRC, to test the communications within the cell and its integration with Shoreline Response Centres, Environment Groups and the Maritime Rescue Co-ordination Centres (MRCC).**

Response: MCA, DECC

As part of the NCP review process the shape, scale and frequency of counter pollution and pollution response exercising is being considered in the round and the broad requirements will be promulgated in the NCP itself. The NCP Steering Group agrees in principle with a call for an increased frequency of medium and major exercises, though budgetary constraints may impact on the scale, and the range of exercises will need to span both offshore and shipping scenarios.

The MCA has already undertaken the first of a series of smaller scale NCP exercises (Exercise BITTERN) designed to test the MRC and its integration with the shore authority (Suffolk County Authorities and Emergency Response Services). A further exercise is

tentatively planned for February/March 2013 in the South West and liaison is ongoing with the appropriate local authorities.

Recommendation 3.4.2

The Panel also suggests that the frequency of the DECC OCU exercises with operators should reflect the risk particular installations pose to the environment.

Response: DECC

DECC and the SOSREP are developing a system that will dovetail DECC's inspection strategy (fixed installations and drilling) into Operations Control Unit (OCU) exercise planning. This will afford the highest priority to operators either undertaking drilling operations in areas where the impact of an oil spill would be significant or producing from high flow wells close to shore and will afford the lowest priority to operators producing from dry gas wells. This process will be introduced for the next round of OCU exercises due to start in 2013.

DECC has advised OGUK and industry that the frequency of SOSREP operator exercises will be increased from every five years to every three years based on the prioritisation above, as recommended by the panel and being considered as part of the NCP review (see response to 3.4.3, below).

These changes will be incorporated into the OPEP regulatory guidance.

Recommendation 3.4.3

The current requirement of Tier 2/3 response contractors is to provide evidence to DECC every five years of their ability to respond and deploy mechanical equipment including aerial surveillance and spraying capability. The Panel recommend the frequency of the response demonstration is increased to align with the NCP exercises.

Response: OGUK, DECC

This recommendation is still under review as part of the NCP review. However, we anticipate that the NCP exercise will be conducted on a three yearly basis in future.

DECC is liaising with industry with regard to producing an agreed programme of industry response and deployment exercises and will consider this recommendation following the completion of the NCP review and its findings on the frequency of future NCP exercises.

LEARNING FROM INCIDENTS AND BEST PRACTICE

Recommendation 4.1

Installation operators and licensees should review their safety and environmental management systems to ensure they take sufficient account of ambiguous or uncertain signals of process abnormality and their scope to have a compounding effect in critical aspects of major hazard risk control. The signals should be treated as indicators that an operation may be unstable or unsafe and prompt the necessary action to ensure that risk is kept under control

Response: OGUK

Industry senior managers have always taken asset integrity and process safety issues seriously and agree with the panel that signals should be treated as indicators that an operation may be unsafe. There are various training programmes, guidance, real life examples and statutory requirements that demonstrate the various ways in which industry ensures that risks are kept under control and best practice is shared, as detailed below.

Training programmes, showcasing and sharing lessons

The 2008/09 one-day training programme on asset integrity and process safety issues was delivered to over 400 senior management teams and major contractors. This training is being updated so that it is available on demand on a permanent basis from spring 2013.

Individual companies showcased their Key Performance Indicators (KPI) arrangements at a 2009 industry seminar and companies have continued to develop their KPI suites. Company 'near miss' reports are reported through management systems as part of their internal KPI process. Where these are considered to have higher potential then information about these incidents and lessons learned are shared more widely, for example, at Step Change meetings and the Health and Safety Forum.

The 2012 Total Elgin incident involving a major loss of well control on a platform, also demonstrates the industry's culture of safety first. Everyone was evacuated from the installation safely and quickly. Total has stated publicly its willingness to share all learning from the incident with the wider industry and has already shared experiences, both in general terms (via the OGUK Board and the Step Change Leadership Team) and more specifically with several other operators and interested stakeholders.

While Total has needed to consider its legal position (in terms of any legal proceedings), the company has been able to share all lessons learned so far; and Total has emphasised that such considerations would not in any way prevent it from sharing immediately any findings which could have a bearing on the safe operation of any installations.

Recent guidance

In June 2012, Step Change in Safety published three levels of guidance on assurance and verification. This is available at:

<http://www.stepchangeinsafety.net/newsevents/news/news.cfm/newsid/60>

Step Change has developed a specific workforce level flyer aimed at all offshore workers to help them understand what major accident hazards are, and recognise what activities should be undertaken to prevent the hazards becoming actual incidents and their role in that process. Over 5500 copies of the guidance have been distributed. A further 3200 will be distributed in Q4 2012

Also, OGUK has recently published guidance on the appropriate and effective use of Operational Risk Assessment which has a prime focus on a managed response to safety critical plant or equipment impairment. OGUK consulted HSE when developing this guidance.

A range of KPIs are monitored at various levels within companies on a routine and regular basis. Examples are available on the OGUK website at

<http://www.oilandgasuk.co.uk/events/archive.cfm>

Recent example of signals being considered

Industry concurs that signals should be treated as indicators that an operation may be unsafe. An example is, the 2011 Maersk Gryphon incident (which involved severe storm conditions) where the Offshore Installation Manager was prepared to take decisive action to close isolation valves before the installation broke away. This prevented potential fires and loss of containment to the environment.

Verification schemes

All installation operators are required by law to have a verification scheme in place to ensure that Safety-Critical Elements (SCE) are in good condition, good repair and will operate on demand and the condition of SCEs are checked by independent competent organisations.

All companies monitor SCE condition, SCE maintenance and SCE maintenance backlog, together with a range of other KPIs (that are signals of potential process abnormality). When any of these systems is operating sub-optimally, a decision to continue operations requires the relevant technical authority to consider how best to manage the risks until the system once again meets its performance standard and this may involve implementation of mitigation measures or a shutdown of the system.

Recommendation 4.2.1

The industry should agree principles to ensure concerns about proprietary information and legal exposure do not prevent rapid sharing amongst operators of lessons which could help mitigate the risk of a serious incident. Regulators should

use existing powers and influence to help ensure learning is shared on a timely basis.

Response: OGUK

Industry agrees that operators should learn from serious incidents and the Step Change member charter states that “We have a moral duty to learn from the past and share our learning” which was reaffirmed on March 28th, 2012 with additional consideration being given to introducing a KPI relating to sharing of lessons learned so that experience can be shared more quickly (e.g. in days-weeks rather than months-years).

At a recent Step Change in Safety Industry Leadership Safety day, over 80% of the audience (i.e. those attending who had the authority to commit resources to this initiative) indicated that they would commit resources, on work that looks at sharing lessons and legal privilege issues, with a view to creating a simple guide. OGUK and Step Change in Safety will now consider where best to house a group to develop this issue within their respective organisations.

