



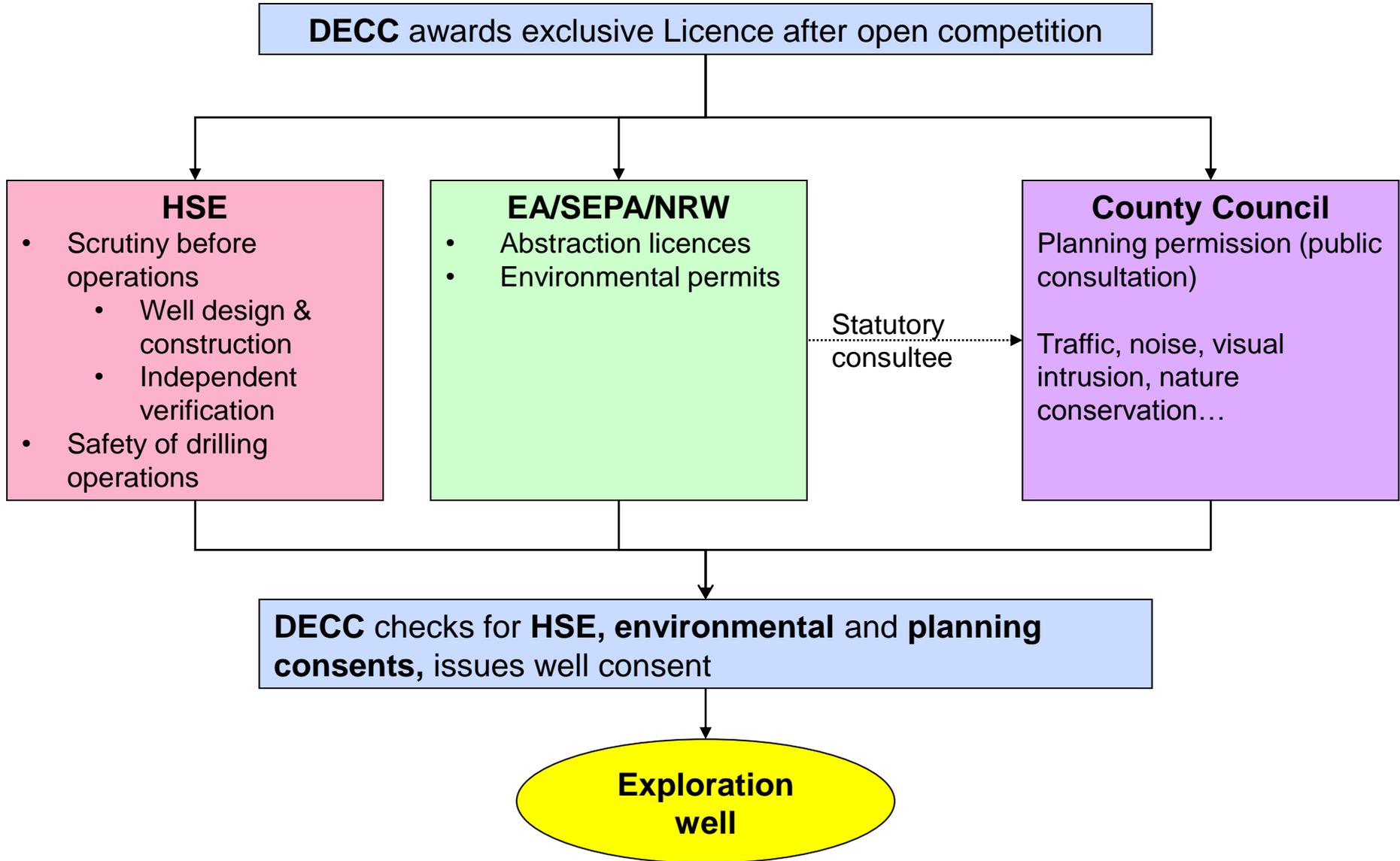
Department
of Energy &
Climate Change

Shale gas in the UK

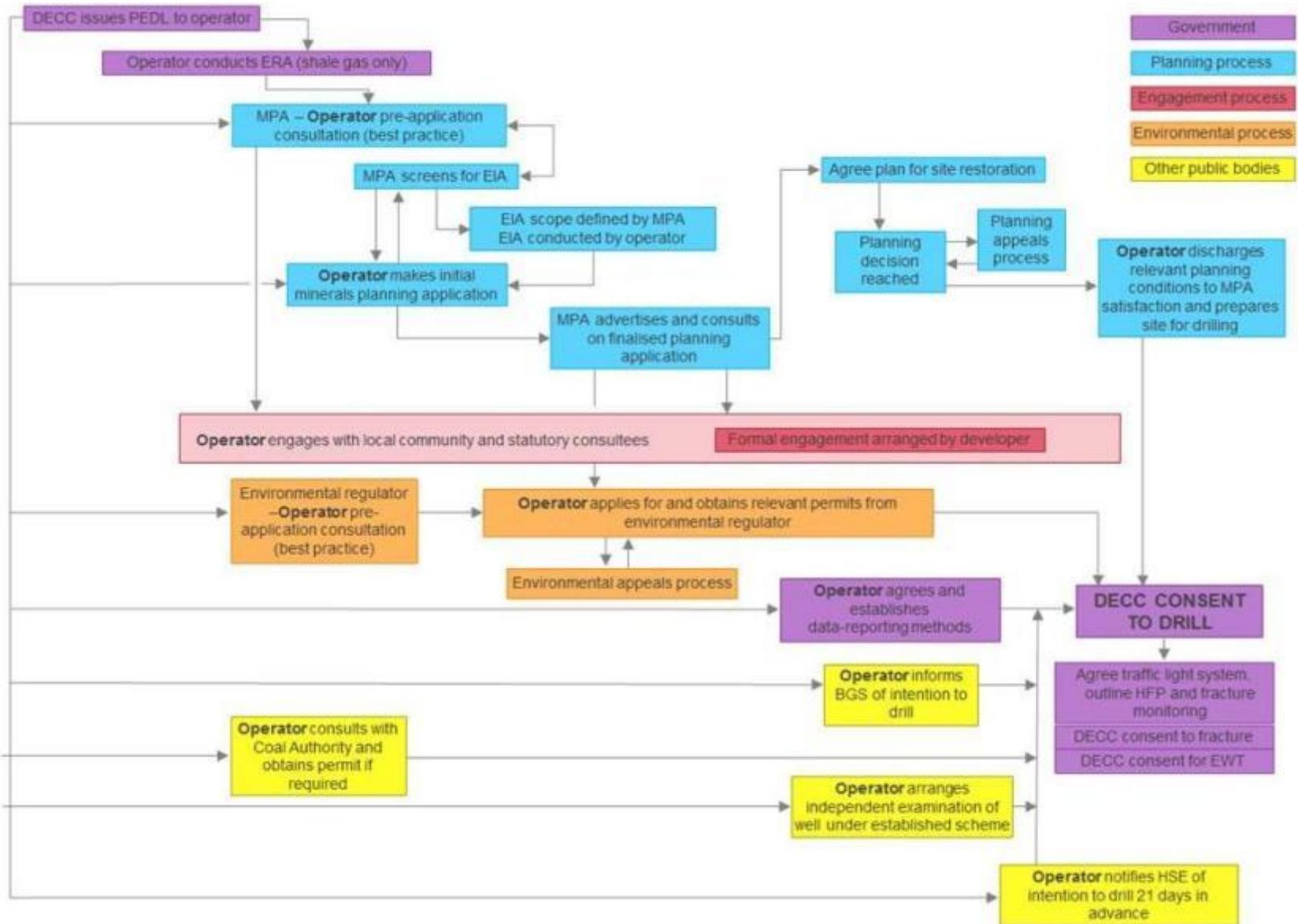
Regulatory framework

West Sussex Oil and Gas Exhibition – 21 June 2014

Regulatory process - exploration



Regulatory process - exploration





**west
sussex
county
council**

**Making a
difference**

Onshore Hydrocarbons

Michael Elkington
Strategic Planning Manager

Oil and Gas Exhibition
21 June 2014

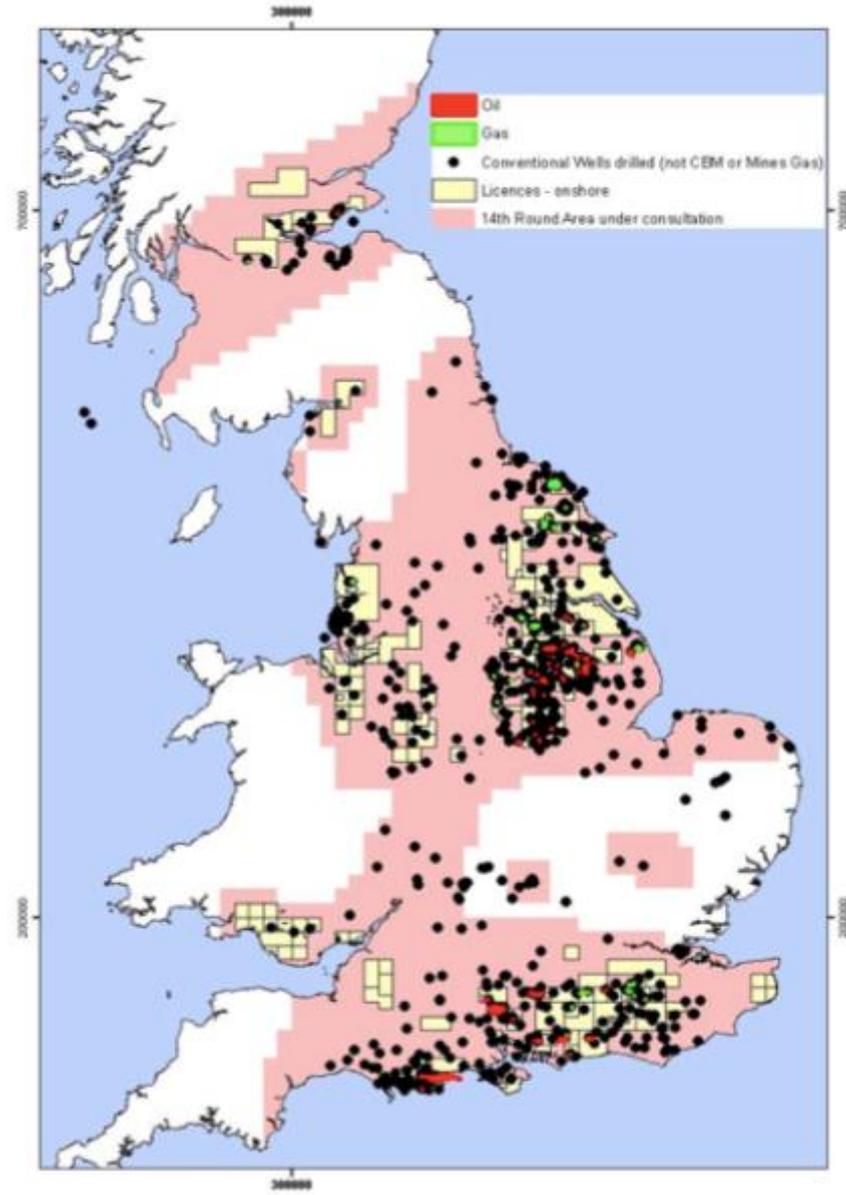
Roles and Responsibilities



Mineral Planning Authorities

- Two MPAs cover West Sussex:
 - County Council (for areas outside the South Downs National Park)
 - South Downs National Park Authority
- Two main functions:
 - to prepare a Local Plan which guides the use and development of land for onshore hydrocarbon extraction
 - to determine planning applications for onshore hydrocarbon extraction

