



planning advisory service



Working with the Regulators

Topic Training Module



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Introductory remarks



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Purpose of the training module

- Aims to increase your understanding of the roles and responsibilities of the Oil and Gas Authority, Environment Agency and Health and Safety Executive and their interface with the planning system.
- One of a series of topic training modules.



The facilitators and regulators

- This slide will contain information about the facilitators and their experience in respect of planning for shale developments
 - It will also contain information about other attendees that will be making presentations or assisting with the facilitation of the event such as the other regulators, CLG etc
-

Housekeeping



What is Planning Advisory Service for?

- Funded to support English planning authorities
“[PAS] exists to support local planning authorities in providing effective and efficient planning services, to drive improvement in those services and to support the implementation of changes in the planning system”
 - Also work directly with councils
 - Part of the Local Government family
-



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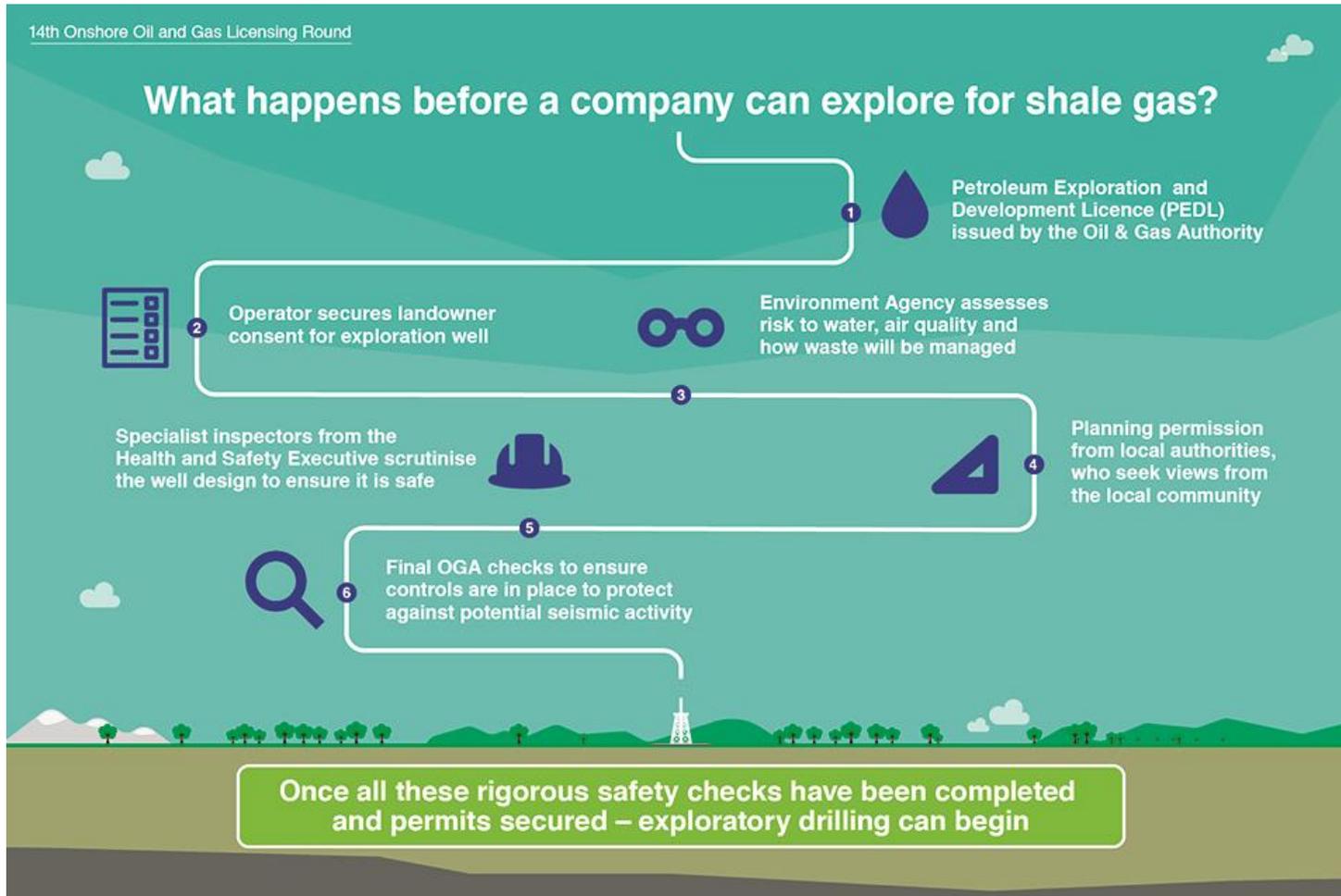


Interface with the Planning System



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Award and Consents Process



Regulators and other interested bodies

- Large number of bodies and organisations involved in the consents and regulatory process
 - Mineral Planning Authority
 - Oil and Gas Authority
 - Environment Agency
 - Health and Safety Executive
 - Coal Authority
 - British Geological Survey
 - Public Health England
 - Planning Inspectorate or SoS
 - UKOOG
-

National Planning Policy

- **Revised NPPF Para 183** advises Planning Authorities to focus on whether the proposed development is an acceptable use of land, rather than the control of processes or emissions, where these are subject to separate pollution control regimes. Planning decisions should assume that these regimes operate effectively.
-

Planning Practice Guidance

- **Para 110** Identifies issues which are covered by other regulatory regimes and advises that MPAs should rely on the assessment of other regulatory bodies
 - Seismic monitoring, flaring, operation of surface equipment, treatment of waste, chemical content of fluid, well design, construction and integrity and decommissioning.
 - **Para 112** Before granting planning permission MPAs will need to be satisfied that these issues can or will be satisfactorily addressed by taking advice from the regulatory body
-

Lodge Farm, Broughton (1)

- Inspector at appeals relating to the retention of the existing wellsite and access road for the long-term production of hydrocarbons at Lodge Farm, Broughton concluded in decision dated 4 January 2018 as follows.

“... I also take into account the EA’s primary role as regulator in the protection of water resources. The EA has considered the proposals acceptable subject to conditions, resulting in the issue of the Environmental Permit. Nevertheless, these matters do not outweigh other considerations. It is consistent with PPG that a decision maker should be satisfied with regard to issues concerning the effect of development on groundwater resources and water courses.

Lodge Farm, Broughton (2)

(continued) Having regard to my conclusions on the absence of a ground conditions survey report and of sufficient evidence on the adequacy of the GCL covering, it has not been shown that unacceptable adverse impacts to groundwater resources and water courses would not arise during the life of the development. The development does not meet the requirement arising from LP policies M1 and M23 to show that the proposed environmental protection measures would be adequate to mitigate impacts. It would not be consistent with criterion 10 of policy CS18. Nor has it been shown that the requirements of Framework paragraphs 109, 121 and 122, to which I refer above, would be met. Having regard to the above and to all other matters raised I therefore conclude that Appeals A and B should not succeed”.

Shale Environmental Regulatory Group

- Virtual group announced by Government on 5 October 2018 to act as a single entry point for information related to environmental regulation
 - Each regulator retains its own regulatory duties, functions and enforcement powers
 - Workstream 1 – to share knowledge and information on environmental regulation processes with MPAs considering planning applications
 - Workstream 2 – to coordinate regulation by OGA, EA and HSE of shale sites including liaison with operators, facilitation of progress and resolution of issues
-

Commissioner for Shale Gas

An independent role announced by Government on 5 October 2018 to:

- listen to the concerns of local residents in areas with planning applications
 - work with local residents and their elected representatives to ensure that legitimate concerns are addressed by the industry, regulators and government
 - help improve understanding of shale gas
 - report back to Government on what changes could be made to address the concerns of local residents
 - Work closely with SERG and the Planning Brokerage Service to ensure accurate and timely information is available to residents
-

Planning Brokerage Service

- Support for those involved in decision making announced in Ministerial Statement in May 2018
 - Provides guidance to developers and local authorities on the planning process to help facilitate timely decision making
 - No role in the consideration or determination of planning applications or in the appeal process
 - Will not comment on the merits of a case
 - £1.6m support over 2018-2020 to build capacity and capability in local authorities dealing with shale applications
-

Shale Environmental Regulator Group (SERG)

