

UK offshore safety and environmental regulatory regime

Barcelona Convention Offshore
Working Group

Malta – June 2013

Introduction

- Former Head of UK HSE Offshore Division
- Co-Chair of EU Offshore authorities Group (EUOAG)
- Chair of NSOAF (North Sea Offshore Authorities Forum)

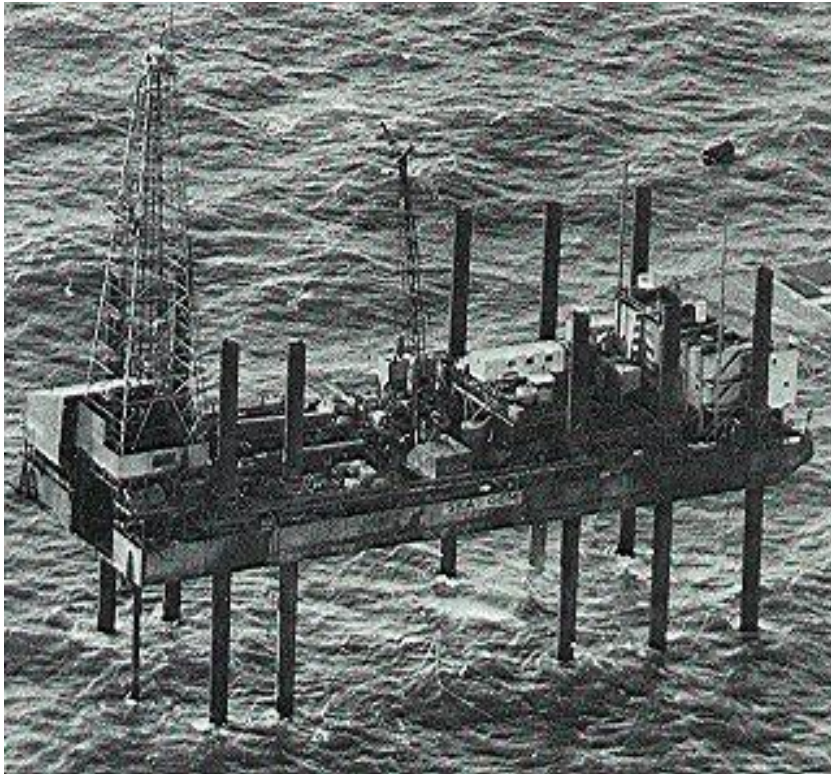


The Regulation of Offshore Safety and Environmental Protection in the UK



- Historical Overview
- UK offshore safety regulatory regime
- UK offshore environmental protection regime
- Future challenges and changes