National Planning Policy



National Planning Policy Framework & Guidance

- MPAs should make provision for the extraction of nationally important resources (which include oil and gas)
- Mineral extraction should not have an unacceptable adverse impact on natural or historic environment, or human health
- Government guidance:
 - pressing need to establish whether unconventional hydrocarbons are present and economically viable for production

Three Phases of Extraction

- Exploration:
 - seismic surveys used to understand geology
 - exploratory drilling:
 - short-term but intensive activity
- Testing and Appraisal:
 - may involve additional seismic work, flow-testing, or the drilling of new wells
 - relatively short-term but depends upon resource
- Production:
 - drilling of wells at existing or new sites
 - long-term (e.g. 20 years)

Local Planning Policy



West Sussex Minerals Local Plan

- Adopted in 2003:
 - part of the statutory 'development plan'
 - used for decision-making unless policies are out-of-date or the plan is 'silent'
- Policies 26 and 27 - oil and gas extraction
- Policy 26:
 - criteria-based i.e. not site or area specific
 - identifies the need to address alternative sites and acceptability:
 - focus on impacts on countryside, HGVs, residential amenity, rights of way, and water supply/environment

Planning Application Process



Planning Application Process

- Planning permission is required for each stage of extraction:
 - but one planning application can cover more than one phase.
- MPA cannot pre-determine whether a proposal should be permitted or refused
- MPA must treat proposals on their merits:
 - taking into account the statutory 'development plan' and all other 'material considerations'

'Material Considerations' inc.