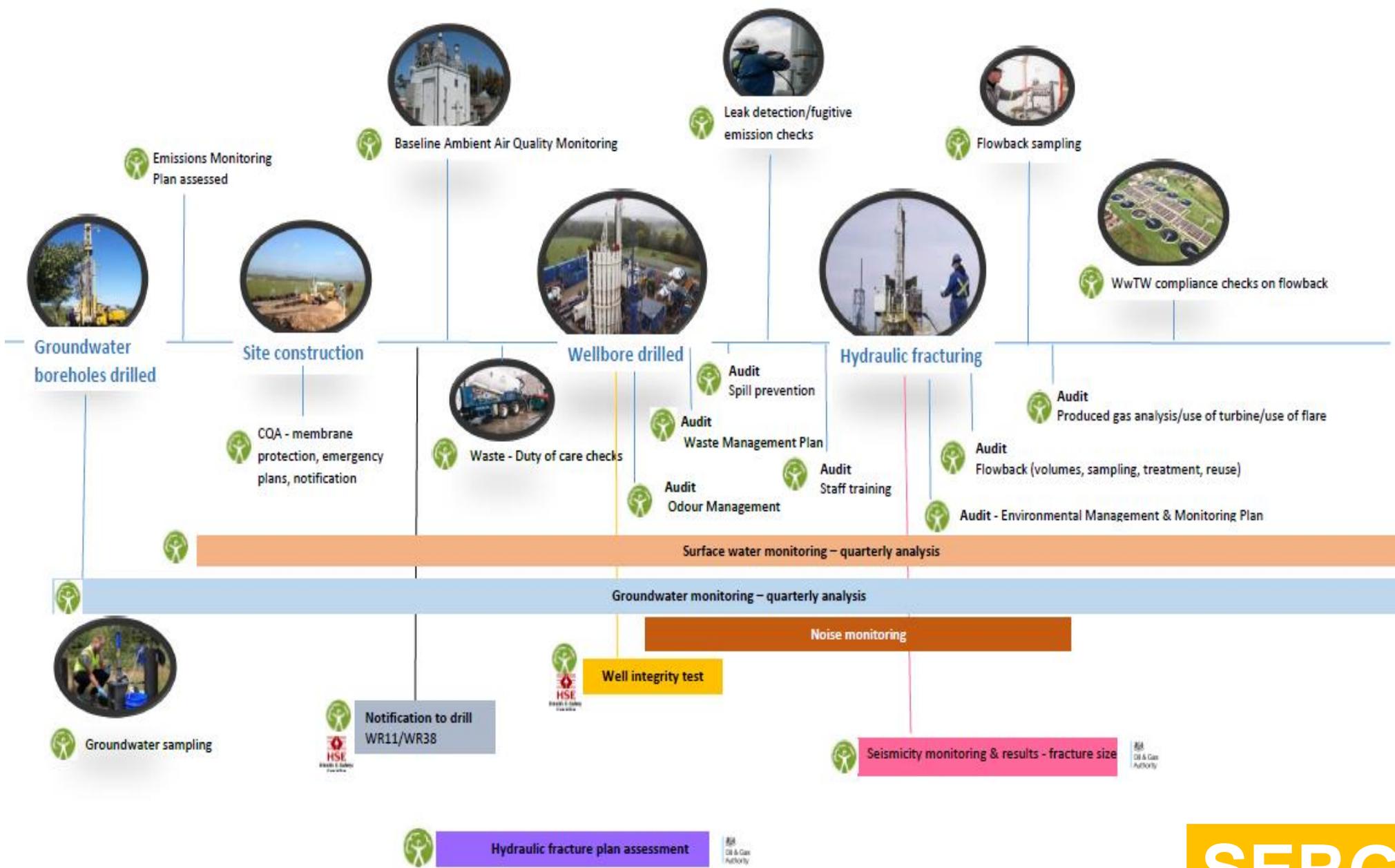
- Launched on 5 October 2018
- Brings onshore oil and gas regulators together as a virtual regulatory group for shale gas exploration and production:



- Acts as a single face for Mineral Planning Authorities and industry and shares best practice with MPAs considering shale gas applications

Engaging with Mineral Planning Authorities

- Pre-planning application scoping discussions
- Advice on key issues of concern
 - presentation, face to face, email, phone, on site
- Accompany committee members on operator led tours of new and existing sites
- Summary of permit decisions
- Attend public information sessions
- Help respond to public queries
- Share our experience of shale gas regulation
- Give MPAs and Councillors the confidence to determine applications





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Oil and Gas Authority



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Oil & Gas
Authority

PAS Training Slides

The role of the Oil & Gas Authority

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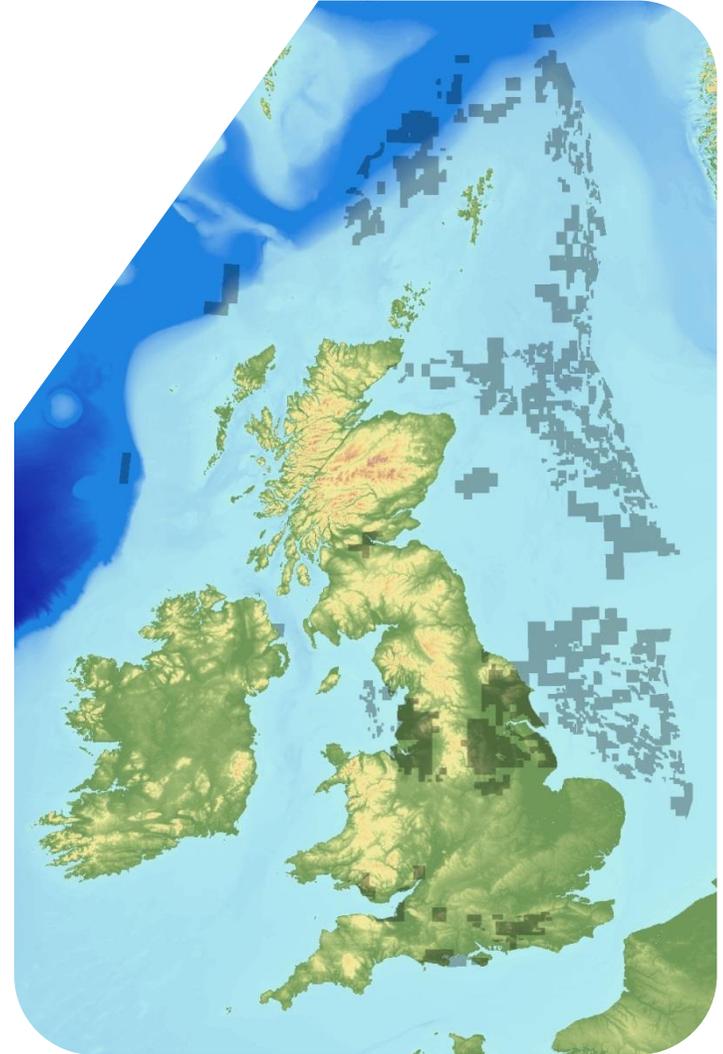
Introduction

- Introduction to the Oil & Gas Authority
- Onshore background
- Working with other regulators
- Oil & gas licensing
- Well consents and approvals
- Regulating induced seismicity
 - Hydraulic fracture plan
 - Traffic light System



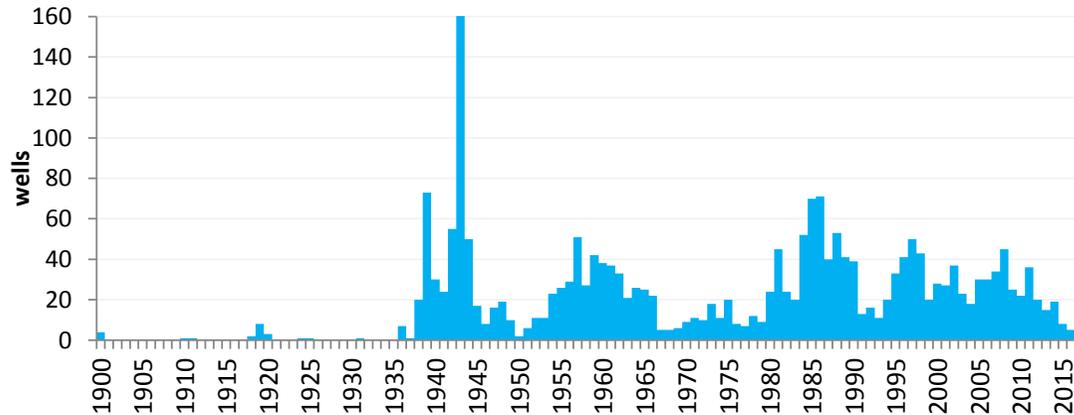
Oil & Gas Authority

- Responsible for regulating oil and gas operations in the UK
- We cover both offshore UKCS and **onshore** operations in England
- This includes:
 - Issuing and managing licenses
 - Consent for drilling oil and gas wells
 - Consent to production of oil and gas fields
 - Controls on seismicity from hydraulic fracturing
 - Putting information in the public domain





Onshore oil & gas in England



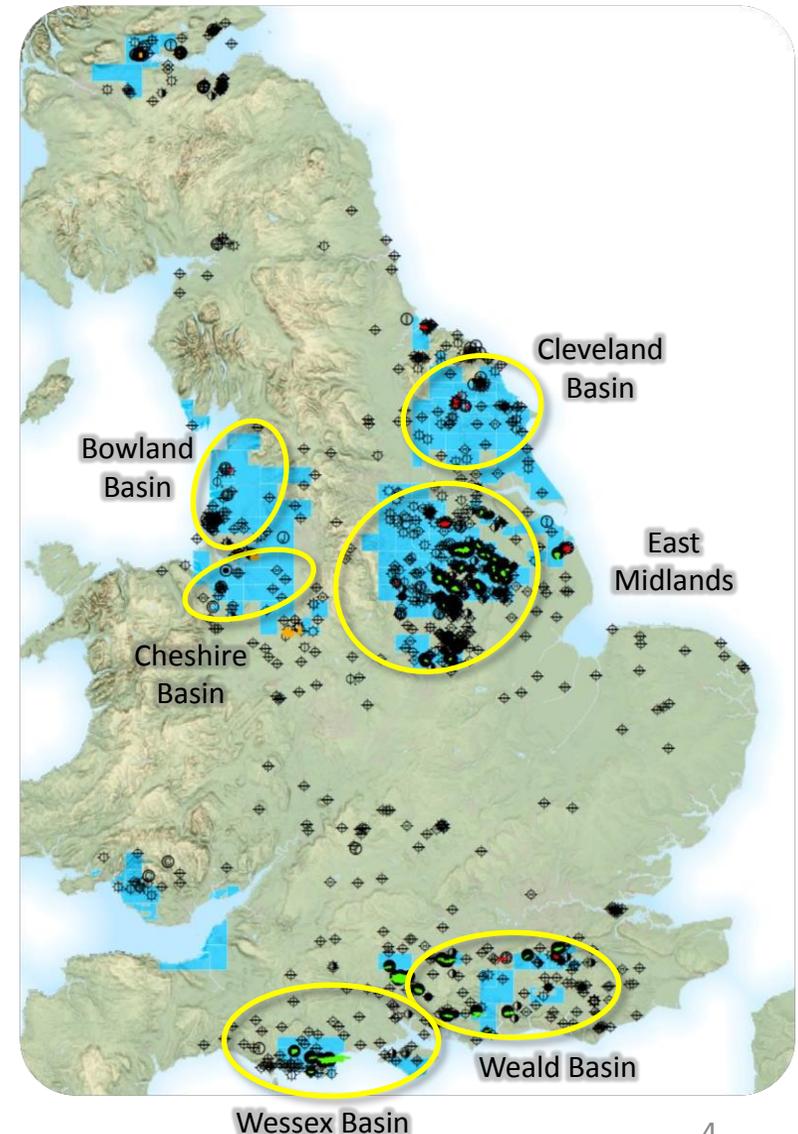
Over 100 years of activity, with more than 2,200 wells drilled (⚡ symbol on map)