Information on hydrocarbon releases and oil spills is already in the public domain and the Step Change Leadership Team (SCLT) has agreed to consider how this information could be used and cross referenced with the information held on the common industry database “Safety Alert and Data Information Exchange” (“SADIE”) to ensure that this information (i.e. held on SADIE) is being used to improve learning and understanding.

The Asset Integrity Steering Group (AISG) is looking at how this can be achieved in practice. An industry graduate has been recruited for a six month period (September 2012 – February 2013) to work in the Step Change team and will work with industry and regulators to support improved learning from the hydrocarbon release database. This work also involves discussions with the Norwegian oil and gas sector so that lessons can be learned and shared for mutual benefit.

Following completion of this work, the intention is to publish a learning pack (via the Step Change in Safety website by mid 2013).

HSE supports these proposed improvements to the way the offshore industry shares lessons, and as a member of Step Change in Safety and also represented on the SCLT and AISG, will continue to influence and encourage industry to improve how it shares lessons and good practice.

Recommendation 4.2.2

The industry, under the auspices of OGUK, should develop and implement proposals to:

- **measure the performance and effectiveness of industry arrangements for the timely (days-weeks rather than months-years) sharing and learning from incidents and near-misses,**
- **demonstrate that best practice is being identified and spread in an effective and transparent way and on an ongoing basis,**

- **routinely review industry performance to identify and resolve any issues that could hinder company to company sharing, learning and best practice implementation,**
- **secure a more strategically co-ordinated approach for the gathering and dissemination of lessons from incidents and standards of good/best practice within the UK regime and internationally.**

Response: OGUK

Industry agrees with this recommendation and the WLCPF has produced a series of guidelines (see response to recommendation 1.1.3) that share UKCS good industry practice relating to the well life cycle.

The first issue guidelines will undergo a review one year following publication to check currency of the publication, thereafter they will be revised every three years. These reviews will ensure that future good practice and learning made by well-operators, well services contractors, drilling contractors, and other stakeholders (including the regulators) can be incorporated into subsequent versions.

The WLCPF will also invite representatives of companies involved in RIDDOR and other well control incidents to contribute their learning so that this can be included in the revised guidelines. The WLCPF will issue interim guidelines if this learning needs to be shared immediately.

Recommendation 4.2.3

Regulators should increase their level of scrutiny and monitoring of how companies learn from incidents and share experience rapidly, and take action to secure improvements, including the use of formal enforcement measures.

Response: HSE, DECC

The current enforcement powers of both DECC and HSE allow each regulator to take enforcement action should an individual operator fail to learn from an incident.

However, DECC and HSE do not have powers to use formal enforcement action to require individual operators and companies to share learning across industry, and have no plans to introduce such further regulatory administrative burdens as both regulators support and encourage the industry to use their existing formal and informal arrangements to share learning across the sector as outlined in the response to recommendations 4.2.1 and 4.2.2.

Additionally, HSE issues Safety Alerts and Safety Notices on its website, and these provide another vehicle for sharing lessons from incidents and from significant “near-misses”. These receive widespread publicity, as evidenced by the coverage of the recent Safety Alert on 2 October 2012 about the fire integrity of offshore Fibre Reinforced Plastic (FRP) gratings, and in addition subscribers to HSE’s Health and Safety Bulletin receive immediate notification when these are issued.

Similarly, DECC issues Environmental Alerts on its website and these provide operators with details of environmental or potential environmental incidents that are appropriate for sharing across industry, focusing on areas of common operation. The substance of the respective alerts are subsequently included in the offshore inspection strategy, thus re-enforcing the alert process during offshore inspections.

Both the HSE and DECC alert systems will be kept under review by the Senior Oversight Group.

Learning and good practice outside individual operators is also covered by recommendation 11 from Exercise Sula. OGUK is responsible for responding to this recommendation. (Further background on Exercise Sula is set out in the response to recommendation 2.6.1.)

Recommendation 4.2.4

HSE should review and strengthen the guidance in its Loss of Containment manual, which emphasises the legal requirements under the Management of Health and Safety at Work Regulations to investigate the causes of accidents/incidents, learn appropriate lessons and implement appropriate remedial action and changes to future practice.

Response: HSE

HSE agrees with this recommendation and the manual was revised in January 2012 in response to the Maitland Report. The revised manual now emphasises the need for high quality incident investigations which identify the underlying causes of releases as well as technical failings and that lessons learnt are communicated and acted upon.

The manual (which is designed to help both operators and regulators reduce the number of hydrocarbon releases by good process integrity management) is available at: <http://www.hse.gov.uk/offshore/loss-of-containment-manual-2012.pdf>.

IMPLEMENTATION ASSURANCE

Recommendation 5.1

OGUK develop within six months (or as soon as possible thereafter) industry guidelines of best practice for implementation assurance, and that these are used by the regulators in their ongoing scrutiny of management control systems for prevention of, or dealing with, major incidents.

Response: OGUK, HSE, DECC

Industry agrees with the independent panel that the verification of safety-critical elements is a key element in assurance and the Step Change AISG working group has developed guidance (with important input from over 50 industry representatives) on how to get best value from the verification process.

The “three tier” guidance consists of:

- Tier 1 (flyers, March 2012) – a 2 sided document for senior management [~900 issued to date];
- Tier 1 (flyers, June 2012) – a 2 sided document for the workforce [~5,800 issued to date]
- Tier 2 – a Step Change 20 page guidance document (June 2012) providing basic outline of Assurance and Verification [~1,200 issued to date]; and
- Tier 3 – a Step Change Assurance and Verification Practitioner’s guide (75 pages; June 2012) providing advice and common practice on Assurance and Verification [download only].

The documents are available at:

<http://www.stepchangeinsafety.net/newsevents/news/news.cfm/newsid/60>

This suite of documents will be subject to an ongoing promotion, raising awareness at a practitioner level and at a workforce level. An appreciation workshop was held in September 2012 to ensure that users had the opportunity to understand the importance of the guidance with the aim of enabling a broad uptake.

Since publication of the documents the workgroup has monitored the uptake through engaging with the Focal Point and Safety Professional networks within Step Change in Safety. This work will continue until mid 2013.

The workgroup will remain in place with a view to developing key metrics to measure transfer of knowledge; this work should be completed in early 2013. Furthermore the workgroup is directly engaged with a wider workforce communications, learning and engagement programme supporting hydrocarbon release prevention to ensure that key learning is transferred.

HSE is also involved in ensuring that operators meet the requirements to have adequate arrangements for audit and reports for installation safety cases. HSE inspectors test the veracity and effectiveness of the stated arrangements as part of their programme of

planned inspections, both onshore and offshore. This tests whether company audit plans are actually followed, examines the scope, breadth and depth is appropriate and whether remedial action has been taken and close out.

The work undertaken in response to 7.1 involves the publication of a practical guide and a survey toolkit for measuring how embedded the safety culture is in a company, installation or organisation and industry believes that this will also contribute to meeting this recommendation. The Step Change Leadership Team also intend that this should become a KPI for the sector.

