Oil & Gas Development in Hampshire
Background Study

Draft (June 2015)
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Foreword

Hampshire has some of the most beautiful countryside and coastline in the United Kingdom (UK). This is one of the reasons why so many choose to live here. In 2013, Hampshire County Council (HCC), Portsmouth City Council (PCC), Southampton City Council (SCC), the New Forest National Park Authority (NFPNA) and the South Downs National Park Authority (SDNPA) adopted the Hampshire Minerals & Waste Plan (the ‘Plan’) in partnership as Minerals Planning Authorities (MPAs) in Hampshire.

The Plan ensures that we have enough minerals for Hampshire's needs up to 2030 as well as ensuring there are enough facilities to effectively deal with our waste management requirements.

Oil and gas are mineral resources and primary sources of energy. It is evident that the UK is becoming increasingly reliant on these resources to meet its energy needs. However, oil and gas are both finite natural resources which are being depleted through our energy and manufacturing requirements.

Demand for oil and gas in the United Kingdom is currently supplemented by imported oil and gas. This factor, in addition to volatile energy prices, has resulted in energy security becoming a focus for national policy. Accordingly, there is a national and local need to secure a sustainable energy supply including suitable oil and gas resources. Oil and gas development is therefore an important issue for Hampshire as its communities and economy both rely on oil and gas.

Hampshire already has a long history of conventional oil and gas development with three existing active oilfields and associated satellite sites and infrastructure. One of Hampshire's oilfields also stores gas underground.

Hampshire’s in-situ oil and gas resources may provide further opportunities to extract suitable oil and gas resources to meet growing energy demands, if this represents sustainable development.

All oil and gas development requires planning permission from the relevant MPA as well as the relevant regulating licences and/or environmental permits from other agencies. These permissions and consents protect Hampshire's communities and the environment from many of the potential negative effects of development and ensure the sustainable restoration of oil and gas sites.

This study sets out background information on oil and gas development in Hampshire. It has been prepared to support the emerging Oil and Gas in Hampshire Supplementary Planning Document (SPD).
1. Introduction

1.1 Hampshire County Council (HCC), Portsmouth City Council (PCC), Southampton City Council (SCC), the New Forest National Park Authority (NPNFPA) and the South Downs National Park Authority (SDNPA) worked in partnership to produce the Hampshire Minerals & Waste Plan ('the Plan').

1.2 The Plan is based upon the principle of delivering sustainable minerals (and waste) development in Hampshire up to 2030. In relation to minerals, this means ensuring Hampshire has the right minerals developments to maintain a reliable supply, at the right time, whilst protecting the environment and our communities.

Figure 1: Balancing the environment, community and the economy in Hampshire

Source: Hampshire Authorities, 2013

1.3 Following the adoption of the Plan, the plan-making partnership came to an end. A new partnership has been established between HCC, PCC, SCC and the NPNFPA (hereafter referred to as the 'Hampshire Authorities') to implement and monitor the Plan.

1.4 Since the adoption of the Plan, oil and gas development has emerged as an issue of great interest to Hampshire's communities and other interested parties, in particular the potential for unconventional oil and gas development including hydraulic fracturing ('fracking').
1.5 Oil and gas (also known as 'hydrocarbons') play a central role in the United Kingdom's (UK) economy as they are primary sources of energy. Government energy policy makes it clear that energy supplies should come from a variety of sources including oil and gas. Accordingly, there is a national and local need to sustainably secure oil and gas resources.

1.6 The whole of Hampshire's communities and economy requires oil or gas in one way or another and reliance is currently placed on the UKs and imported resources to meet demand. However, oil and gas are both finite natural resources which are being increasingly depleted through our domestic, business and industry requirements. This factor, in addition to volatile energy prices, has resulted in energy security becoming a focus for national policy.

1.7 In Hampshire, conventional exploration, appraisal and production of oil and gas has taken place for a number of years, resulting in the location of three active oil fields at Humbly Grove near Alton, Stockbridge and Horndean. Underground gas storage also takes place at Humbly Grove.

1.8 In recent years, unconventional oil and gas extraction has emerged as a potential form of energy supply. The drive towards energy security has led to oil and gas companies seeking to employ new techniques to extract unconventional oil and gas resources such as hydraulic fracturing or 'fracking'. Hampshire's geology means that any potential for unconventional resources lies with shale and no other form of unconventional oil or gas. This guidance only refers to shale oil and gas.

**Purpose of this document**

1.9 The purpose of this document is to provide background information related to oil and gas development in Hampshire. It has been prepared to support the emerging Oil and Gas in Hampshire Supplementary Planning Guidance Document (SPD).

**Have YOUR Say on this document**

1.10 Comments on any part of this study are welcomed. However, you may wish to consider the following questions when preparing your response:

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**Where can I find out more information?**

1.11 For more information on this document, please contact Minerals and Waste Planning Policy at Hampshire County Council using the following details:

**Address:** Strategic Planning (Minerals and Waste Policy), Department for Economy, Transport and Environment, Hampshire County Council, The Castle, Winchester, Hampshire, SO23 8UD

**Tel:** 0300 555 1389 (HantsDirect)

**Email:** planning.policy@hants.gov.uk

**Website:** [www.hants.gov.uk/county-planning](http://www.hants.gov.uk/county-planning)
2. Oil and Gas origins

2.1 Oil or gas deposits are found at much deeper levels in the ground than the other minerals worked in Hampshire such as sand, gravel or clay. Natural gas is almost always found lower in the ground than oil.