Producing fields

- 30 Oil fields
- 8 Gas fields
- 22 Abandoned Mine Methane fields

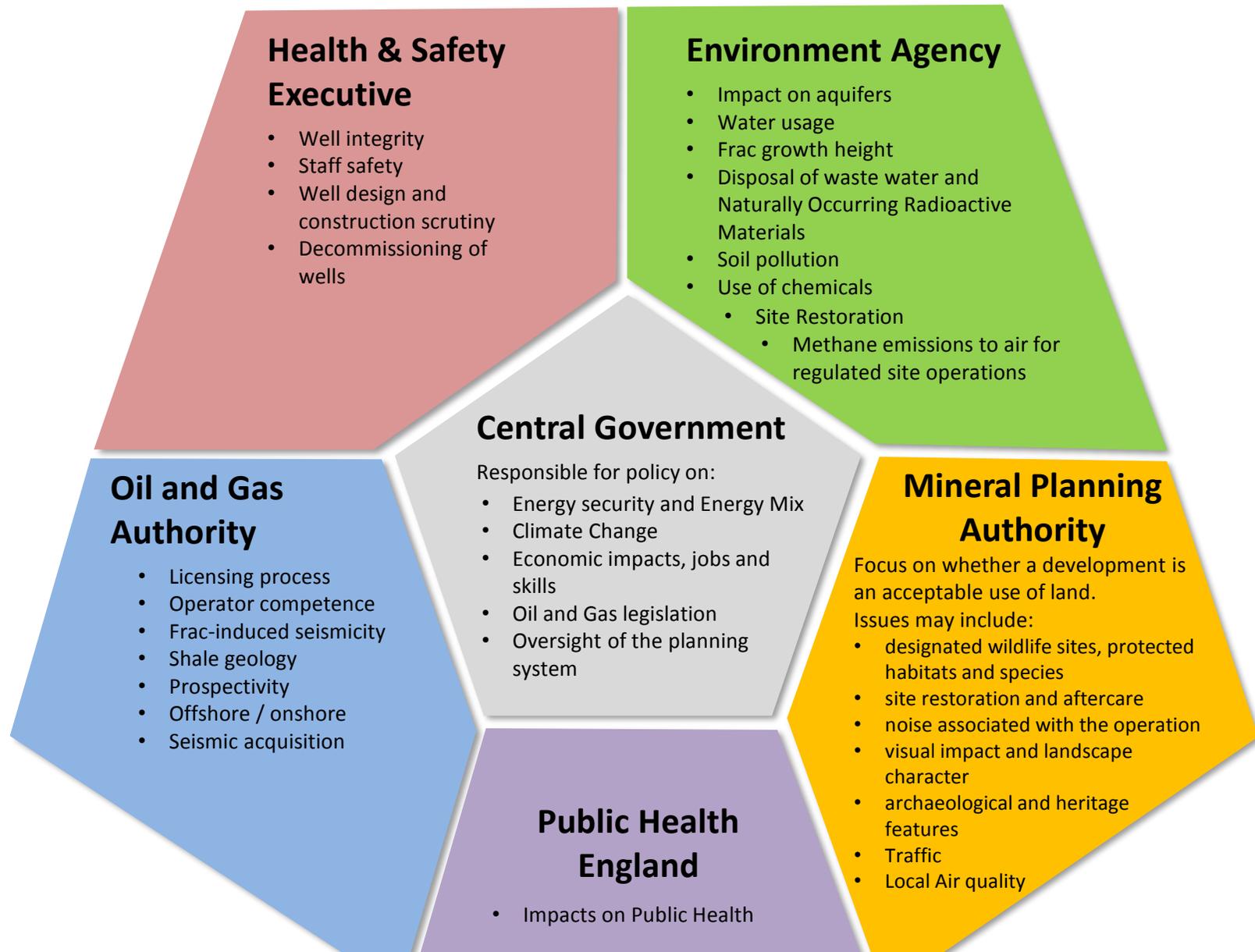
Onshore Production for 2017

- 970,000 m³ oil (82% is Wytch Farm in Dorset)
- 600 million m³ dry gas



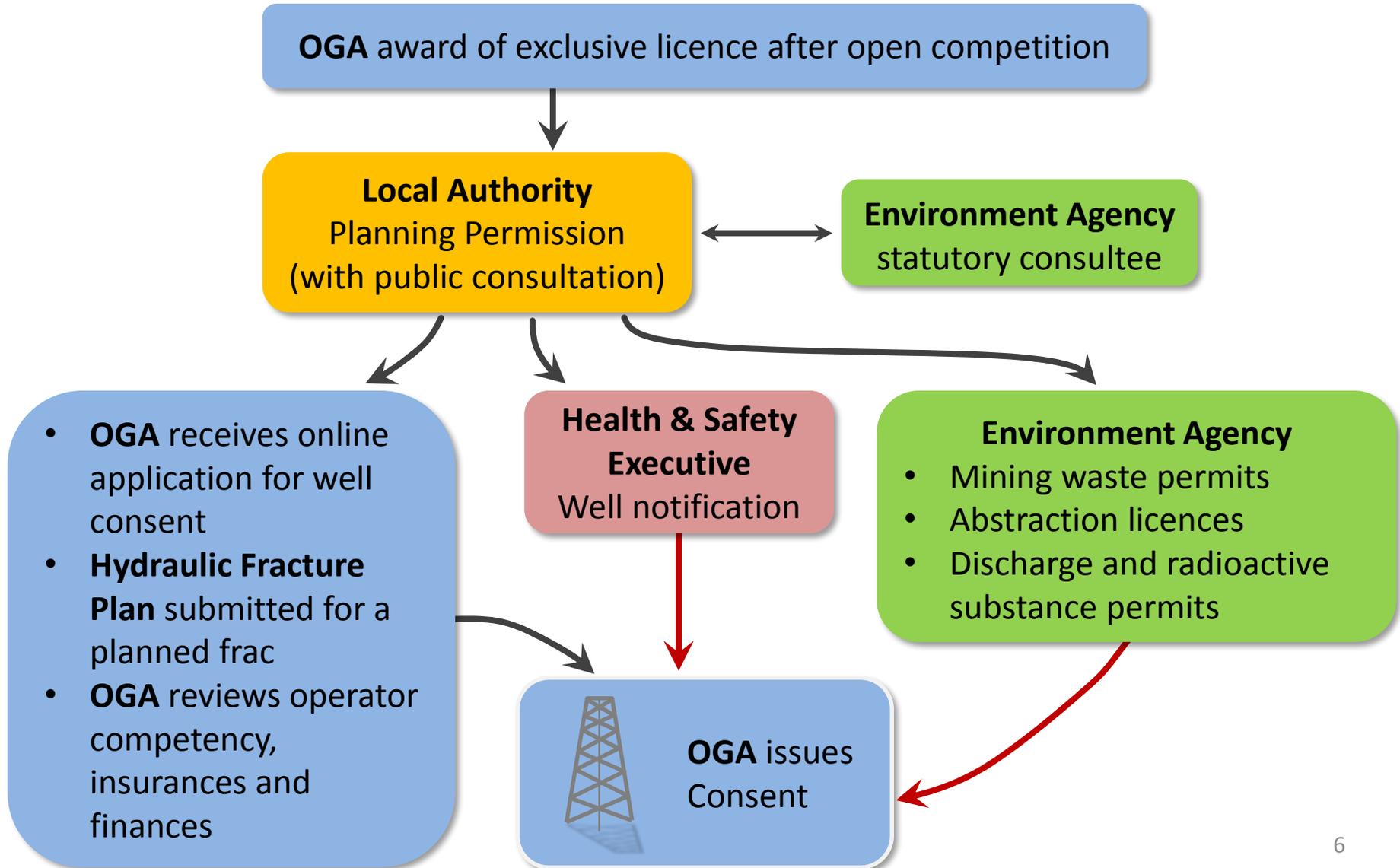


Regulating Onshore Oil & Gas





The Regulatory Roadmap





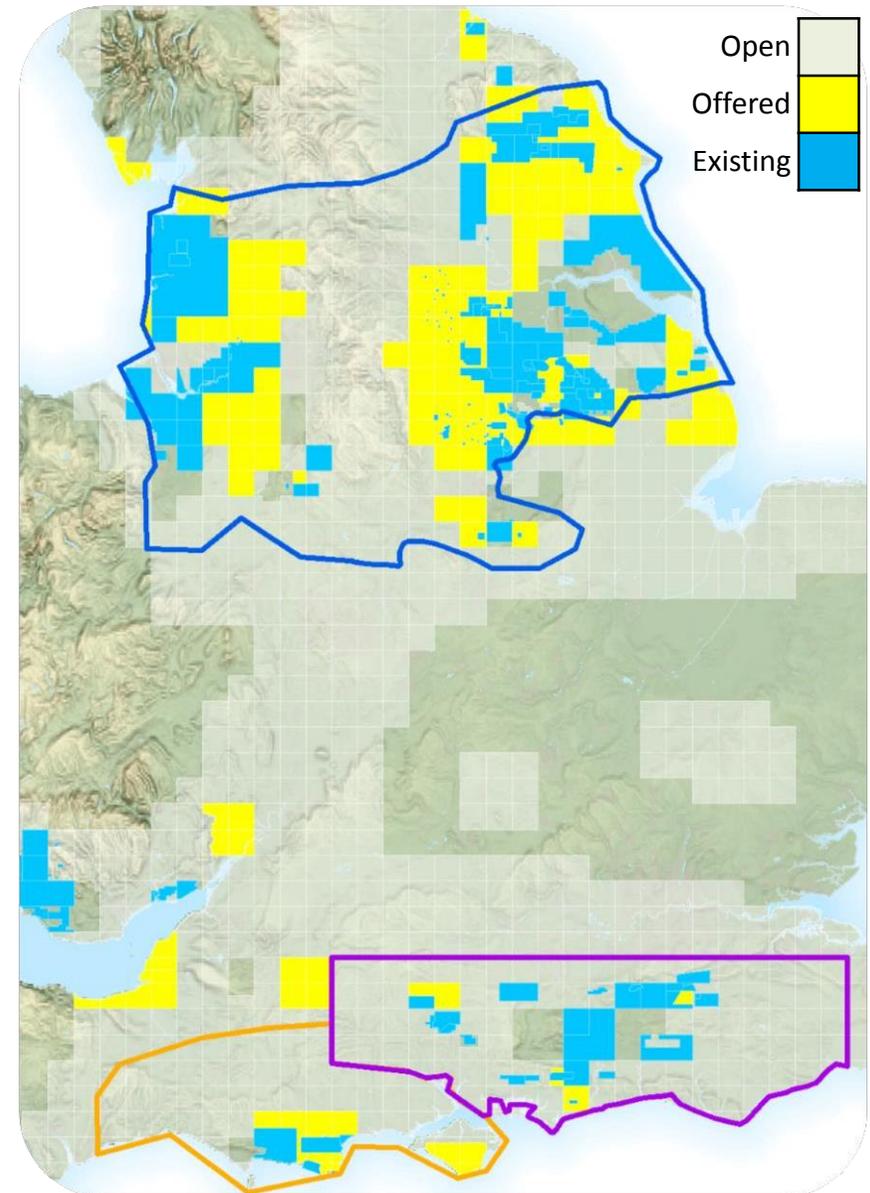
Onshore Licensing

- A PEDL (Petroleum Exploration & Development Licence) grants exclusive rights “**to search and bore for and get petroleum**” in a | the various stages of oil and gas exploration, appraisal; production and eventually decommissioning of the wells.
- PEDL licence covers conventional oil and gas, tight gas, coalbed methane (CBM), mine vent gas, shale oil and gas. A PEDL licence does not allow for underground coal gasification (UCG) or CO₂ sequestration.
- **Licences do not give permission for operations**, only grant exclusivity to licensees within a defined area.
- **Drilling, fracking or production require local planning permission, Access agreement(s) with relevant landowner(s), Environment Agency permits, HSE scrutiny and OGA well consent** before any operations can commence



14th Onshore Licensing Round

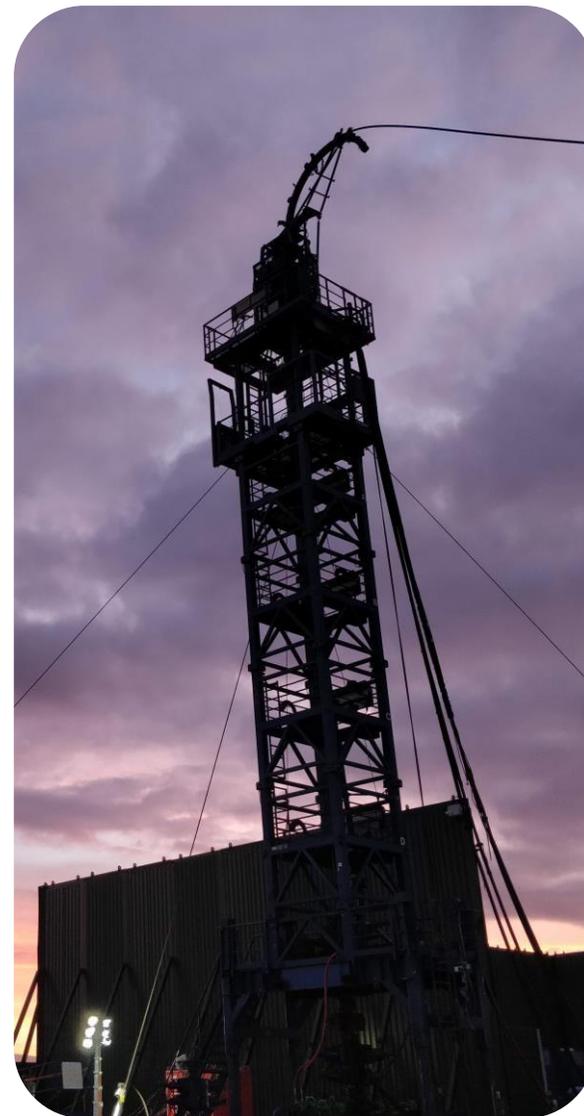
- OGA assessed applications on following criteria:
 - Considered financial viability and capacity
 - Interviews held with applicants
 - Blocks marked against published Marks Scheme
 - Evaluated applicant's environmental sensitivity awareness and operator competency
 - Habitats Regulations Assessment (HRA) completed on all the blocks
- Following public consultation, **92 licences** (incl. 159 blocks) were offered in Dec 2015
- The award of a Petroleum Exploration and Development Licence (PEDLs) does not give permission for any operations to begin.
- The necessary planning and wider regulatory consents are required before any activities can take place.





Consents and Approvals

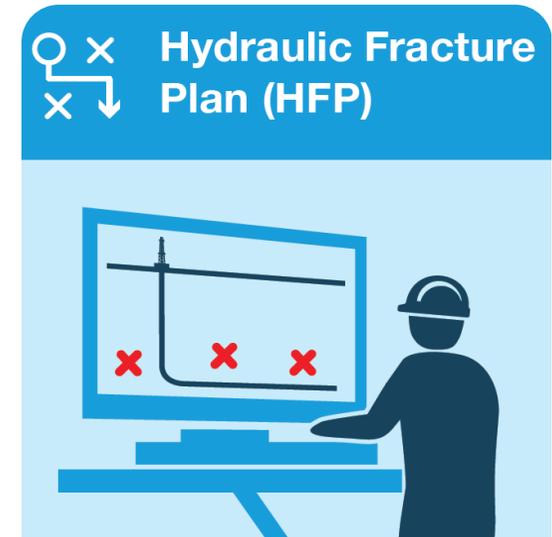
- Operators must apply to the OGA for relevant consents and approvals to carry out well related activities
- Applications can include:
 - Consent to Drill / Side-track a well
 - Approval for Completion work (including Hydraulic Fracturing)