COMPETENCY AND TRAINING OF WORKFORCE

Recommendation 6.1.1

The regulators work with the industry (through OGUK) to develop clear competency guidelines for different offshore job functions and develop appropriate audit processes to ensure their effective implementation.

Response: OGUK, IADC

Industry and regulators accept this recommendation and the WLCPF (with input from HSE and DECC) has produced guidelines on the competency of wells personnel which help well-operators understand what their management systems need to achieve to assure competency in well operations. A series of examples of specific job competency profiles for key positions (both offshore and onshore) is included. These guidelines are available at: <http://www.oilandgasuk.co.uk/publications/>

However, the WLCPF consider that it is the responsibility of duty holders (e.g. well-operators and drilling contractors) to develop their own detailed competency profiles. Therefore, competency profiles should be developed by the duty holder to reflect their specific structure, culture and the operations they carry out.

The International Association of Drilling Contractor's North Sea Chapter (IADC NSC) has also provided a separate response document to the recommendations on competency and training of the workforce. The IADC NSC response to these recommendations is at Annex 1.

It is also worth noting that the global IADC organisation's Accreditation and Certification Department is currently working on a project to update and expand on their existing Knowledge, Skills and Abilities (KSA) (first completed in 2000 and still available on the IADC website). The first phase of this comprehensive expansion involves reviewing and writing competencies, knowledge and skills for all rig positions with well control responsibilities. Later phases will address other rig and ancillary service positions. Further deliverables from this project will be assessment methodologies and performance measures. The revised KSAs may also be used to modify existing IADC accreditation programmes (e.g. WellCAP, see response to 6.1.4) or to form the foundation for establishing criteria for new accreditation programmes.

In addition, the global IADC organisation is also engaged with OGP's Wells Expert Committee (WEC). The Human Factors, Training and Competency Task force of the WEC recently published its Phase 1 set of recommendations for technical enhancements to well control training, examination and certification. A contract has also been let for a Phase 2 project which will strive to develop a curriculum for rig-based crew resource management focusing on situational awareness and team training with regard to well control.

Recommendation 6.1.2

Operators of drilling installations ensure that emergency exercises cover realistic worst case major accident hazard scenarios, including events in which control of a well is lost and a blowout develops.

Response: OGUK, IADC

Industry agrees with the independent panel that emergency exercises should cover realistic worst case scenarios and installations (including platforms, mobile drilling units and other installations) on the UKCS carry out a range of drills and exercises.

Well control drills are carried out on a daily basis on the drill floor, and exercises are carried out regularly and run from the installation's Emergency Control Room (ECR). These exercises cover a range of scenarios, for example: boat collision; helicopter ditching; blow-outs; man overboard; abandon rig; shallow gas; well control; H2S release; skid ON/OFF; fire and various fire team exercises; rescue (confined space); rescue (at height); spill response (as per OPEP requirements).

The drills relating to well control are designed to focus on two distinct areas:

- to gauge the readiness and response at drill floor level between the driller and his crew and the mudloggers; and
- to look at an installation level.

These are sometimes combined specifically around well control in the (usually weekly) drills.

These drills and exercises are run throughout the installation's life cycle. When an installation (e.g. semi-submersible or jack-up rig) is contracted to an operator, one of the first tasks is to run a drill. The results (including communications) are carefully reviewed so that procedures can be improved and changes implemented as required.

The efficacy of these exercises is measured against standards as defined in the operator specific safety cases. Exercise performance can also be subject to third party review and feedback and this independent overview highlights good performance in addition to providing recommendations which aid the ongoing development of safety performance within an organisation.

It is also worth noting that Regulation 18 of the Offshore Installations (Prevention of Fire and Explosion, and Emergency Response) Regulations 1995 (PFEER) already requires duty holders to provide adequate instruction and training and the safety case will describe the worst case major accident hazards. The WLCPF and IADC NSC has full confidence that the emergency exercises currently carried out on UKCS installations are effective and fit for purpose

Recommendation 6.1.3

The WLCPF undertakes research to learn from practices used in other high hazard industries for training and exercising crews for emergency scenarios and applies any resultant learning in standards and guidelines for UKCS best training practice.

Response: OGUK, IADC

The WLCPF agrees with this recommendation and is currently working with Step Change in Safety to develop guidelines on human factors impacting on well integrity throughout the well life cycle.

The guidelines will include case studies from the UK upstream oil and gas industry related to well integrity. The case studies will cover the entire life cycle of the well, from first design through construction to final abandonment, with both onshore and offshore stages being considered. The human factors in each oil and gas case study will be compared to a case study from another industry (which may be aviation, nuclear or medicine). The document will show what procedures and training have been developed by other industries in response to the human factor. The WLCPF intends to publish this document in early 2013.

The published document will build upon existing guidance: Human Factors – How to take the first steps (this is available at:

<http://www.stepchangeinsafety.net/about/workgroups/FirstSteps.cfm>) and use the same same concepts and language so that the two publications are complementary.

Industry also points out that OGP has its own equivalent to the WLCPF – the Wells Expert Committee (WEC). WEC have a number of task forces comprising: BOP reliability and technology; database for incidents; training, competence and human factors; and international standards. The training, competence and human factors taskforce is carrying out research on how Crew Resource Management (CRM) can be applied in the oil and gas industry. Many companies in the industry are already applying CRM.

Recommendation 6.1.4

The WLCPF examines, and periodically reviews, standards of training and certification for personnel involved in drilling operations. The standards should be revised as necessary to ensure a common approach in the UK basin and should apply to all personnel involved in a drilling operation, including those provided by third-party companies.

Response: OGUK, IADC

Although the well control certificate syllabus is not an area of focus for the WLCPF, the WLCPF has carefully considered how it can respond to this recommendation. The OGP's competence and training taskforce published its recommendations for well control training, examination and certification in October 2012 and OGP proposes a single body for UKCS well control training. The International Well Control Forum (IWCF) and the provider of

WellCAP (IADC) have created a joint working group to assess how they can meet this proposal.

The OGP recommendations introduce role-based well control training levels and propose additional training requirements for existing well control syllabuses. The IADC and IWCF are the main accrediting bodies for the well control certificate, and representatives from both associations are involved in the OGP WEC.

The IADC has recently reviewed all aspects of the curricula for the WellCAP® program to ensure that the curricula is focussed on learning retention and critical skills. The IADC Well Control Committee approved the proposed revisions to the Drilling Supervisory Level curriculum in June 2012.

The curriculum is divided into three course levels (introductory, fundamental and supervisory) and sets out the knowledge and well control skills that are required for drilling operations (including well testing and initial completion).

The IADC are now in the process of updating the toolkit and will then send the updated version to all currently accredited WellCAP training providers. The approved curriculum and curriculum cross-reference tool will then be available on the IADC/Accreditation/WellCAP website.