North Sea beginnings

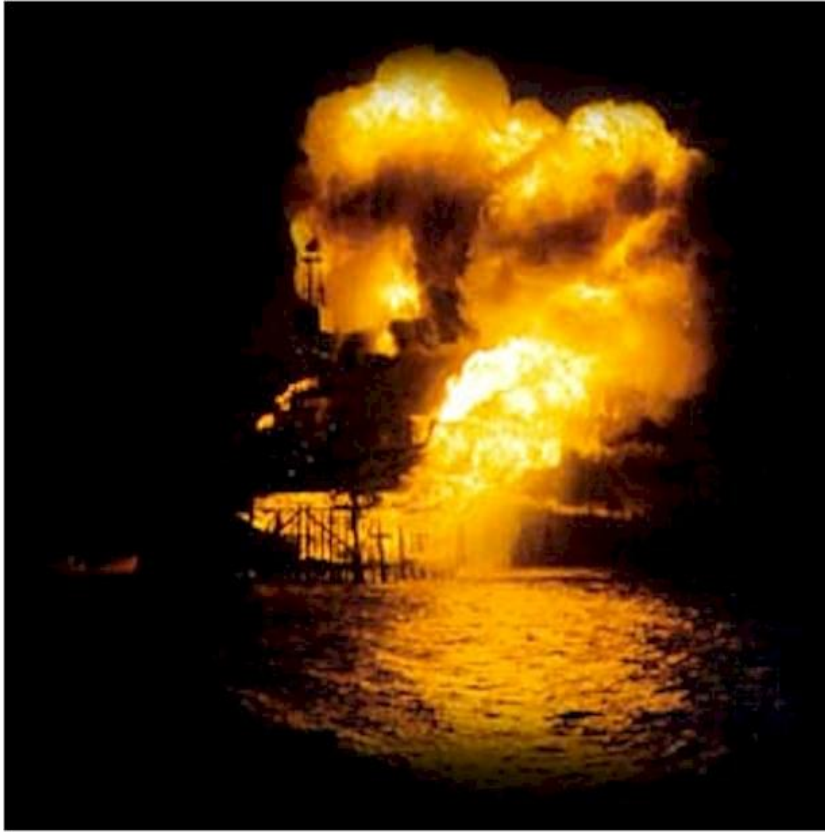


- UK offshore industry started 1960s
- 1965 Sea Gem collapse – 13 killed
- Licensed and regulated by Department of Energy
- Legislation very prescriptive and limited.

Then....

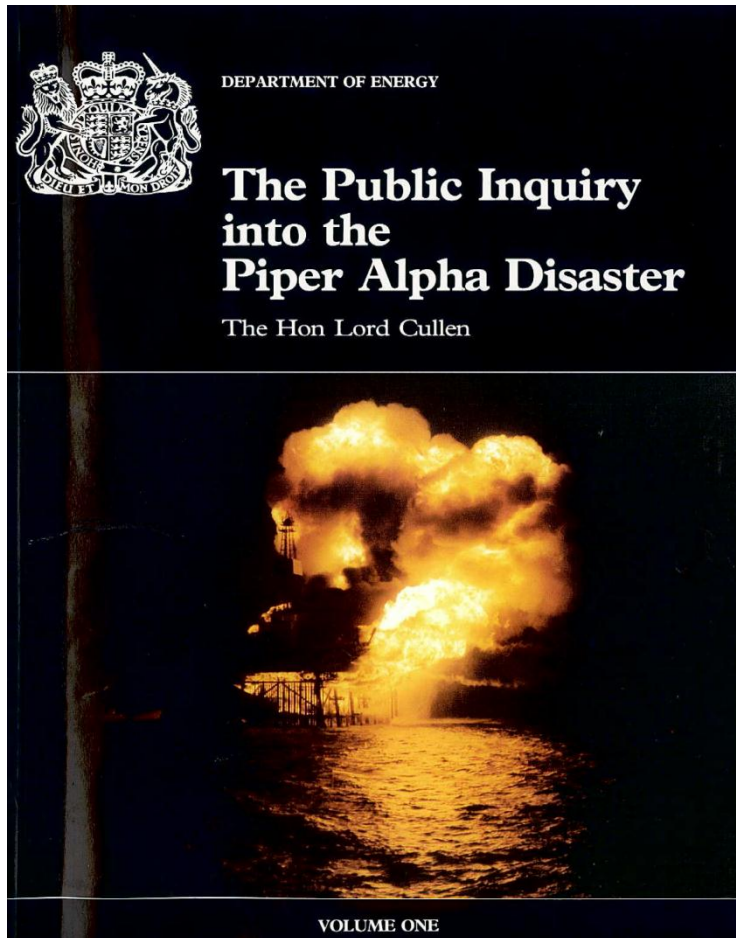
6 July 1988, at 22.00....

Piper Alpha



- Removal of safety valve, with poor permit of work system
- Explosion, leading to a crude oil fire, fuelled by continuing production from adjacent platforms
- 167 died, 62 survived.
- The UK's "Deepwater Horizon"

Piper Alpha Cullen Inquiry



- Identified causes of Piper Alpha fire
- Recommended transfer of responsibility of offshore safety from the licensing authority to HSE – 1991
- Safety Case regime set up – 1992
- Review of legislation, and replacement by goal-setting requirements
- Nothing about the environment!

Offshore Oil and Gas - Operations On United Kingdom Continental Shelf (UKCS)