 - Approval for an Extended Well Test
 - Consent to Suspend or Abandon well
- In considering an application, the OGA will:
 - review the operator's financial capability
 - take into account the position of other relevant regulators
 - require confirmation from the board of the operator regarding:
 - Scope of Insurance
 - Availability of planning permission





Seismicity: Hydraulic Fracture Plan

- If hydraulic stimulation is proposed as part of operations, a Hydraulic Fracture Plan (HFP) must be agreed by:
 - Oil & Gas Authority
 - Environment Agency
 - in consultation with the Health and Safety Executive
- The Hydraulic Fracture Plan sets out how the operator will control and monitor the fracturing process.
- The OGA is responsible for managing the risk of induced seismicity; and must be satisfied that:
 - Controls are in place to minimise disturbance to those living and working nearby
 - Procedures are in place to reduce the risk of any damage



Operator sets out how it will control and monitor the fracturing process

Identifies and assesses the locations of existing faults to prevent hydraulic fracturing from taking place near them

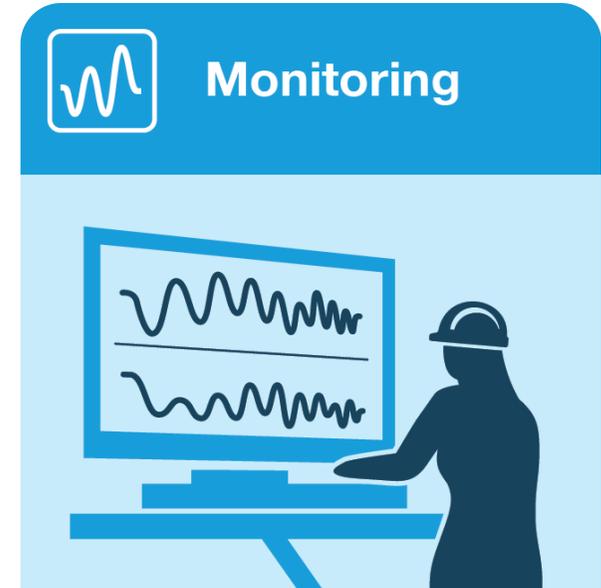
HFP must be agreed with OGA and Environment Agency

OGA must be satisfied controls are in place to minimise disturbance



Seismicity: Monitoring during Operations

- The operator is required to run a **real-time traffic light system** throughout operations
 - Traffic Light System data is also independently recorded and published by the British Geological Survey (BGS)
- **Ground motion data** close to nearby dwellings and other structures.
- **Decision tree** must be followed, and actions taken in response to the TLS
- **Downhole Micro-seismic Monitoring** during Injection



Before and during operations, the operator must carry out seismic monitoring as agreed in HFP

May include additional recording to measure levels of ground motion close to nearby dwellings and other structures

Where magnitude/ground motion are in line with the HFP, this confirms geological understanding and injection can resume, subject to any mitigation as part of the agreed HFP