WORKFORCE ENGAGEMENT

Recommendation 7.1

Individual operators and industry organisations such as OGUK and the International Association of Drilling Contractors (IADC) continue to develop management systems and best practices for rig crew engagement which drive a continuously improving culture of safety and environmental protection within their workforce.

Response: OGUK

Industry agrees with this recommendation and the Step Change Workforce Engagement Workgroup has developed a workforce engagement toolkit to assist the industry in driving continuous improvement in workforce engagement.

The practical guide, survey and toolkit were published in September 2012 and are available at:

<http://www.stepchangeinsafety.net/about/workgroups/WorkforceEngagementToolkit.cfm>

The toolkit includes a workforce engagement survey which allows installations to measure their level of workforce engagement against a 5 level workforce engagement maturity model and member companies are now building the survey into their existing plans.

The Step Change Leadership Team intend to commend the Level of Workforce Engagement in Safety to OGUK as the industry's fourth KPI, highlighting the importance of this initiative.

Recommendation 7.2.1

Operating companies take steps to ensure that safety representatives:

- **remain freely and fairly elected and candidates are committed and capable to undertake the requirements of the role;**
- **are provided with appropriate access to training over and above the statutory minimum requirements to develop competence in the identification of major risk hazards and communication skills, in addition to occupational safety matters;**
- **are appropriately involved in the preparation and maintenance of safety cases;**
- **are encouraged to exercise their powers to report process safety concerns, inspect installations and investigate incidents, as part of their normal duties and without any fear of recrimination.**

Response: OGUK

The industry agrees with the panel that safety representatives should be freely and fairly elected and acknowledges the important role that they play in the industry. Industry

continues to encourage safety representatives to report safety concerns and undertake necessary investigations without fear of recrimination.

Industry has undertaken specific work on workforce engagement independently of the Maitland Review recommendations as well as in response to specific recommendations and details on this other work are below.

Training standards

Currently, offshore Elected Safety Representatives (ESRs) undertake a five-day basic training course in addition to their basic health and safety awareness training (Minimum Industry Safety Training - MIST). In January 2012 OGUK commissioned OPITO to develop additional developmental training for elected safety representatives. The modules contain information on:

1. understanding and identifying major accident hazards;
2. understanding risk analysis on preparing/revising safety cases;
3. investigating incidents and applying root cause analysis; and
4. conducting independent inspections and audits and presenting findings and concerns effectively.

This standard, developed through an industry working group made up of predominantly offshore safety representatives is to be piloted through a network of OPITO's approved training. The four pilot courses will run between December 2012 and February 2013. The training provider is fielding a strong team for the project, with two professional trainers per course, and their aim is that at least 70% of each module will be activity-based rather than traditional teaching. The first course to be piloted is Module 4 ("Conduct Independent Inspections and Audits and Present Findings and Concerns Effectively") which will run on Monday 17th and Tuesday 18th December 2012.

The additional training for safety representatives built on the foundations of the existing work of various companies to encourage greater workforce involvement and participation. Other workforce engagement initiatives in the industry include:

- maintenance and integrity workshops/lunch and learn sessions aimed at the wider workforce;
- involvement and attendance of workforce representatives at quarterly management meetings;
- middle management/supervisor asset integrity management training;
- corrosion management awareness training;
- workforce participation in management installation visits; and
- facilitated offsite workshops for the workforce to understand and address barriers to safe working practices.

Other involvement by safety representatives

Industry has also ensured that safety representatives are involved in other ways. In 2011 the Step Change Leadership Team (SCLT) decided that there should also be direct ESR representation on the leadership team in addition to official union (UNITE and OILC branch of the RMT) representation. There is currently a pool of twelve volunteer ESRs (a mix of union and non-union) and three representatives usually attend SCLT meetings. ESRs are also being integrated into the steering and work groups.

Industry believes that this demonstrates the value of involving ESRs. The group is fully supported by their respective companies and the Step Change support team. At the time of publication of this response document (December 2012) there have been no issues of concern raised.

Step Change in Safety also has four workforce networks:

- safety representatives;
- site leaders;
- safety professionals and advisers; and
- focal points.

Network meetings are held throughout the year to provide opportunities to share good practice, experiences, and lessons from incidents and to critically engage with Step Change on their key workstreams.

The Step Change Assurance and Verification Practitioner's guide (see response to recommendation 5) includes information specifically targeted at the workforce and safety representatives. Industry believes that this should help their understanding of the importance of safety critical elements and their relationship with major hazards.

Recommendation 7.2.2

The Panel also recommends that operating companies expand the scope of existing, non-statutory workforce involvement in environmental roles to include offshore environmental protection issues, particularly the development, maintenance and implementation of OPEPs.

Response: OGUK

Operators have developed different approaches to this element of workforce engagement as there are no statutory requirements for environmental representatives on offshore installations. For example, some have initiated 'Green Teams', some have taken the Environmental Representatives ("EReps") approach. In the latter case, operators have the option of utilising the Basic Environmental Skills Training (BEST) course, offered commercially by Safety Hub. More than 300 personnel have attended this course.

In October 2012, OGUK initiated a programme of interviews with operators which will, amongst other issues, examine how they are engaging the offshore workforce on environmental matters. The outcomes of the interviews (expected in early 2013) will be used to assess the coverage and success of operator initiatives. The OGUK Environmental Forum will then decide on the need for formal guidelines to operators on workforce engagement.

LIABILITY AND INSURANCE ISSUES

Recommendations 8.1 and 8.2.1

The Panel strongly recommends that expert, independent third party verification by an insurance expert of both the estimated costs and the ability to pay, including suitability of the insurance cover to meet them, should be submitted to DECC prior to consent being given to drill a well.

The Indemnity and Insurance Review Group (IIRG) should conclude their findings with urgency and that DECC should ensure that these inform new procedures and guidelines, which should also include a requirement for independent verification that insurance/indemnity cover is sufficient to meet third party costs.

Response: DECC, OGUK

DECC and OGUK have worked together in order to consider and respond to this recommendation. This work included looking at whether independent third party verification by an insurance expert should be submitted to DECC prior to consent being given to drill a well.

As part of the work undertaken to respond to this recommendation, OGUK and The Offshore Pollution Liability Association Ltd (OPOL) completed an oil spill cost study to assess the appropriateness of the OPOL limit. The report summarises the outcome of oil spill modelling studies on well blowout scenarios for four representative locations around the UK for a release duration of 30 days based on the use of a capping device.

The study concluded that:

- the \$250 million per incident OPOL limit should remain at that level; and
- the costs for higher production wells in the West of Shetland may exceed the current limit and where this is the case, the operator and DECC can consider whether additional financial responsibility above the OPOL limit is necessary.

This is the approach taken in the Financial Responsibility Guidelines (FRG) that have been developed (further information below).

It should be noted that companies also carry insurance for their own and other liabilities beyond the OPOL limit; usually covering loss or damage to property and operators' extra expenses, which include controlling a well, re-drilling, and further pollution liability cover.