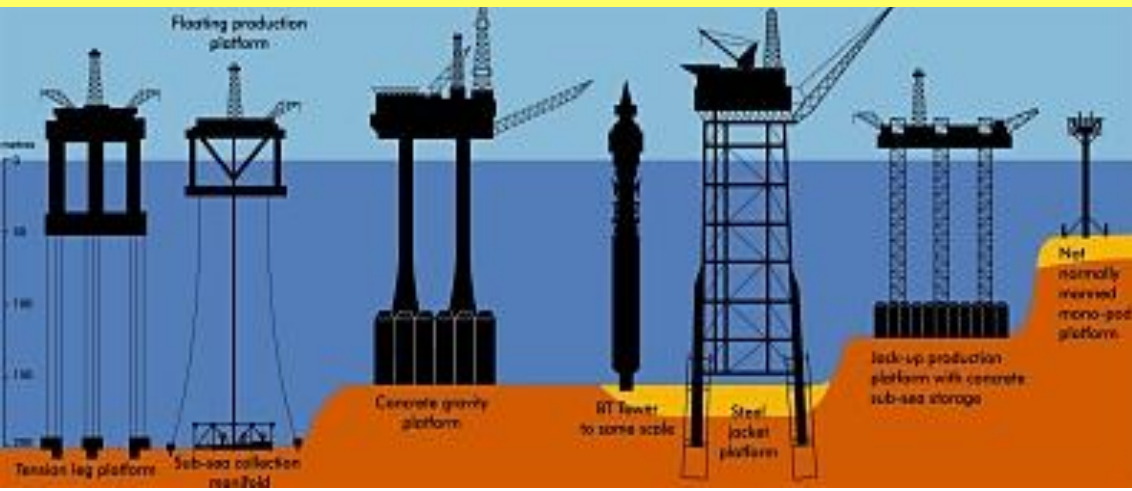
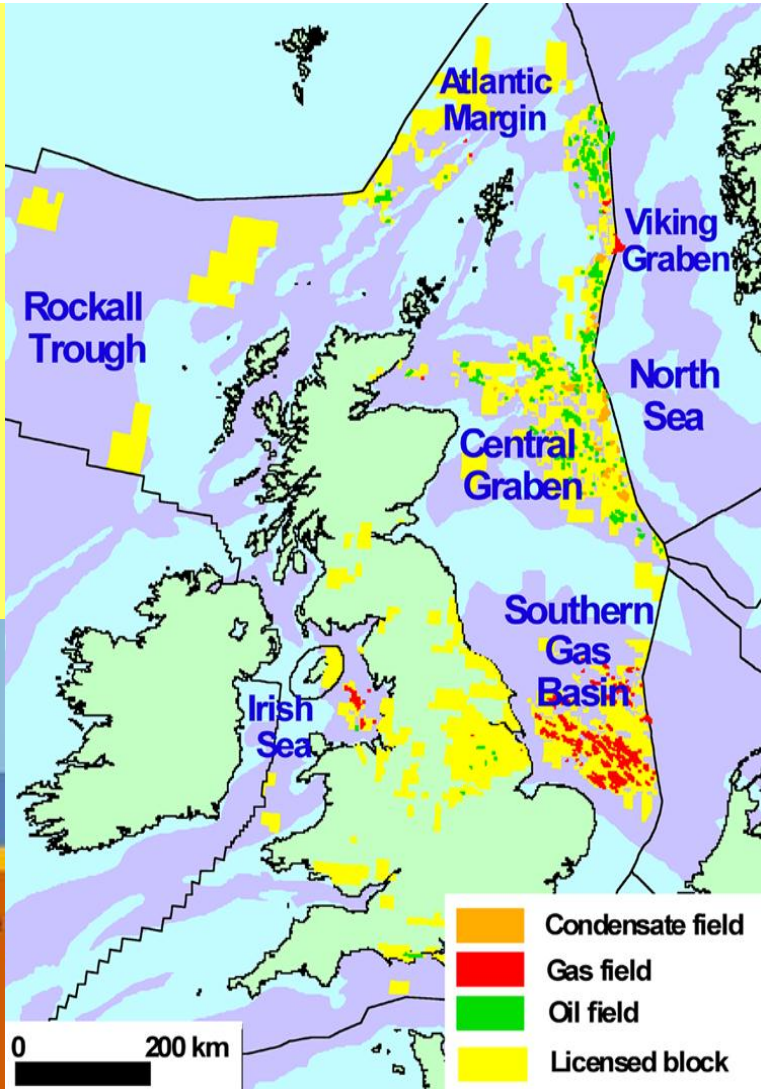
470 Installations - 58 Licensed Operators

- 10% floating installations
- 30% subsea installations
- 50% small steel installations
- 10% large steel or concrete installations – potential derogations for abandonment

Approx 35,000 km pipelines

- 10,000 km major pipelines

Currently 28 Mobile Drilling Units (MoDUs)