- Consistency with national and local policy
- Views of consultees, landowners, and public
- Visual impact - local area and more widely
- Impact on local amenity and health
- Impact on highway capacity and road safety
- Impact on historic environment
- Impact on ecology and biodiversity
- Impact on water environment & flood risk
- Site restoration and aftercare

Not 'Material Considerations'

- Demand for, or alternatives to, onshore oil and gas resources
- Emissions, control processes, or health and safety issues that are addressed under other regulatory regimes:
 - MPA must assume that non-planning regimes will operate effectively
- Potential future planning applications
- Landownership and other civil matters
- Loss of property value

Non-Planning Issues e.g.

- Seismic risks – DECC
- Well design, construction, and integrity – HSE
- Mining waste – EA
- Chemical content of fracking fluid – EA
- Flaring or venting of gas – DECC/EA:
 - but MPA consider noise and visual impacts
- Disposal of water following fracking – EA
- Abstraction of water – EA

Compliance and Enforcement



Controlling Development

- Monitor compliance with conditions:
 - site visits (announced and unannounced)
- All possible breaches are investigated:
 - work with other regulators
- Action is discretionary:
 - as far as possible, use negotiation and seek informal resolution
 - any formal action must be appropriate & proportionate:
 - not used for minor or technical breach where little or no harm to environment or amenity