The report was then passed to DECC for review. DECC commissioned Marine Scotland to undertake the review and the report's conclusions were broadly accepted. The report is available on the OGUK website at:

http://www.oilandgasuk.co.uk/knowledgecentre/Key_issues.cfm

A further review – on the available models and their capabilities – is currently being undertaken (further details of this modelling work are set out in the response to recommendation 2.5.2) and once this has been completed, further modelling work will be

carried out to ensure that the potential costs and liabilities arising from an incident are well understood and the figures remain up to date. The study was used to inform the work on financial responsibilities detailed below.

Subsequent to this study and review:

- DECC published a Guidance Note to UK Offshore Oil and Gas Operators on the Demonstration of Financial Responsibility before consent may be granted for Exploration and Appraisal Wells on the UKCS (“DECC FR Guidance”) for licensees. The Guidance Note is available at: http://og.decc.gov.uk/en/olgs/cms/environment/leg_guidance/leg_guidance.aspx. This sets out the process for assuring DECC of financial responsibility and the ability of licensees to pay for an incident which occurs during a specific operation. The DECC FR Guidance will come into force on 1 January 2013.
- OGUK (in consultation with DECC) has prepared a document *Guidelines to assist licensees in demonstrating Financial Responsibility to DECC for the consent of Exploration and Appraisal Wells in the UKCS* (“OGUK FR Guidelines”) to support the requirements outlined by DECC and to give a practical method by which licensees may provide assurance to DECC that licensees have the financial capability to respond to an incident, including first and third party costs. The OGUK FR Guidelines were published in December 2012 and are available at: <http://www.oilandgasuk.co.uk/publications/viewpub.cfm?frmPubID=463>. To ensure that the guidelines remain up-to-date, they will be reviewed after one year of use, and then every three years to ensure that they continue to take account of latest practice.

As part of the work to develop the OGUK document and respond to this recommendation, careful consideration was given to whether third party verification was appropriate. Industry, insurance brokers and companies who could carry out the verification process commented on the draft document, and OGUK, in consultation with DECC, decided not to include third party verification for the following reasons:

- Several of the audit/accountancy firms who were approached as possible verifiers outlined the scope of the checks which they would or would not be able to carry out. It is clear that there are matters they are not qualified to verify such as: considering the estimate of the costs of drilling a relief well or looking at insurance policies in detail. It is, therefore, not possible to find any single organisation which would have the expertise to verify all of the various issues raised by the provision of FR. Also verifiers would be highly unlikely to provide any assurance which would expose them to a liability in the event of any failure to comply. The result of this is that third-party verification would not add any substantive value to the documentation provided in the operator’s certificate to DECC and no third party company would be able to declare that FR is “sufficient” for any eventuality.
- Taking this into account, many other companies questioned the cost/benefit of the third party verification process, as compared with a statement to DECC from the operator on behalf of the Joint Venture. Concerns were raised about creating an industry to carry out checks which could be time consuming and costly but add little value.
- It was therefore agreed with DECC that a certified copy of a resolution of the Board of the operator company, and where applicable the Board of the relevant joint venture partner(s), would be submitted to DECC, along with the appropriate certificates from the OGUK FR Guidelines, to verify that the processes outlined in the DECC FR

Guidance and the OGUK FR Guidelines have been properly considered and complied with. This ensures that:

- financial responsibility issues are considered at the very highest level of each company; and
- Senior members of the Board are given the authority to:
 - sign the certificates on behalf of the Board, and confirms those signatories have appropriate responsibilities within the company for the operations to which the certificates relate.

As such, DECC and industry believe that the new guidelines set out what licensees need to undertake, and how it can be achieved, to give the relevant liability assurances.

Recommendation 8.2.2

The Panel also recommends that third party costs for high-risk deepwater wells should be revised upwards. Despite the availability of caps, the costs should cover a 90 day release, which would reflect the typical time required to drill a relief well and so plug the original well at source.

Response: DECC, OGUK

OGUK and DECC have considered this recommendation and believe that costs covering up to 90 day release are not appropriate.

Companies operating in the UK are responsible for environmental or other material damage resulting from operational failures on their installations; and there is no legislative cap on the extent of a company's responsibility for clean-up and compensation.

The UK oil and gas industry physically demonstrated that it can deploy a cap within 30 days, in the EERD exercise carried out in July 2011. This took place in 300 metres water depth West of Shetland. (This exercise is covered in more detail in the response to Recommendation 2.6.) In addition, the WLCPF well capping workgroup are developing detailed procedures and methodology on behalf of industry which will further enhance the UK industry's ability to cap a well within 30 days.

The methodology developed in the OGUK FR Guidelines is based on a conservative estimate of costs for a worst case scenario in the OGUK/OPOL modelling study. The method within the Guidelines takes a cautious approach, with wide bands for financial responsibility levels. Therefore, although they have been based on a 30 day case, the calculations may give a figure which might be suitable for more than 30 days.

The industry believes that it would be disproportionate to base estimates of third party costs on the time required to drill a relief well. DECC has been party to all the discussions relating to third-party clean up and compensation costs and accepts the rationale offered by industry. DECC will review all submissions from operators and, on a case by case basis, may require different or further information relating to evidence of financial responsibility as referenced in the DECC FR Guidance.

The new OGUK FR Guidelines formalise the financial requirements for exploration and appraisal wells. Ultimately an operator is subject to unlimited liability with regard to pollution damage.

Recommendation 8.3

DECC should discuss the issue of damage to the ecosystem/biodiversity with industry (OGUK) with a view to introducing provision to cover this aspect. The Panel recognises that quantifying these costs can be challenging and suggest that the provision might take the form of a charge in the event of an incident (essentially a fine or payment of ‘damages’) to provide a further incentive to avoid any release of oil during Exploration and Production operations. Such damages should be used to fund long-term remedial work required to restore the area to its original environmental condition.

Response: OGUK, DECC

DECC and OGUK consider that the elements of this recommendation are already in place or can be achieved through application of the Environmental Liability Directive (ELD) to the whole of the marine environment. This is currently proposed for the offshore sector as part of the proposed EU offshore safety directive, and if it is not achieved via that route then it will be addressed during the forthcoming formal review of ELD scheduled for 2014.

The ELD applies the polluter pays principle to the ‘unowned’ environment which includes ‘ecosystems and biodiversity’. It does this by requiring the polluter to pay for remedial actions to restore the environment to an agreed baseline condition following environmental damage above predefined thresholds. Specifically, the Directive does not impose penalties or give individuals a right to compensation.

The Directive provides for three types of remediation to be applied:

- **primary remediation** for work to restore the affected site e.g. removing pollutants at the site of release and reintroduction of affected species;
- **complementary remediation** for additional work, possibly at another site, if the original site cannot be fully restored e.g. purchase or set aside of a site of similar ecological value;
- **compensatory remediation** for offsetting the loss of natural resources from the time the environmental damage occurred until the site is restored e.g. loss of recreational access.