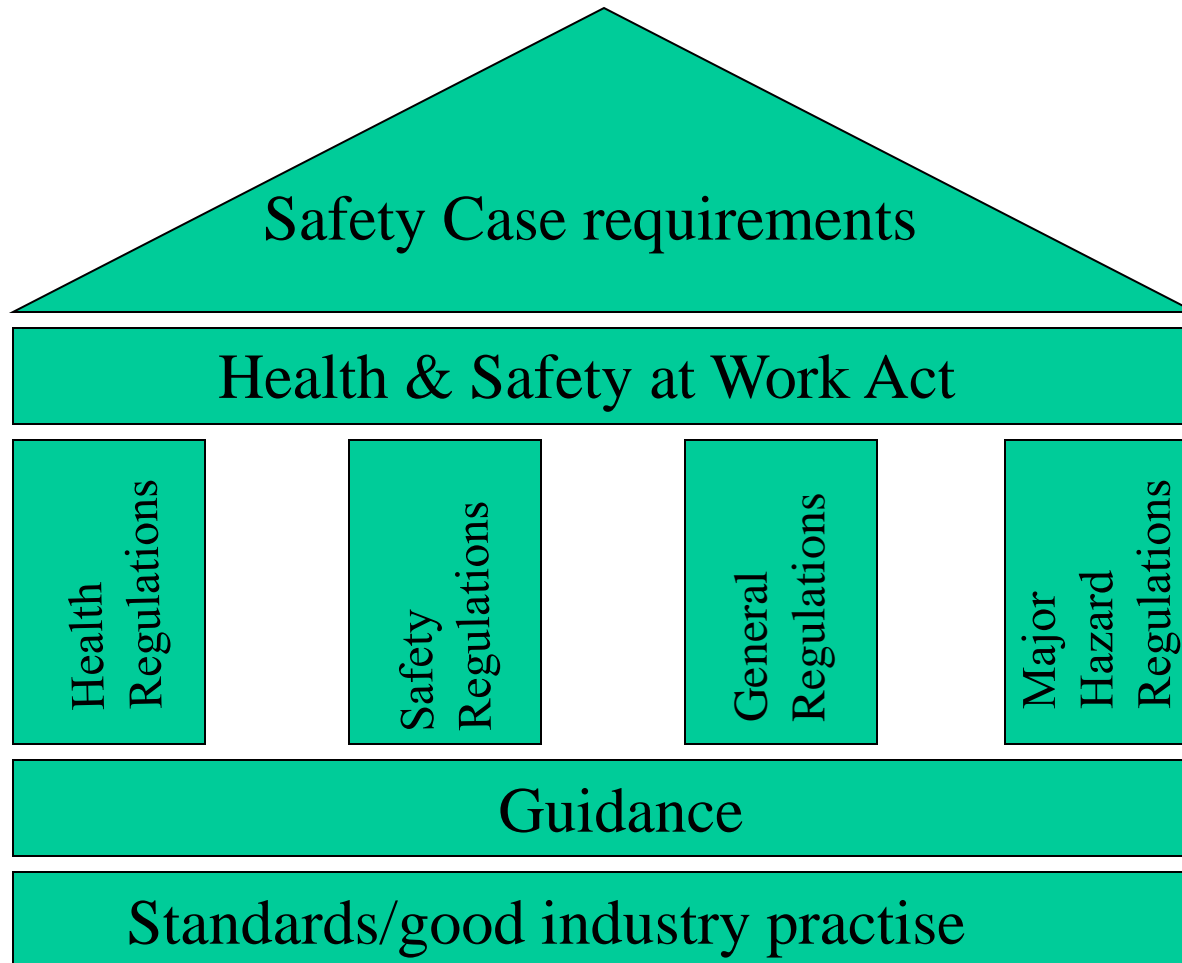
Current UK offshore safety legislation

- An offshore installation cannot operate unless it has a Safety Case, containing:
 - Factual details about structure, location, etc
 - Demonstration of an adequate safety management system
 - Demonstration that the major accident risks are:
 - identified
 - Controlled to ensure compliance with legislation
- Safety Case to be assessed and accepted by HSE

UK safety case requirements (continued)

- The UK Safety Case legislation also requires:
 - Submission of a “Design Notification”, in time to take into account any HSE comments
 - Safety Case to be kept up-to-date, with a further submission when there are “material changes”
 - 5 yearly Thorough Review
 - A dismantlement Safety Case
- Independent verification arrangements for
 - “safety critical elements”
 - well operations and well design
- Plus more detailed legislation & guidance

In summary.....