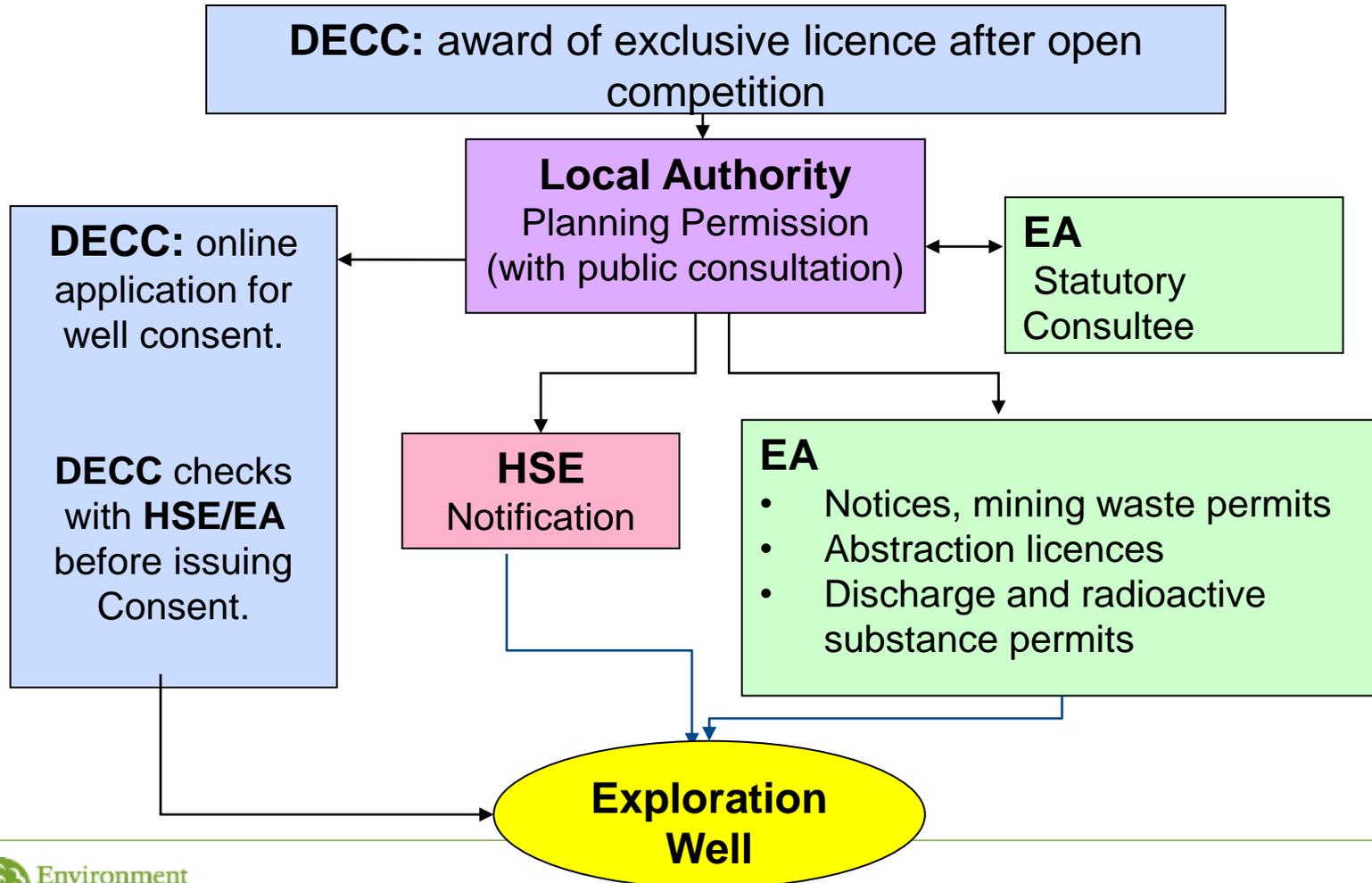
Environment Agency

Regulatory approach to oil and gas exploration

West Sussex Oil & Gas Workshop 21 June 2014

Paul Batty, Danny Lee and Michael Turner

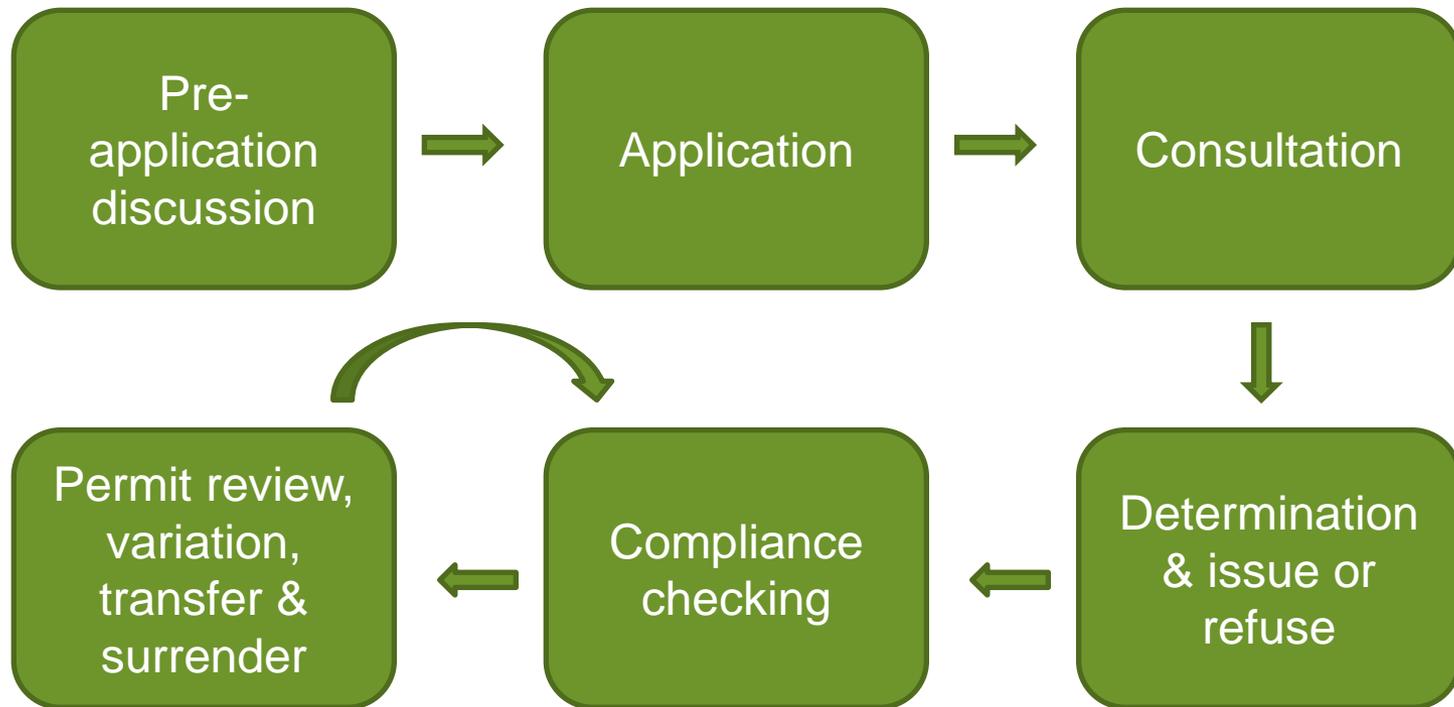
Regulators



Permits that may be required

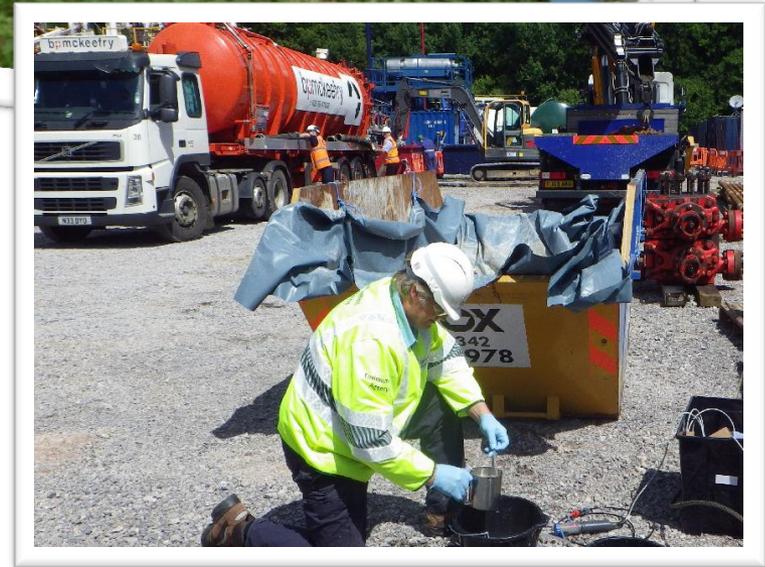
Permit	Reason
Section 199 Notification	Notification of intent to drill a borehole for minerals
Mining Waste Activity	Gas emissions and drilling waste
Abstraction Licence	Water abstracted for use in the process
Groundwater Activity	Direct discharges to groundwater
Water Discharge Activity	Direct discharges to surface water
Radioactive Substance Activity	For any naturally occurring radioactive substances resulting from oil & gas production
Industrial Emissions Activity	For large scale flaring

The permitting process



Permit conditions: Water environment

- ➔ Drilling additives – technical assessment
- ➔ Well design – groundwater protection
- ➔ Impermeable membrane
- ➔ Surface water drainage
- ➔ Storage of materials, chemicals and fuels
- ➔ Environmental monitoring e.g. surface water



Permit conditions: Air quality



- ➔ Controlled under the mining waste permit
- ➔ Operator may be required to carry out air quality monitoring
- ➔ Flaring better than venting
- ➔ Flare design meets best available technology

Permit compliance checking

On Public Register:

- ➔ Inspection visits
- ➔ Environmental monitoring visits
- ➔ Audit of operator records

Plus, we ensure:

- ➔ Regular communications with the operator, other regulators and general public
- ➔ Following up reports of pollution