Applying the Directive to the whole of the marine environment would satisfy the recommendation. However, whilst there is a growing body of knowledge and methods to apply these principles to onshore or coastal incidents, application to the offshore marine environment poses challenges on:

- **Adverse Change.** The remediation requirements are triggered by a measurable adverse change. For waters subject to the Water Framework Directive this change must be sufficient to lower the status of the water body and the parameters for this are well defined, as is the definition of the water body (i.e. the scale over which the adverse change is measured). For marine waters there are currently no defined

parameters against which to assess adverse change. The Marine Strategy Framework Directive (MSFD) and its descriptors and targets for defining 'Good Environmental Status' could offer such parameters but, according to the MSFD, are to be applied regionally. This may invalidate the approach for a spatially constrained event.

- **The Lack of Baseline Data.** The Directive requires remediation to the baseline condition that existed prior to damage being inflicted. This data does not exist for much of the offshore marine environment. Scientific opinion suggests that, in the more dynamic parts of the marine environment, the concept of a baseline is invalid. There is also the opinion that remediation to a previous condition is not possible and should not be a goal.
- **Natural Remediation.** In many oil spill situations, particularly when oil has reached the seabed, natural remediation is the best environmental option. Annexe II to the Directive, however, states that a primary remedial option that does not restore fully to baseline conditions, or does so slowly, can only be selected if complementary or compensatory measures are increased. It is difficult to envisage what such measures might be in the marine environment. For environmental damage to land, Annexe II states 'A natural recovery option, that is to say an option in which no direct human intervention in the recovery process would be taken, shall be considered.' DECC believes that a similar statement should be made for the marine environment.
- **The Valuation of 'goods and services'.** The Directive essentially requires the valuation of ecosystem goods and services, particularly those that are 'non market costs' in order to establish the value of interim losses that will require compensatory remediation. These valuation techniques for the offshore marine environment are not easy to apply with the current state of knowledge.

DECC has raised concerns with the European Commission in relation to application of the ELD to the offshore sector as part of the proposed EU offshore safety legislation. It is essential that any application of the ELD to the whole of the marine environment is undertaken in a scientifically robust manner and the impact on those industries that it might affect is properly assessed.

The Recommendation recognises that quantifying costs could be challenging, and suggests that they could be replaced by a simple fine or charge to be used for remediation. However, DECC believes that this option already exists in current legislation which, for certain offences, provides for an unlimited fine on conviction on indictment. There is no limit to the amount of damages in tort at common law. As such, DECC believes that further sanctions are unnecessary.

Recommendation 8.4

Liability and insurance issues should be taken forward as a matter of urgency by OGUK and a clear claims and compensation procedure adopted by all operators in the UKCS, taking into account the evaluation that is to be carried out of the Gulf Coast Claims Facility once all claims in relation to Macondo have been paid out.

Response: OGUK

It is important to note that the legal regimes in the US, the UK and elsewhere in the EU are very different and the types of compensation payable may vary. However, OGUK

agree that a procedure for claims and compensation would be of benefit and will produce industry good practice guidelines – OGUK expect work to begin on this in 2013. It is also relevant that robust financial provision for legal liabilities in the UK is addressed by DECC and operators in parallel with the OPEP approval system.

REGULATOR ISSUES

Recommendation 9.1

The regulatory bodies or, where appropriate, their parent Departments, develop strategies to ensure that each authority is in a position to recruit and retain inspectors and managers of the right number, quality, experience and range of specialities. The strategies should also consider issues around age profile plans for career progression through both technical and managerial routes and commit to an ongoing programme to market-test remuneration rates amongst relevant, specialist staff.

Response: DECC, HSE

Both DECC and HSE agree that strategies should be developed to ensure that both regulators can recruit and retain inspectors and managers of the required quality, experience and specialities, especially given that both regulators have experienced recruitment and retention problems with offshore specialist staff.

In 2011, HSE commissioned independent research looking at relevant pay and benefit market comparison for offshore specialist inspectors. This research formed the basis for a business case to align the pay ranges of a number of defined critical offshore specialists closer to the external industry market. Arrangements are now in place to implement the new pay ranges and HSE has arrangements in place through its Human Resource Policies for age profile plans, and career progression.

DECC similarly commissioned independent research to compare DECC environmental specialists' salaries with relevant specialist posts in industry. DECC has a project underway aimed at resolving current retention and recruitment issues, in the short and long-term.

Both DECC and HSE hope that these measures will increase their ability to recruit and retain the right number of specialist staff and that working for the regulators is seen as an attractive career option for those with the relevant experience and qualifications.

Recommendations 9.2.1, 9.2.2 and 9.2.3

More formal mechanisms should be established to ensure seamless, strategic and co-ordinated working between the regulatory authorities.

The Panel's preferred option is the creation of a Joint "Competent Authority" (JCA), similar to that currently operating on the mainland.

As a less satisfactory, but easier to implement, alternative, the new Memorandum of Understanding (MoU) recently agreed between HSE and DECC should be developed further in order to capture the key benefits of the "Competent Authority" model.

Response: DECC, HSE

DECC and HSE have considered the panel's preferred option of a joint "Competent Authority". This option is being addressed at EU level. The current text of the proposed EU offshore safety directive proposes the creation by Member States of Competent Authorities (CAs) for offshore activities, similar to the panel's preferred option. This draft directive sets out detailed requirements for Member States' CAs, but those details are still subject to negotiations. Until those are complete DECC and HSE believe that it will not be productive to work towards implementing this recommendation further.

In response to the panel's alternative approach to develop the existing MoU, DECC and HSE can confirm that a new and enhanced MoU has been agreed and that this is currently delivering closer and improved co-ordinated working between the two regulators.

A HSE/DECC MoU Joint Co-ordinating Group (JCG) has been set up and currently meets every six weeks. An operational workgroup has developed a number of specific arrangements for ensuring co-ordinated and joint actions, information sharing and has adopted a shared Priority Intervention Tool for targeting interventions and further assessing risk.

Recommendation 9.2.4

The MoU should form a binding agreement between HSE and DECC to operate in an integrated and co-ordinated manner and should provide for:

- **a 'Joint Regulatory Steering Board' comprising suitably senior officials from each regulator to meet at least annually to monitor and co-ordinate the operation of regulatory activity and report annually on actions taken to ensure continuous improvement of the regime,**
- **specific mechanisms for ensuring co-ordinated and joint action and for sharing experience and best practice,**
- **an assumption in favour of joint inspection wherever practical,**
- **agreement on a shared risk-assessment tool to aid prioritisation of joint activity.**

Response: DECC, HSE

DECC, HSE and MCA will establish a senior oversight group, to provide assurance that the offshore regulatory regime remains fit for purpose and, where appropriate to agree recommendations for further change as they arise.

The Group will also ensure that any outstanding Maitland Review recommendations are fully implemented by regulators and industry.