UK offshore safety regulator

- Energy Division of HSE – around 115 offshore specialist inspectors for approximately 280 fixed and floating offshore installations
- Intervention strategies for operators and for installations
- Clear investigation strategies (e.g. hydrocarbon releases)
- Enforcement of health & safety legislation
 - Wide powers
 - Wide range of remedies
- Influence – “assist and encourage”
- Provision of Information & Guidance
- Research

Relationship with offshore environmental protection

- UK Department of Energy & Climate Change (DECC) are the offshore licensing authority
- DECC also regulate environmental protection under a framework of environmental measures, including:
 - Requirement for a range of environmental assessments before licenses granted
 - Significant activities covered by permits, consents or authorisations
 - Approved Oil Pollution Emergency Plans
 - Measures in place to prevent/control oil spills
 - Comprehensive environmental inspection regime to confirm compliance with these conditions

Environmental Impacts



DRILLING OPERATIONS POTENTIAL SOURCES OF EFFECTS

- ACCIDENTS**
- Oil spills
 - Chemical spills
 - Gas releases
 - Dropped objects
 - Collisions

- WASTES RETURNED TO SHORE**
- Solid wastes
 - Liquid wastes and tank washings
 - Muds and cuttings

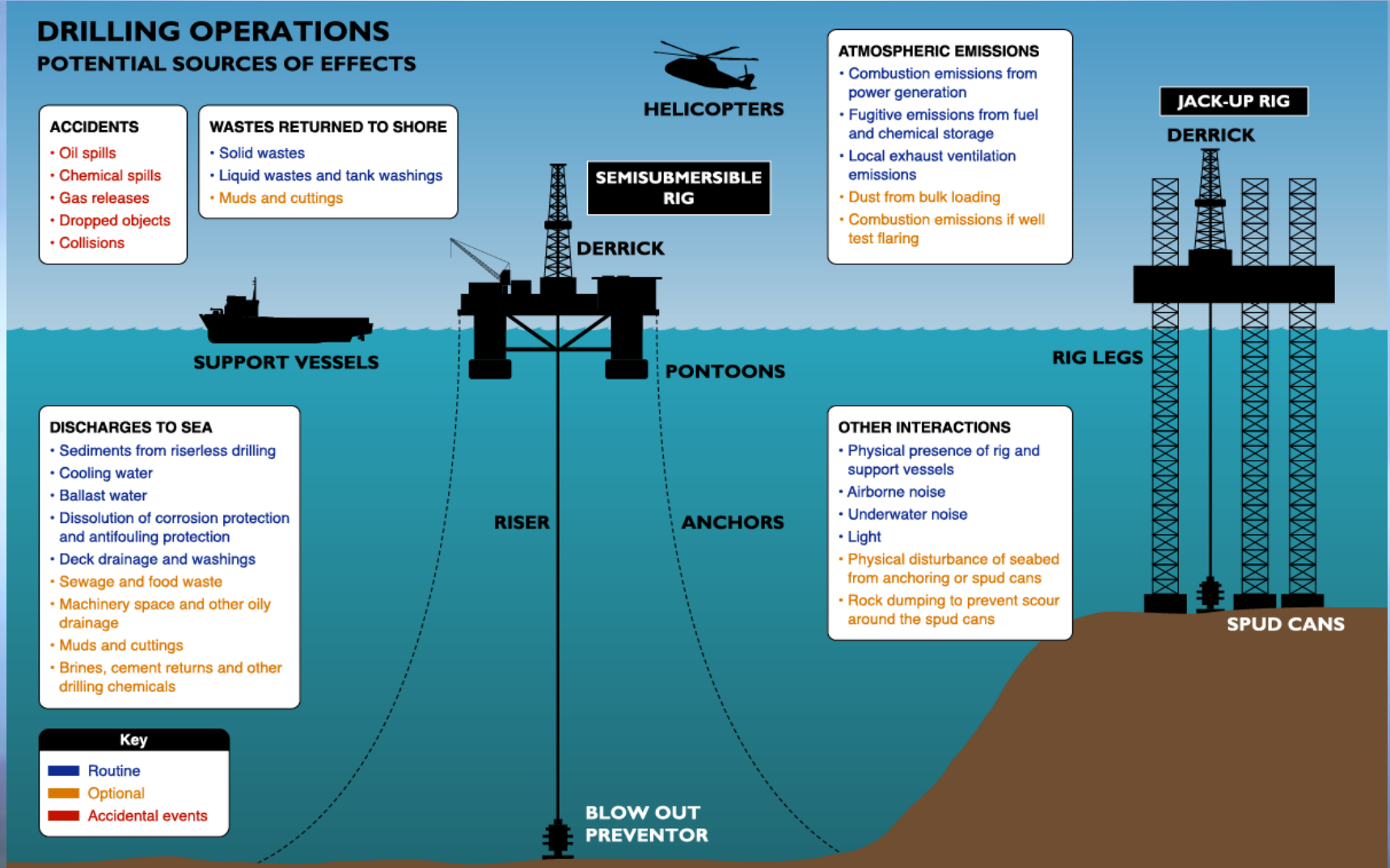
- ATMOSPHERIC EMISSIONS**
- Combustion emissions from power generation
 - Fugitive emissions from fuel and chemical storage
 - Local exhaust ventilation emissions
 - Dust from bulk loading
 - Combustion emissions if well test flaring