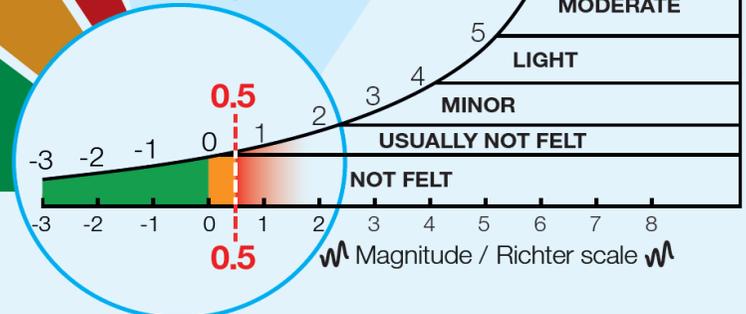
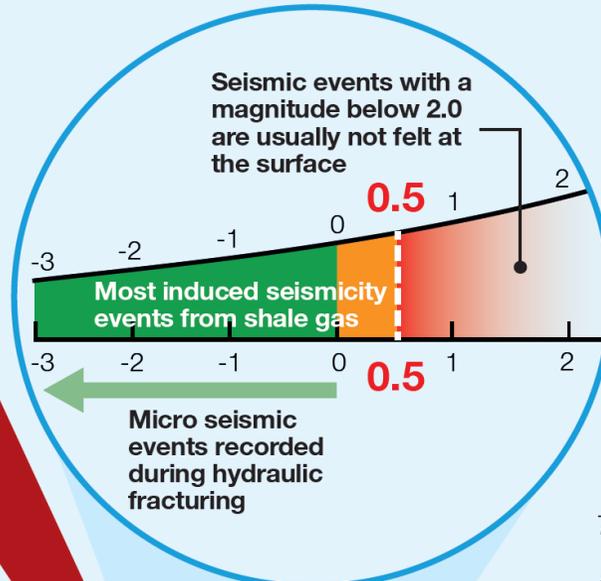
Seismicity: Traffic Light System



M ≥ 0.5
Operator must suspend injection, reduce pressure and monitor seismicity and ground motion for any further events before potentially resuming

M ≥ 0.0 to < 0.5
Injection proceeds with caution, possibly at reduced rates. Monitoring is intensified

M < 0.0
Injection proceeds as planned



Magnitude / Richter scale



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Environment Agency



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Regulating the shale gas industry

(video)

Experienced regulator

- Pre-existing regulatory regimes brought together to regulate fracking;
 - mining waste, groundwater, water resources, radioactive substances
- Detailed [environmental risk assessment](#) of shale gas exploration
- Published [Onshore Oil and Gas Sector Guidance](#)
- Highly skilled and experienced technical and regulatory staff with a comprehensive understanding of local environment
- Experienced in assessment and regulation of many industries:
 - Joint competent authority with HSE for CoMAH
 - Category 1 responder

Environmental Considerations (1)

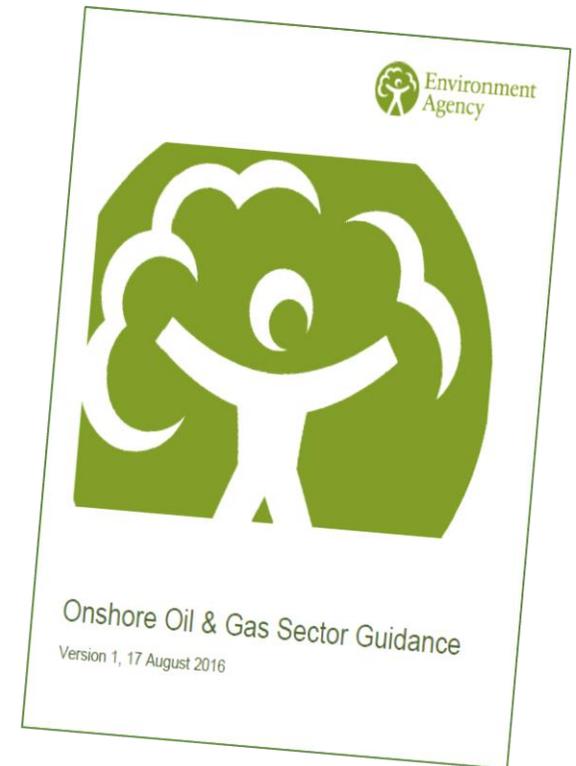
- **Strain on water resources.** Hydraulic fracturing a well may use 10 - 30 million litres but even if the industry scales up usage will be only a very small proportion of total water usage.
- **Transport by tanker** of large volumes of water to the site has the potential for road safety, diesel emissions and noise impacts.
- **Water contamination risks**
 - **Groundwater contamination** is very unlikely due to depth of fracking operations (2-3 km). Controlled by well design and construction regulated by HSE with any contamination regulated by the EA.
 - **Surface contamination** to water and soils is possible. Controlled by impermeable banded well pads, flowback water containment and good working practices

Environmental Considerations (2)

- **Aerial emissions and air quality** –dust, particulates from vehicles and generators, fugitive gas from flowback / flaring.
- **Waste management** – drill cuttings are disposed to landfill and flowback fluid requires specialist water treatment off site.
- **Traffic** – exploration stage will involve increased heavy goods traffic for site assembly and removal of waste.
- **Noise** – 24 hour drilling during exploration and appraisal
- **Landscape and Visual Amenity** – including illumination at night, drilling rigs, site cabins, fencing etc

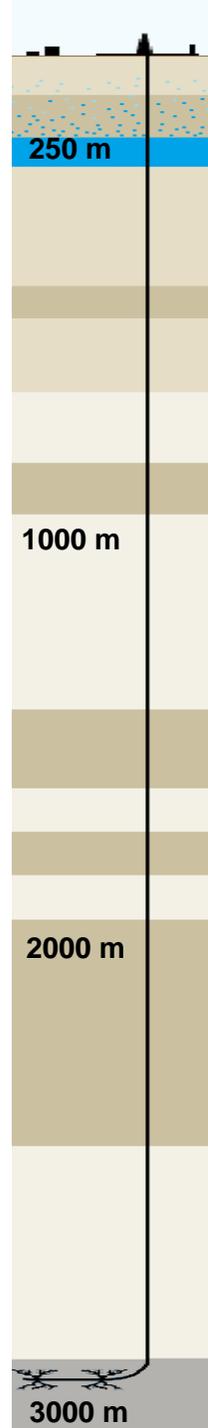
Environmental permits

- The following permits are required to hydraulic fracture:
 - Mining waste permit
 - Groundwater activity permit
 - Radioactive substances permit
- Bespoke permits are required for hydraulic fracturing and flaring. This includes:
 - Site specific assessment
 - Baseline monitoring
 - Public consultation
 - Pre-operational and operational monitoring and reporting



Protecting groundwater

- Infrastructure Act 2015:
 - Hydraulic fracturing can take place at least 1000m below the surface or 1200m below protected areas
- Environmental Permit:
 - No drilling in Source Protection Zone 1
 - Detailed hydrogeological risk assessment
 - Baseline monitoring of groundwater-CH₄
 - Disclosure of chemicals
 - Chemicals approval from EA
 - No chemicals hazardous to groundwater



Hydraulic fracture plan (sub surface monitoring plan)

Hydraulic fracture plan must show;

- Where the fractures will go
- Where waste fluid will be left behind
- Faults- near the well and along the well path
- Local background seismicity and an assessment of the risk of induced seismicity
- Location of monitoring points
- Pumping pressures and volumes

Information about the proposed measures to:

- Mitigate the risk of inducing an earthquake
- Monitor local seismicity during the operations
- Seismic level operations will be suspended at



Managing wastes



- Waste Management Plan covers all wastes
- Best Available Techniques
- Enclosed tanks for storage of waste fracking fluid
- Offsite disposal at licensed treatment works
- Enclosed flares

Monitoring

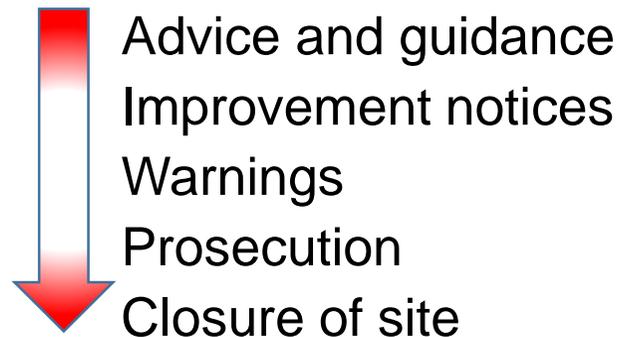
- Site condition report:
 - beginning and end of operations
- Baseline monitoring of groundwater:
 - 12 months methane (Infrastructure Act)
 - Plus substances required by EA (site specific)
- Baseline monitoring of air quality (site specific)
- Operational monitoring as specified in permit
- Regulator monitoring (i.e. air quality)
- Post-decommissioning monitoring