A drilling strategy for the regulation of MODU Drilling Operations outlining how HSE and DECC will work in a collaborative and supportive way to enable each regulator to deploy resources in an efficient manner has been agreed and the JCG will monitor and review the implementation of the strategy, share experiences and address any implementation matters arising or lessons learned on a quarterly basis.

Recommendation 9.2.5

A senior representative of the MCA should participate in the meetings of the Steering Board, and other existing Memoranda of Understanding between the three organisations should be reviewed and, where appropriate, strengthened.

Response: DECC, HSE

DECC, HSE and the MCA agree with the recommendation that the MCA should participate in the meetings of the Steering Board and can confirm that MCA are invited to attend the JCG.

THE EUROPEAN DIMENSION

Independent Panel comment

Particular care should be taken to ensure that any future changes at an EU level neither dilute the fundamental strengths of the UK system or undermine the authority of the relevant regulatory bodies within it nor, through the mechanism and process of their introduction, frustrate or delay the potential improvements highlighted elsewhere in this report.

Response

DECC and HSE agree with the Panel's point and can confirm that this is the agreed UK negotiating stance.

TECHNOLOGY DEVELOPMENT

Recommendation 11.1.1

The industry, through OGUK, IADC and other industry organisations, should work with the operating and service companies to:

- **identify potential technology solutions to lower the risks of deepwater drilling, to monitor compliance, to improve and aid implementation of best drilling practice, oil spill remediation and clean-up, with particular emphasis on the conditions and challenges of operating in the North Sea;**
- **invest in R&D and bring new devices, tools and methodologies to market rapidly as a key part of future risk management of these operations.**

Response: OGUK

The UK upstream oil and gas industry is always receptive to new technology, as is shown by the continued high interest in the technology conferences and exhibitions, and the number of joint industry projects in progress. In terms of well control and associated equipment (e.g. BOPs) the research and development is usually carried out by the equipment manufacturers. The development of new technology is subject to the usual commercial drivers (i.e. where there is a market, R&D will be carried out to provide the solution). The WLCPF's focus on improving understanding of well control issues within industry can emphasise the need for appropriate well control equipment.

While research and development expertise is not a focus of OGUK, it does interface through its membership with organisations involved in this area. For example, the OGP's well expert committee are currently engaged in a study in association with the IADC to look at BOP reliability. This study aims to determine a methodology for calculating the reliability of any BOP system as well as identifying any technology needs. Other such organisations include the Society of Petroleum Engineers (SPE), the Intervention and Coiled Tubing Association (ICoTA), the American Petroleum Institute (API), the European Drilling Engineering Association (DEA(e)), the Industry Technology Facilitator (ITF) and the International Association of Drilling Contractors (IADC).

Recommendations 11.1.2, 11.1.3 and 11.1.4

The Regulators should take a pro-active approach to new technology to guide and encourage the industry to develop and implement new technology addressing offshore drilling safety and environmental concerns. Examples of initiatives they might take are:

- **The JCA or Joint Steering Board to have a panel of technical expert(s) to identify and monitor new technology developments with significant offshore safety and environmental benefits.**
- **The Regulators to pro-actively encourage industry take-up, deployment and incorporation into guidelines and standards where appropriate.**

The same group should also be charged with identifying key offshore safety and environmental technology gaps and through the regulators encourage the industry to address these.

The Government should make this a priority area for joint industry-government funding of projects through e.g. the Energy Technologies Institute (ETI), the Technology Strategy Board (TSB).

Response: DECC, HSE

DECC and HSE agree with the panel that industry should be encouraged to develop and implement new technology to address offshore safety and environmental concerns.

DECC already has robust procedures in place to: enforce all existing regulation; encourage use of Best Available Technology (BAT) and Best Environmental Practice (BEP) and maintains regular dialogue with operators to proactively encourage the take up and deployment of new standards where appropriate.

The existing ITF, a not-for-profit organisation owned by 29 major global operators and service companies already contains experienced technical specialists on offshore safety and environment. DECC is an ITF Board member and believes that this is the most appropriate forum for these discussions. DECC will continue to use its membership of the ITF Board to influence discussions and implementation of technical innovations.

DECC has also, through PILOT⁷, established an industry led workgroup to consider whether the UKCS could benefit from an overarching Technology Strategy given its current stage of maturity. An industry wide engagement event was held in early November 2012 to collect information to develop recommendations for PILOT. Recommendations have been presented to PILOT and are currently being considered.

A recent DECC and TSB report examined the case for continued public funding of technology development for the oil and gas sector. Following this report the TSB allocated £1 million to fund 14 collaborative feasibility studies on a range of early concept oil and gas technologies. (Since 2007, the TSB have committed £411.5 million for the oil and gas sector, supporting over 40 projects and they have identified oil and gas as a potential investment area in their 2011-2014 energy strategy.)

The Scottish Government has also just launched an oil and gas technology funding scheme which will supplement TSB funding schemes for Scottish based businesses.

HSE's limited science budget (circa £29 million for 2012/13): supports delivery of the HSE Strategy and associated delivery targets; supports frontline regulatory functions (e.g. incident investigation); and looks ahead to identify future challenges across all industries. HSE meets with the offshore industry annually to discuss its proposals for research (both intra and extra mural) relevant to offshore, but the scope for significant changes are

⁷ The co-operative partnership between the UK oil and gas industry and government to deliver quicker, smarter and sustainable energy solutions to secure the long-term future of the UKCS and ensure full economic recovery of the UK's hydrocarbon resources.

limited. HSE's strategy towards funding research is contained in its Science Plan which is available at: <http://www.hse.gov.uk/research/content/science-plan-2012-15.pdf>

IADC North Sea Chapter Maitland Report Response**Nov 2012***Background*

The International Association of Drilling Contractors (IADC) is a global organisation representing the oil and gas drilling industry. Its mission is to improve industry health, safety and environmental practices; advance drilling and completion technology; and champion responsible standards, practices, legislation and regulations that provide for safe, efficient and environmentally sound drilling operations worldwide. Through conferences, training seminars and publications, IADC continually seeks to foster education and communication within the upstream petroleum industry and is a leader in developing standards for industry training, including its Well Control program (WellCAP)[®] and rig-floor orientation program, RIG PASS[®].

The IADC North Sea Chapter (IADC NSC) represents IADC-member companies operating in the UKCS area. Regular meetings are held to address issues of importance to member companies with task groups and working parties being set up to deal with issues and provide a 'voice' for the drilling industry in key industry matters. The IADC NSC welcomes any initiatives which seek to improve safety and in association with IADC would make the following comments with specific reference to Chapter 6 of the Maitland Report (Dec 2011).

CHAPTER 6 – COMPETENCY AND TRAINING OF WORKFORCE

Recommendation 6.1 In regard to training and competency of personnel involved in drilling operations, the Review Panel recommends that:

- **The regulators work with the industry (through OGUK) to develop clear competency guidelines for different offshore job functions and develop appropriate audit processes to ensure their effective implementation.**

The IADC NSC formed a competency workgroup in January 2011 in response to the OSPRAG recommendations and meets to review current practices and provide opportunities for shared learning. This group is not tasked with preparing competency guidelines as the IADC NSC considers that it is the responsibility of each member company to have their own Competency Management Systems and that these should be tailored to each company's specific organisation structure, culture and operational requirements.