- DISCHARGES TO SEA**
- Sediments from riserless drilling
 - Cooling water
 - Ballast water
 - Dissolution of corrosion protection and antifouling protection
 - Deck drainage and washings
 - Sewage and food waste
 - Machinery space and other oily drainage
 - Muds and cuttings
 - Brines, cement returns and other drilling chemicals

- OTHER INTERACTIONS**
- Physical presence of rig and support vessels
 - Airborne noise
 - Underwater noise
 - Light
 - Physical disturbance of seabed from anchoring or spud cans
 - Rock dumping to prevent scour around the spud cans

Key

- Routine
- Optional
- Accidental events



Environmental regulation

- DECC grant licenses
 - Habitat assessments may be required for specially protected areas
- DECC consent to drill only after more specific environmental impact assessments:
 - Drilling is an EU Environmental Impact Assessment (EIA) Directive Annex II activity
 - For wells in sensitive areas, or in areas where there has been no previous drilling activity, UK applicants are required to prepare an Environmental Statement (ES)
 - For all other wells, applicants are required to prepare a screening assessment to seek a Direction from the Secretary of State confirming that an Environmental Statement is not required

Chemical and other discharges

- All offshore chemical use and discharges are covered by EU legislation and OSPAR controls or recommendations
- All discharges of hydrocarbons during the course of offshore oil and gas operations are likewise covered by OSPAR decisions and recommendations
- All well operations must be the subject of a chemical permit, and where applicable, an oil discharge permit
- Chemical and oil permit applications are reviewed and determined by DECC technical specialists

Environmental emergency response

- All offshore operations must be covered by an Oil Pollution Emergency Plan, approved by DECC
- DECC requires evidence within the OPEP that systems and procedures are in place that allows both the Operator and their third party oil spill response contractor to respond effectively to any pollution event
- OPEPs should clearly identify
 - the potential release scenarios, including the worst case scenario e.g. an uncontrolled release of hydrocarbons (a blow out) for well operations, and the loss of the installation's maximum fuel inventory
 - the potential environmental impacts
 - the strategies/measures that will be utilised to respond to and mitigate those impacts

Environmental emergency response (continued)

- The measures must include, where applicable, the deployment of a capping device and/or the drilling of a relief well
- Plans must include modeling to assess whether, and when, spills would cross median lines or beach (UK or adjacent States)
- Plans must demonstrate operators ability to respond to a spill and the procedures that would be followed
- OPEP should confirm that the operator has the financial capacity to deal with the potential consequences of the spill
- DECC imposes an obligation under UKCS licences that Operators must be members of OPOL (Offshore Pollution Liability Association Ltd), which ensures funds are available up to limit of US \$250million to meet claims for clean up and compensation