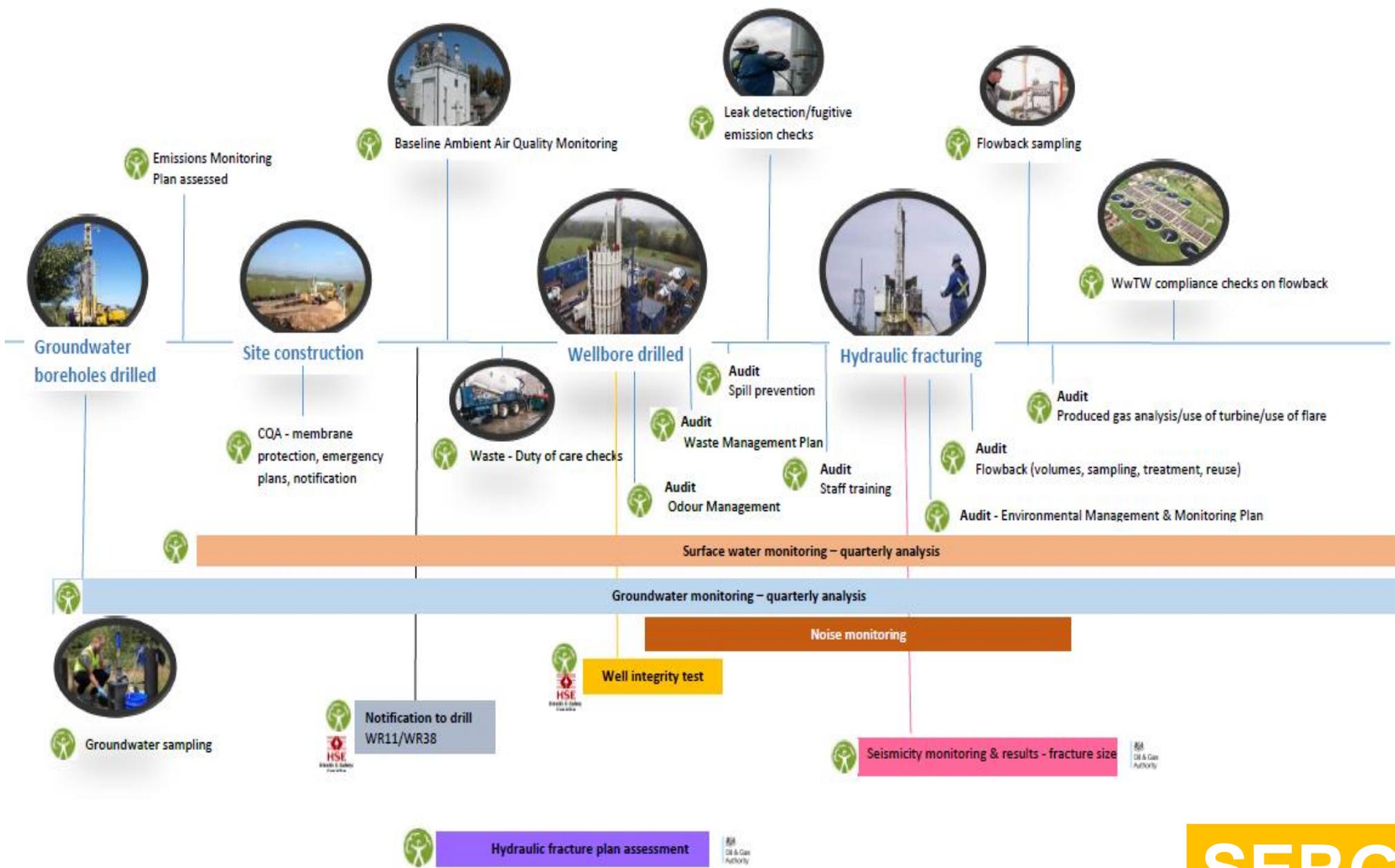


Permit compliance

- Permit compliance through:
 - Monitoring (operator and EA)
 - Audits (data, equipment and staff)
 - Site inspections (planned and unannounced)
 - Powers of entry (Environment Act)
 - Joint inspection with other regulators

- Range of enforcement actions if companies breach permit or cause pollution:





Preston New Road case study



- Environmental Permit granted Jan 2015
- Planning permission granted on appeal Oct 2016
- Site construction began Jan 2017
- 2 wells drilled August 2017 to July 2018
- Hydraulic fracturing operations began 15 Oct 2018

What we do and how we do it



EA permits regulate emissions to air, land and water from a range of activities. At PNR these activities are:

- Operation of the flare
- Management of hazardous/non-hazardous extractive waste
- Injection of hydraulic fracturing fluid
- Discharge of surface water
- Management of radioactive substances
- EU Emissions Trading System permit to regulate greenhouse gas emissions
- <https://consult.environment-agency.gov.uk/onshore-oil-and-gas/information-on-cuadrillas-preston-new-road-site/>

What we do and how we do it



- Highly skilled officers carry out site inspections and audits to assess compliance with the permit and supporting plans
- Compliance checks began when extractive waste was first produced
- Since then inspections & audits have included
 - Waste management
 - Groundwater monitoring
 - Air monitoring/leak detection
- Current focus is checking compliance with the hydraulic fracture plan
- Regular site visits by EA or with partner regulators



What happens next?



- We will complete the assessment of the Hydraulic Fracture Plan for Well PNR 2
- We will be discussing lessons learned from this phase of operation with others
- Preparing for well testing (of wells 1 & 2), and drilling (of wells 3 & 4)

The site

- Site must be designed and constructed correctly to protect groundwater e.g.:
 - site is lined with impermeable membrane
 - secondary and tertiary containment measures
 - appropriate surface water drainage, treatment and containment
- The storage of the fluids on the surface is regulated through the planning and permitting process
- EA may include conditions covering site construction
- Operators must consider decommissioning as part of their environmental permits



Flowback fluid

- Flowback fluid can be treated onsite and re-injected for subsequent fracturing
- 4 treatment sites with necessary permits
- Techniques exist to treat flowback
- Waste flowback cannot be re-injected into the ground for disposal



Flowback fluid composition

- Heavy metals
- Salinity
- Chemicals
- Low level NORM

Air quality- point source emissions

- Carry out site specific assessment
 - Assess flare design and impact on local air quality
 - Require;
 - enclosed flares
 - baseline monitoring
 - monitoring of methane to air-Infrastructure Act
 - management plan
 - operator to minimise fugitive emissions
- EA do not regulate traffic travelling to and from the site or local air quality



Air quality- ambient air monitoring

- Where the operator has undertaken to carry out ambient air monitoring EA will:
 - ensure relevant parameters are monitored
 - set timeframe for monitoring
 - ensure correct methodologies are used
 - require regular reporting of data
 - ensure compliance



Odour and noise

- EA regulate odour from permitted activities, where it may;
 - Cause offence to a human sense outside the site boundary;
 - Impair or interfere with amenities or uses of the environment
- Operator must;
 - use all appropriate measures to reduce impact
 - submit an odour management plan if requested by EA
- EA can take measures to bring operator into compliance

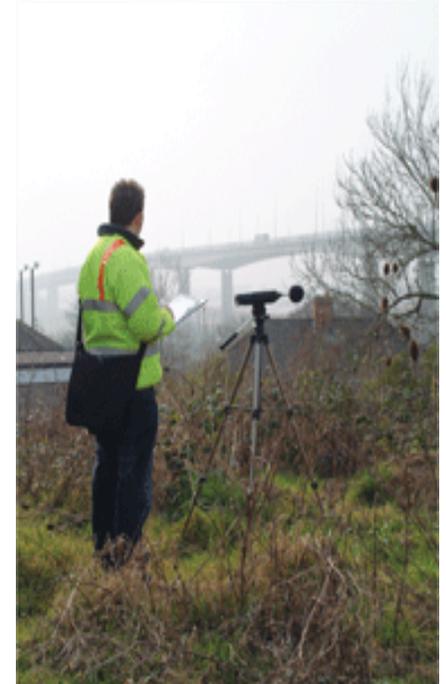
Noise

EA will:

- Include standard noise condition in permit:
- Assess noise (observed or measured)
- Take action to bring operator into compliance

EA will not:

- Use or enforce planning permission limits
 - Will liaise with the planning authority as a joint regulator
- Regulate noise at work (HSE)



Site Restoration

- Operators must consider decommissioning and site restoration from the start
- Permit requires the operator to have in place:
 - A closure and rehabilitation plan
 - A site condition report
- Permit surrender is not possible until;
 - An updated site condition report is submitted
 - The well is decommissioned in line with the HSE's requirements
 - No pollution at a site, or site is returned to its original condition

<https://m.youtube.com/watch?v=usebz4ng>

Ati Recently restored site



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Health and Safety Executive



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How HSE regulates onshore oil and gas

Insert venue and date

Trevor Sexty

Energy Division

Health & Safety Executive

Health and Safety Executive's role

- Britain is one of the safest places to work in the world
- 25 years' experience of regulating the oil and gas industry on and offshore
- HSE has no involvement in setting UK energy policy or environmental and planning decisions
- Cooperation with other regulators and public bodies
- Operators are responsible for managing risks
- HSE regulates and holds them to account

What are the main hazards?

Health and safety

Uncontrolled release leading to explosion or fire

Environmental

Fluids or water being released to rock formations or at surface, with safety and environmental consequences

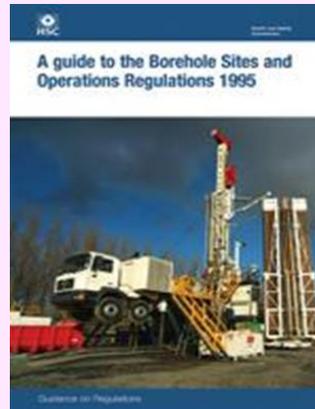
Before work starts

- Industry standards
- Meeting operators
- Auditing well examination scheme and appointment of independent well examiner

Well Integrity

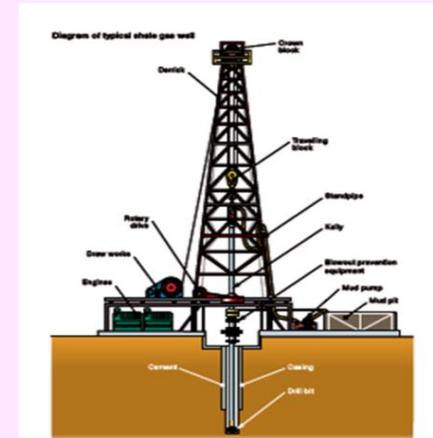
Regulations

- No unplanned release of fluids
- Notification
- Weekly report
- Independent examination