The global IADC organisation's Accreditation and Certification Department is currently working on a project to update and expand on their existing Knowledge, Skills and Abilities (KSA), first completed in 2000 and still available on the IADC web site. The first phase of this comprehensive expansion involves reviewing and writing competencies, knowledge and skills for all rig positions with well control responsibilities. Later phases will address other rig and ancillary service positions. Further deliverables from this project will be

assessment methodologies and performance measures. The revised KSAs may also be used to modify existing IADC accreditation programmes (e.g., WellCAP) or to form the foundation for establishing criteria for new accreditation programmes.

In addition, the global IADC organisation is also engaged with the International Association of Oil and Gas Producers (OGP) Wells Expert Committee. The Human Factors, Training & Competency Task force of the WEC has recently published its Phase 1 set of recommendations for technical enhancements to well control training. A contract has also been let for a Phase 2 project which will strive to develop a curriculum for rig-based crew resource management focusing on situational awareness and team training with regard to well control.

- **Operators of drilling installations ensure that emergency exercises cover realistic worst case major accident hazard scenarios, including events in which control of a well is lost and a blowout develops.**

There is a requirement for all major accident hazard scenarios and exercises to be detailed in all Safety Cases and a wide range of emergency exercises are undertaken regularly. Operators of drilling installations have established a procedural driven robust schedule of emergency exercises appropriate to their areas of operation. The exercises cover a range of scenarios incorporating major accident hazard events including well control incidents. Additionally, environmental related interfaces are routinely incorporated into exercise scenarios to ensure all aspects of potential incidents are tested. To ensure continual improvement, outcomes from such exercises are routinely discussed, recorded and action items allocated and managed appropriately through to closure. Exercise arrangements, including competency, is subject to routine auditing to ensure compliance.

Shore-based Emergency Response Teams are also subject to emergency exercise drills where arrangements with Client(s), role played regulatory bodies, medical service providers (including hospitals), helicopter operators, etc detailed within the specific interface/bridging document are routinely tested to ensure that procedures are robust, primacy protocols are effective and communication channels are efficient. Such exercises are generally facilitated by an independent organisation to ensure impartiality and independent reporting. Outcomes from such exercises are routinely discussed, recorded and action items allocated and managed appropriately through to closure.

In summary IADC NSC consider that current arrangements for testing of emergency response are suitable and sufficient.

- **The WLCPF undertakes research to learn from practices used in other high hazard industries for training and exercising crews for emergency scenarios and applies any resultant learning in standards and guidelines for UKCS best training practice.**

There is global IADC involvement on the various taskforces of the Wells Expert Committee (WEC) of the OGP. This includes the Training, Competence and Human Factors taskforce which is carrying out research on crew resource management and how it can be applied in the industry.

- **The WLCPF examines, and periodically reviews, standards of training and certification for personnel involved in drilling operations. The standards should**

be revised as necessary to ensure a common approach in the UK basin and should apply to all personnel involved in a drilling operation, including those provided by third-party companies.

The global association of the IADC is the worldwide leader of accreditation services for well control training and has recently been reviewing all aspects of the curricula for the WellCAP® program to ensure that the curricula is focussed on learning retention and critical skills. This has already resulted in a revised Drilling Supervisory Level curriculum being developed with further programme enhancements underway. The NSC has provided feedback from its members into this process. IADC is also represented on the Well Expert Committee taskforce reviewing well control training, examination and certification with recommendations expected in 2012.

ANNEX II

List of Acronyms and Abbreviations

A

AISGT	The Asset Integrity Steering Group
ALARP	As Low As Reasonably Practicable
API	American Petroleum Institute

B

boe	Barrels of Oil Equivalent
BAT	Best Available Technology
BEP	Best Environmental Practice
BEST	Basic Environmental Skills Training
BOPs	Blow Out Preventers

C

CA	Competent Authority
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CRM	Crew Resource Management

D

DECC	The Department of Energy and Climate Change
DEA(e)	Drilling Engineering Association

E

EAP	Environmental Assurance Plan
ECR	Emergency Control Room
EERD	Emergency Equipment Response Deployment
EIA	Environmental Impact Assessment
ELD	Environmental Liability Directive
EMS	Environmental Management System
EReps	Environmental Representatives
ES	Environmental Statement
ESRs	Elected Safety Representatives
ETI	Energy Technologies Institute

F

FRG Financial Responsibility Guidelines
FRP Fibre Reinforced Plastic

G

GCCF Gulf Coast Claims Facility
Genesis Genesis Oil and Gas Consultants

H

HPHT High Pressure High Temperature
HSE Health and Safety Executive

I

IADC International Association of Drilling Contractors
IIRG Indemnity and Insurance Review Group
IRF International Regulators Forum
ISO International Standardisation Organisation
ITF Industry Technology Facilitator
IWCF International Well Control Forum

J

JCA Joint Competent Authority
JCG Joint Co-ordinating Group
JNCC Joint Nature Conservation Council

K

KPI Key Performance Indicators
KSA Knowledge, Skills and Abilities

M

MAR Offshore Installations and Pipeline Works (Management and Administration Regulations) 1995
MCA Maritime and Coastguard Agency
MMO Marine Management Organisation
MoDU Mobile Drilling Units
MoU Memorandum of Understanding
MRC Marine Response Centre
MRCC Maritime Rescue Co-ordination Centres
MSFD Marine Strategy Framework Directive

N

NCP	National Contingency Plan
NGO	Non-Government Organisation
NOGEPA	Netherlands Oil and Gas Exploration and Production Association

O

OCU	Operations Control Unit
OGP	International Association of Oil and Gas Producers
OGUK	Oil and Gas UK
OPEP	Oil Pollution Emergency Plan
OPITO	Offshore Petroleum Industry Training Organisation
OPOL	Offshore Pollution Liability Association Ltd
OSPRAG	Oil Spill Prevention and Response Advisory Group
OSRF	Oil Spill Response Forum
OSRL	Oil Spill Response Limited

P

PFEER	The Offshore Installations (Prevention of Fire and Explosion, and Emergency Response) Regulations 1995
PON1	Petroleum Operations Notice Number 1

R

RIDDOR	Reporting of Injuries, Disease and Dangerous Occurrences Regulations 1995
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S

SADIE	Safety Alert and Data Information Exchange
SCE	Safety-Critical Elements
SCLT	Step Change Leadership Team
SOSREP	Secretary of State's Representative
SWRP	Subsea Well Response project

T

TSB	Technology Strategy Board
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U

UKCS	United Kingdom Continental Shelf
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W

WDCS	The Whale and Dolphin Conservation Society
WEC	Well Expert Committee
WLCPF	Well Life Cycle Practices Forum
WWC	Wild Well Control

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