UK offshore environmental protection regulation



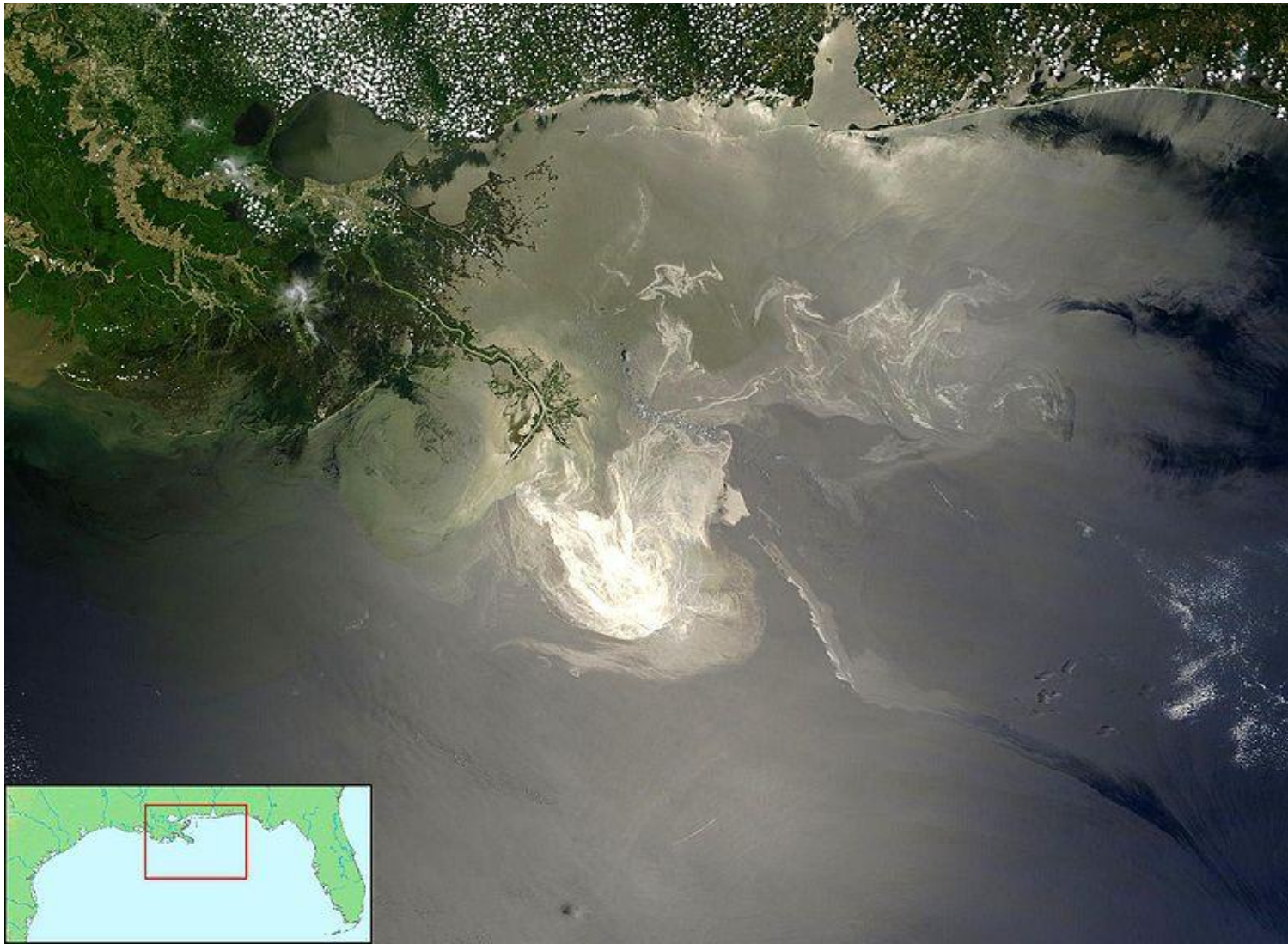
- DECC Offshore Inspections are linked to risk-based approach, depending on:
 - Unproven Operations – New Operator / New Drilling Contractor / New MODU
 - Well and reservoir type (e.g. HPHT)
 - Estimated liquid hydrocarbon flow rates
 - Well location and water depth
 - Distance to the shore or nearest median line
- Pre Spud inspections undertaken prior to commencement of operations for MODUs new to UKCS and for the most complex wells
- Pre Reservoir inspections undertaken prior to drilling reservoir sections for high flow-rate wells
- Routine MODU inspections undertaken at regular intervals, with frequency dependent upon the nature of the operations

- Prior to 2010, there was only relatively little interaction between HSE and DECC
-but, then Deepwater Horizon happened!

22 April 2010: 11 killed



Gulf of Mexico release of 4.9 million barrels of oil (170 million gallons)



The future

- Much higher profile of offshore environmental concerns
- HSE & DECC working much closer together since Deepwater Horizon – joint inspections, sharing of information, common priorities etc
- The new EU offshore Directive acknowledges safety integrity provides environmental protection integrity
 - Safety, environmental protection and emergency response all dealt with in one Directive
 - Single offshore safety and environment competent authority
 - UK safety case and goal setting approaches selected as the blueprint

QUESTIONS?