300 onshore wells drilled since 2000

4000 wells drilled offshore since 1965

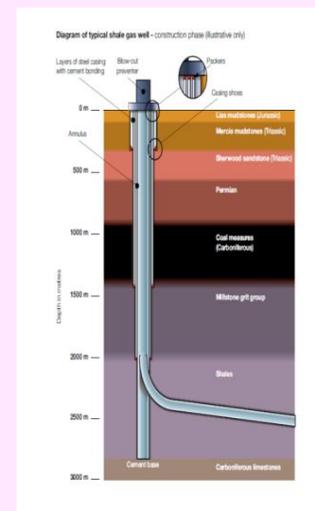


Lifecycle approach

- Design
- Construction
- Decommissioning

HSE scrutiny

- Notifications and reports
- Site visits
- Joint regulation



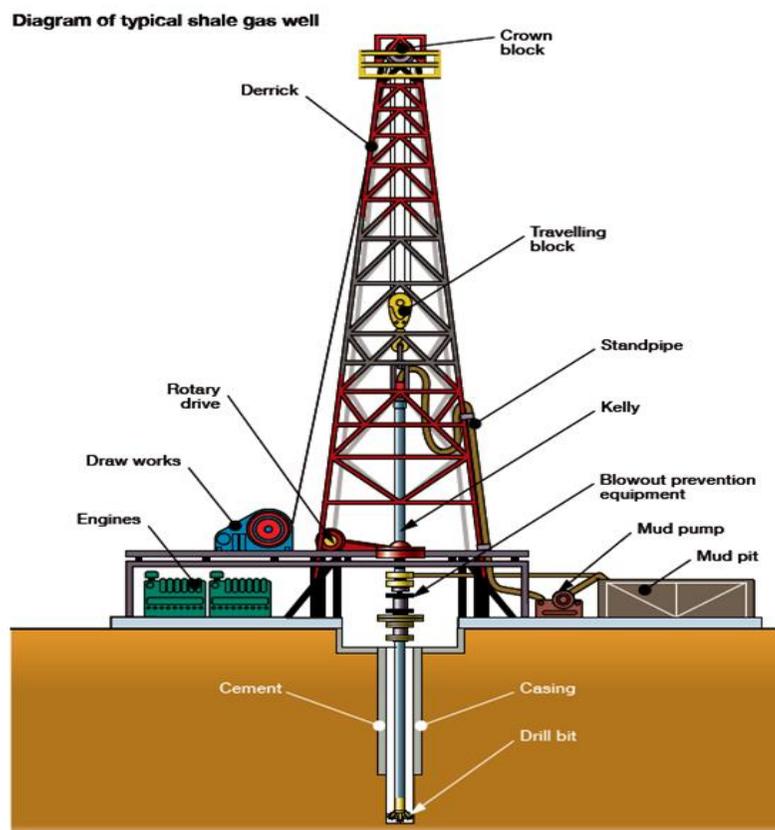
The independent well examiner

- Important quality control for the industry
- Independent competent person
- Assess well design, construction and maintenance.
- Review the proposed and actual well operations to confirm they meet the operator's policies and procedures, comply with HSE's Regulations and follow good industry practice.
- HSE checks that the operator has these arrangements in place for the complete lifecycle of the well from design through to final plugging and decommissioning

Design of the well

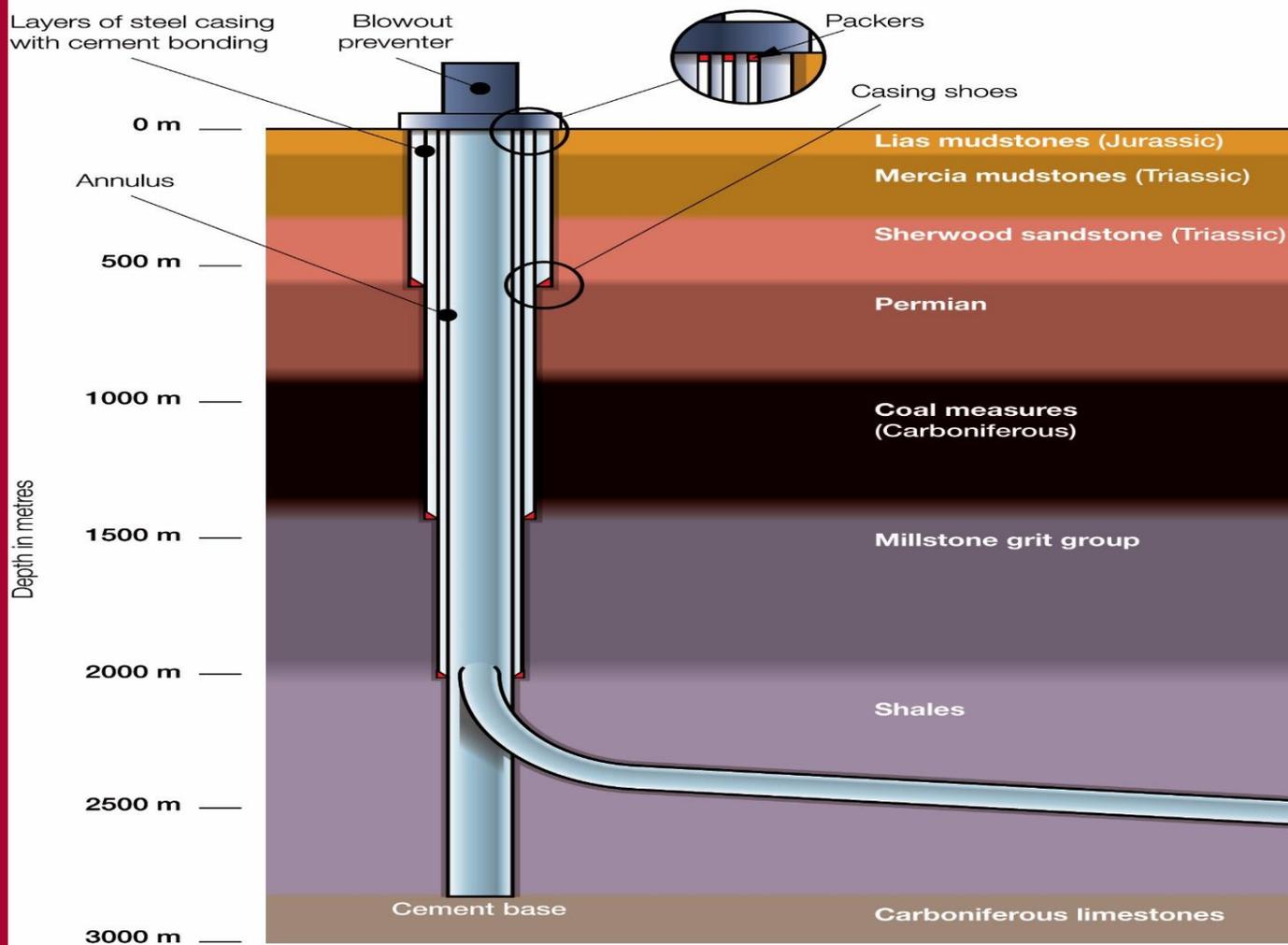
- The life cycle approach
- Well must be designed, constructed, operated, maintained, suspended, and abandoned so that there can be no unplanned escape of fluids for its entire life cycle
- Operator must mitigate all risks
- All wells constructed to industry standards with suitable well integrity and well control
- The well must be designed with decommissioning in mind

Designing the well: notification



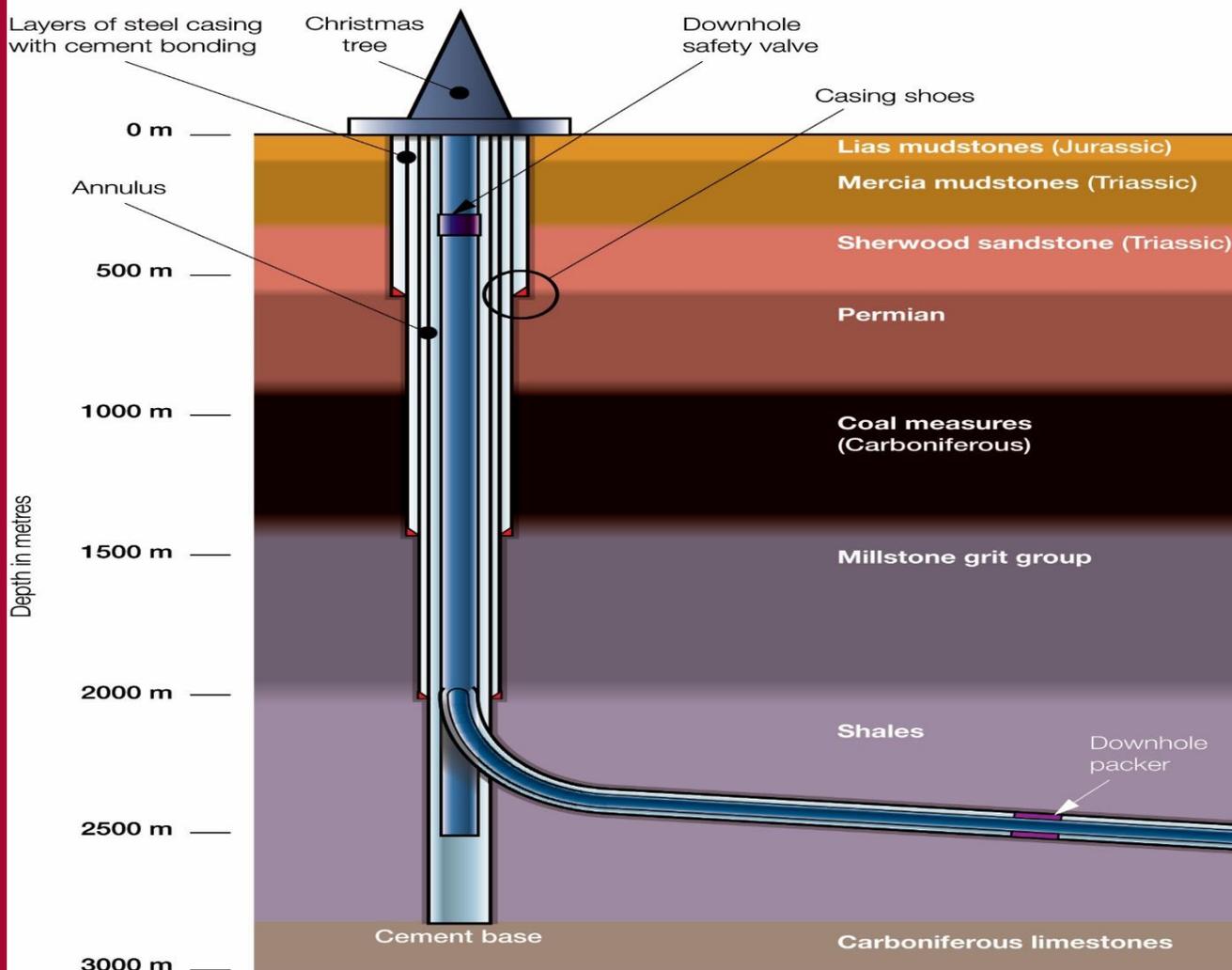
Design of the well

Diagram of typical shale gas well - construction phase (illustrative only)