The Regulatory Framework for shale gas and oil – HSE's perspective

Tony Almond

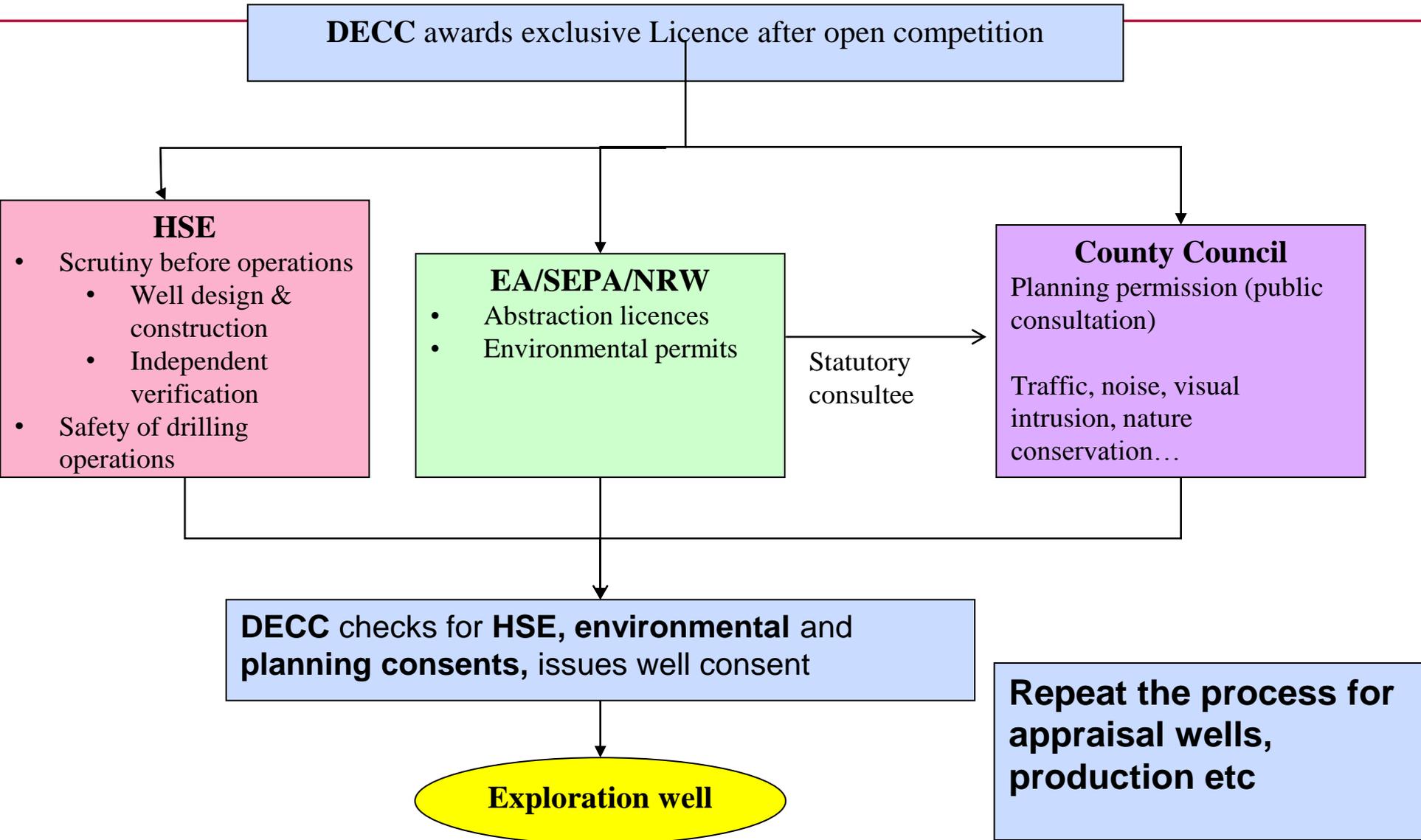
Health and Safety Policy – Shale Gas and oil

Health & Safety Executive

Health and Safety Executive's role

- The Health & Safety Executive (HSE) is the health and safety regulator in Great Britain for work related activities, including those associated with shale gas and oil
- HSE's role is to ensure that operators of shale gas and oil activities are adequately managing and controlling risks to the health and safety of people, whether workers, contractors, or members of the public
- HSE has no role in setting energy policy and deciding what is the right mix of energy sources. HSE is also not involved in environmental protection, licensing or planning decisions related to shale gas and oil. However, HSE does work collaboratively with the bodies responsible for overseeing such areas
- For shale gas and oil operations, HSE focuses on well integrity, this is equally important for safety as well as environmental protection.

Regulatory landscape for unconventional gas



So what are the main hazards?

- The effective management and control of well integrity is key to safe shale gas and oil operations and mitigating the risk of environmental pollution
- The main hazard from shale gas and oil operations is the uncontrolled release of hydrocarbons due to a failure of the well structure, which may then reach a source of ignition leading to a fire or explosion
- Where there is a loss of well integrity, there is also the possibility of fracking fluids or water being released to the surrounding rock strata or at surface, which may have environmental consequences depending on the location of water aquifers
- The occupational health and safety risks to workers from shale gas and oil pilot activities are considerably lower than for other mineral extraction industries (e.g. coal mining and offshore oil and gas)

The health and safety regulatory regime

- HSE's regulatory regime is long established and is goal setting. The general duties under the Health and Safety at Work Act etc 1974 (HSWA) require risks to workers and the public to be reduced so far as reasonable practicable. This is supplemented with more specific regulations particular to the extraction of gas and oil through wells, which includes shale gas and oil operations
- The Borehole Sites and Operations Regulations 1995. - Onshore specific. These regulations require notifications to be made to HSE about the design, construction and operation of wells, and a health and safety plan which sets out how risks are managed on site
- The Offshore Installations and Wells (Design and Construction etc) Regulations 1996. These regulations include specific requirements for all wells, whether onshore or offshore, and include well integrity provisions which apply throughout the life of shale gas or oil wells
- This combination of duties ensures that HSE is provided with information at key stages in the lifecycle of a well and allows HSE to assess whether risks are being adequately controlled and, if not, to intervene

How does HSE conduct its interventions

HSE's intervention approach has two elements

- The first has been to contribute to the development of best practice standards for the industry as a whole with the United Kingdom Onshore Operators Group. These standards were published in February 2013
- The second element is to focus HSE interventions with particular sites and operators on the key risk control measure of ensuring well integrity. For this, HSE uses its team of expert wells engineers who cover all types of hydrocarbon wells both on and offshore. As an oil or gas well is a complex engineered construction, most of which is not accessible to visual inspection, HSE takes a lifecycle approach to well integrity
- HSE is also committed to visit jointly with the Environment Agency **all shale gas sites** during the current exploratory phase of shale gas development.