Construction of the well

Diagram of typical shale gas well - testing phase (illustrative only)



Operation of the well



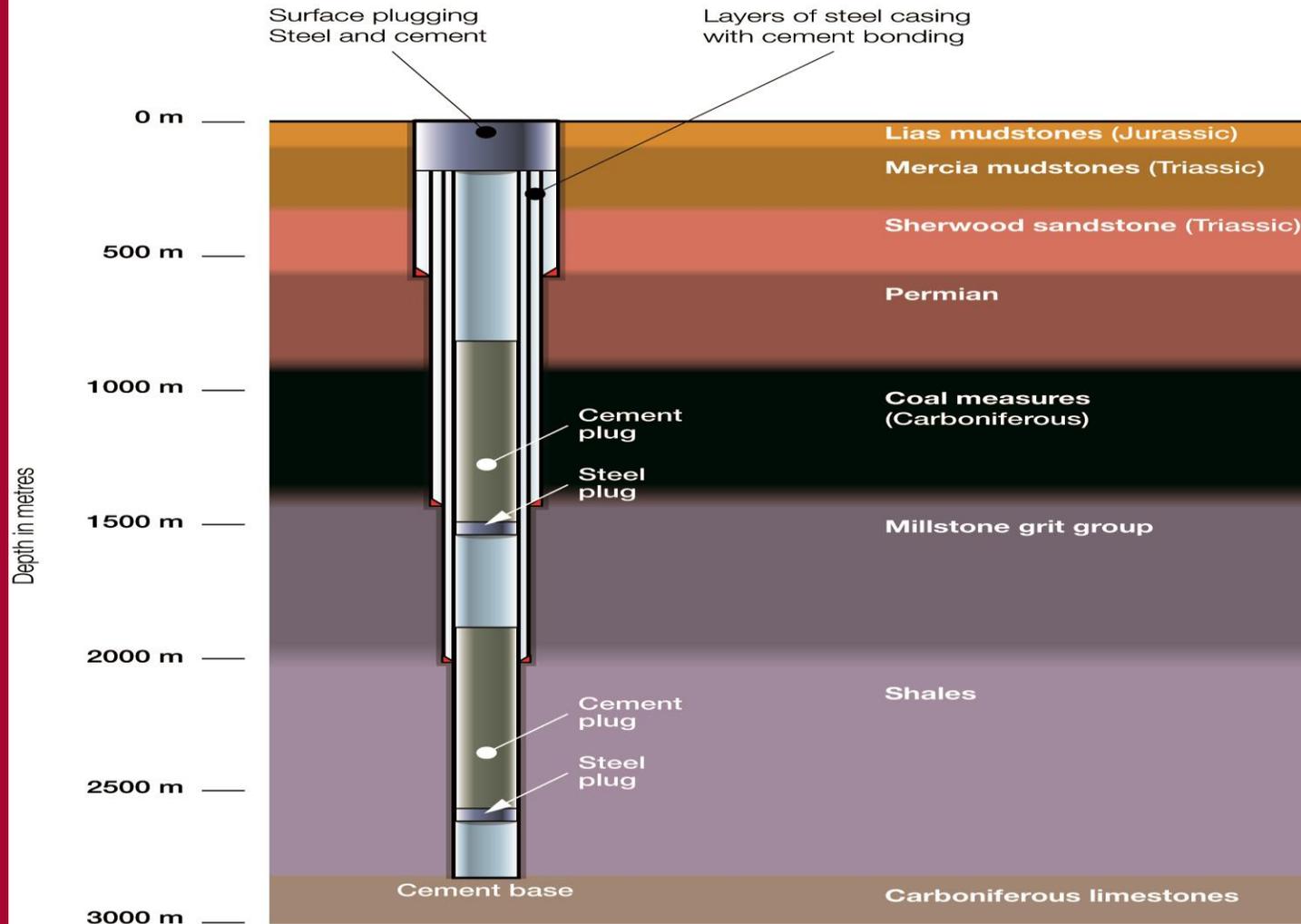
HSE's powers of inspection and enforcement



- Powers of entry
- Proportionate approach to seeking compliance
- Improvement Notices
- Prohibition Notices
- Prosecution

Decommissioning and abandonment of the well

Diagram of typical shale gas well - abandonment (illustrative only)



Any questions?

Control of Major Accident Hazards Regulations (COMAH)



- COMAH applies to sites where above threshold quantities of chemicals are stored and in process. For oil and natural gas (methane) these are:
 - Lower tier - 50 tonnes and above
 - Upper tier - 200 tonnes and above
- The operator must consider all chemicals on site and decide, on aggregate, if COMAH applies
- All COMAH sites must have a Major Accident Prevention Policy (MAPP), an internal emergency plan and an external emergency plan (prepared by the LA)
- Upper Tier Sites must also have a detailed Safety Report

Pipelines Safety Regulations 1996 (PSR)



PSR covers:

- Pipelines above and below ground, onshore and offshore, carrying gas and liquids (except water & sewage pipelines and those contained within a single site boundary)
- Pipeline design, construction, maintenance, prevention of damage, emergencies, decommissioning
- Major Accident Hazard Pipelines (MAHPs) based on toxicity/flammability/ pressure

MAHPs have additional duties:

- Operators must notify HSE pre construction/ commissioning / modifications, and prepare a Major Accident Prevention Document
- HSE establishes land-use planning and emergency planning zones around the pipeline

Gas Safety (Management) Regulations 1996 (GSMR)



- GSMR applies to operators of natural gas (methane) pipeline networks that either:
 - Connect to the GB natural gas network, and/or
 - Supply domestic premises.
- Before gas is conveyed operators must have a detailed Safety Case in place, which has been accepted by HSE.
- The Safety Case should demonstrate that the following issues are appropriately managed by the operator:
 - Safe operation and maintenance of the network
 - Competent people to carry out the work
 - Facilities for the public reporting of suspected gas escapes
 - Risk based and timely repair of gas escapes
 - Prevention of gas supply emergencies
 - Gas composition complies with laid down criteria



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Other Organisations



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Other Interested Organisations and Consultees

- **Coal Authority (CA)** – requires permit if drilling encroaches on coal seams
 - **British Geological Survey (BGS)** – informed of intention to drill
 - **Public Health England** – advises on the public health impacts of shale gas extraction
 - **Planning Inspectorate or SoS** – planning appeals
 - **UKOOG** – represent the onshore oil and gas industry
 - **Other statutory consultees** – Natural England, Historic England etc.
-

Summary

- Awards and consent process involves a wide range of bodies
 - Robust regulatory regime has been established
 - Assumption that regulators will do their job and enforce safety rigorously
 - Interface and good communication between the MPA and the Regulators are critical
-



planning advisory service



Breakout session – the other regulators and how planning fits into the regulatory process



www.pas.gov.uk

Discussion points

Consider how the various regulatory bodies interact and fit into the planning process and how planning fits with their regulatory roles.

Come forward with ideas on good practice on how the regulators can work together during the decision making process including providing information to the public, integrating consultations etc.

How can councillors and the public be reassured the non-planning issues are being properly dealt with in decision making.



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Final Questions, concluding remarks and evaluation



www.pas.gov.uk

PAS needs your feedback

- PAS need to know what you think. On reflection, was today actually useful ?
 - 10 minutes of feedback in return for £100s of support
 - We read all comments and use your ideas to change what we do and how we do it
 - Please complete the feedback/evaluation form
-

How can you help us?

- Subscribe to our bulletin.
 - It's not another newsletter – our events and materials
 - Talk to us. We are friendly. pas@local.gov.uk
 - Tell us what we can do to help
 - Invite us to your local POG
 - Show off if you are doing great things
 - Remember the Khub practitioner network
 - We hang out there too
-

We are at local.gov.uk/pas

PAS

We provide high quality help, advice, support and training on planning and service delivery to councils. We help local government officers and councillors stay effective and up to date. We have a 'sector led' improvement approach, where local authorities help each other to continuously improve.



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Knowledge sharing, updates
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What's happening elsewhere?

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The screenshot shows the Knowledge Hub interface. At the top, there is a purple navigation bar with the following items: a dropdown arrow, the KHL logo, 'GROUPS', 'PEOPLE', 'NETWORKS', 'HELP', a user profile for 'Martin', an envelope icon, a notification bell with a red '3', and a search icon. Below the navigation bar, the main content area is divided into two columns. The left column features a green rounded square icon with the text 'Effective Planning for Shale Gas'. Below the icon, it says 'Last activity - Today'. Underneath, there is a section titled 'You joined' with four options: 'Add to favourites' (with a bookmark icon), 'Subscribe' (with a checkmark icon), 'Leave the group' (with a minus icon), and 'This is a restricted group' (with a red lock icon). The right column displays the group title 'Effective Planning for Shale Gas - forum for planning authorities' in a large, bold font. Below the title, there is a light blue dashed border box containing the group's purpose and aim. The text inside the box reads: 'This group's purpose is to equip planning authorities to deal quickly and effectively with all aspects of planning applications for shale gas. Our aim as a group is help you to navigate and understand the latest national policy developments; plug you into help & advice from the regulators and signpost useful training, guidance and funding. The group is moderated by the LGA & PAS and is for local government planning professionals and councillors. We are also extending membership to key people working for the regulatory authorities.'



Questions?

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