The lifecycle approach to well integrity

- ***Well notifications submitted to HSE*** - This allows HSE to assess the well design before construction starts. This is a key phase of work where the vast majority of issues likely to have an impact on well integrity will be identified and addressed by the well operator. It includes ensuring that safety features are incorporated into the design
- ***Weekly operations reports submitted to HSE*** - This provides HSE with the assurance that the operator is constructing and operating the well as described in the notification. When they are not, HSE can take the appropriate action.
- ***Interventions with well operators, prior to and during the operational phase*** - This includes site inspections to assess well integrity during the operational phase. For new and first time **shale gas** operators, HSE and the Environment Agency will meet and advise them of their duties and conduct a joint inspection of their key operations

Working with Environment Agency

- Agreement (MOU) - November 2012
- Aim: wells are designed, constructed and operated to standards that protect people and the environment.
- For new and first **time shale gas operators** we will:
 - meet and advise them of their duties under the relevant legislation
 - conduct a joint inspection of the key operations, including: cementing and verification of cement; mini hydraulic fracture; and bleed back; and the main hydraulic fracture
- For all other sites we conduct a joint visit with EA of key operations
- Other MoU's with SEPA and NRW under development

The independent well examiner

- HSE's regulatory approach is supplemented by the requirement in DCR for an independent well examiner to assess well design, construction and maintenance. The well examiner is an independent competent person separate from the immediate line management of the well operations being examined
- The examiner's task is to 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. This includes periodic site visits
- HSE checks that the operator has these arrangements in place. The well examination scheme and involvement of the well examiner is for the complete lifecycle of the well from design through to final plugging and decommissioning

Summary



- The health and safety regime
- How HSE regulates
- How HSE and other regulators work together
- The role of the independent well examiner

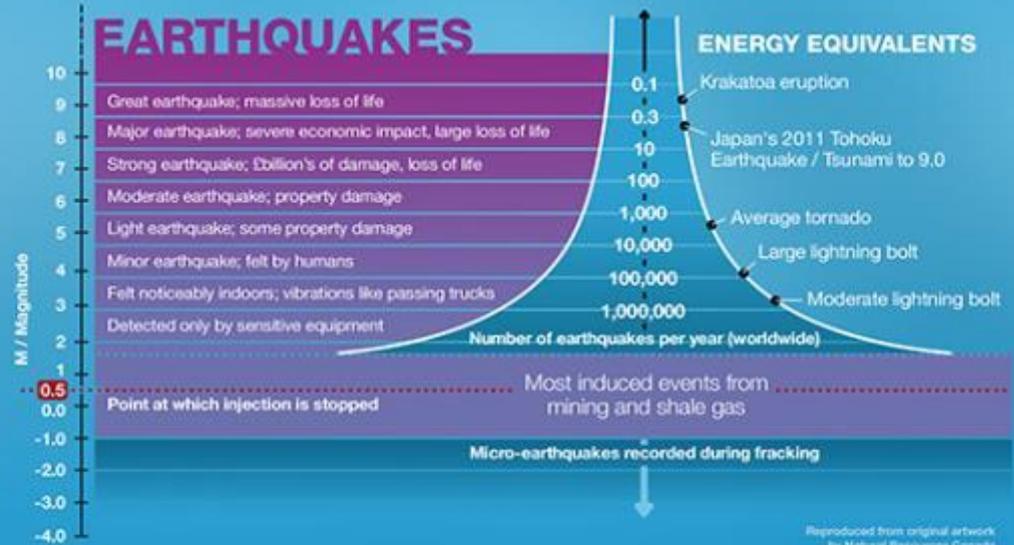
Refining regulation

Traffic light monitoring system

Controls are in place so that operators will have to assess the location of faults before fracking, monitor seismic activity in real time and stop if even minor earth tremors occur.

If a magnitude greater than **M 0.5*** (0.5 on the Richter scale) is detected operations will stop and the pressure of the fluid will be reduced. This level should limit further earthquakes, known as 'induced seismicity', which may happen after the pumping is completed.

**subject to review and may change.*



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