2.2 All oil and gas fields form by a chance combination of events that produces the right sorts of rocks and structures, together with the right timing.

2.3 The following diagram illustrates where oil and gas are formed.

Figure 2: Oil and gas formation

Source: Hampshire Authorities, 2014
2.4 After oil and natural gas are formed, they tend to migrate into the surrounding rock. Most oil and gas fields are found in sedimentary rocks such as sandstone and limestone because of the rocks porosity and permeability, as this allows oil and gas to move and accumulate (often referred to as 'source rocks'). An oil and gas accumulation will occur if a trap caused by an impermeable rock exists from which hydrocarbons cannot escape. Trapped and sealed against this impermeable rock (referred to as a 'cap rock'), slowly, oil and gas will build up and form reservoirs. Once a source rock has started to generate oil or gas it is said to be mature.

2.5 The British Geological Survey (BGS) considers the issues of oil and gas origins in more detail\(^1\).

**Hampshire's geology**

2.6 In Hampshire, oil and gas resources were largely developed in the Jurassic and Triassic periods (136 to 225 million years ago). These periods of time saw source rocks being contained within the Lower Lias, the Oxford Clay and the Kimmeridge Clay geological formations. As a result, these formations provide the sources of oil and gas. The following diagram illustrates Hampshire's geology.

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\(^1\) BGS: [www.bgs.ac.uk/downloads/start.cfm?id=1366](http://www.bgs.ac.uk/downloads/start.cfm?id=1366)
2.7 The Wessex-Channel Basin contains oil and some gas from Jurassic and Triassic reservoirs with potential source rocks in the Liassic clays, Oxford Clay and Kimmeridge Clay. The Wessex-Channel Basin is shown in the following map.
The Weald Basin produces oil and some gas from Jurassic and Triassic reservoirs. The majority of the basin is of Lower Cretaceous age. The Weald Basin is shown in the following map.
A recent assessment of the Weald Basin by the BGS has shown that it has potential for shale oil (see [Shale oil](#)).

**Conventional oil and gas**

2.10 ‘Conventional' oil and gas refers to oil and gas resources contained in sandstone or limestone rock formations which are relatively porous.

2.11 Although the conventional oil and gas reservoirs are usually underlying shale, conventional extraction does not include shale oil or gas.

2.12 In Hampshire, only conventional oil and gas development has been permitted to date (see [Current oil and gas activity in Hampshire](#)).
2.13 Conventional extraction methods generally involve drilling a borehole down to the porous rock where oil or gas is located in reservoirs (see Extraction and production of oil and gas).

2.14 The key differences between conventional and unconventional oil and gas are the flow rate and the depth of drilling. Drilling into a conventional resource would normally result in at least some flow of oil and gas immediately. The following diagram illustrates the differences between conventional and unconventional oil and gas activity.

Figure 6: Conventional and unconventional oil and gas

Unconventional oil and gas (shale)

2.15 Oil and gas extracted from shale is often referred to as 'unconventional' and refers to the type of rock in which it is found. It is found where oil and gas has become trapped within the shale rock itself and has not formed conventional reservoirs.

2.16 Unconventional resources are typically found at far greater depths than conventional oil and gas.
Shale is a sedimentary rock and is comprised of varying minerals such as mud and clay, depending on the geological composition of an area. Geologists have known for years that substantial deposits of oil and natural gas are trapped in deep shale formations in the UK. These rock formations have previously been considered too impermeable ('tight') to allow for economic recovery. An unconventional accumulation of oil and gas has to be stimulated in some way before it will flow e.g. through ‘fracking’ and other processes and also takes place at greater depth which makes it more difficult to recover. Advancements in technology over the last decade have made the extraction of shale oil or gas more economically viable.

In Hampshire, there is potential for shale oil and gas extraction although the exact potential is largely unknown to date. Other unconventional resources such as coal bed methane are not found in Hampshire as the County does not have the necessary geology.

The BGS in association with the Department of Energy and Climate Change (DECC) has estimated the amount of shale oil or gas in the Weald Basin in south-east England which covers parts of east Hampshire. The study concluded that the Weald Basin could contain:

- between 2.20 and 8.57 billion barrels (bbl) or 293 and 1143 million tonnes (but the central estimate for the resource is 4.4 billion bbl or 591 million tonnes) of shale oil; and that
- there are no significant gas resources which have been recognised using geological modelling within the study.

No assessment of the potential for unconventional oil or gas has been made in other parts of Hampshire.

Shale oil

Shale oil is an unconventional oil produced from shale rock. Various processes are used to convert organic matter within the rock into synthetic oil. The resulting oil can be used immediately as a fuel or upgraded to meet refinery feedstock specifications and can be used for the same purposes as those derived from crude oil.

Shale gas

Shale gas is found within organic-rich shale beds, which are actually layers of rock, rather than a conventional 'reservoir' capped by shale or other beds. Shale gas is produced directly from the layered source rock and is mostly comprised of methane. Shale reservoirs are usually 5,000 feet or more below the surface.

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Underground gas storage

2.23 Natural gas, like many other commodities can be stored for an indefinite period of time in gas storage facilities for later consumption. Gas is commonly held in a pressurised underground inventory, for example in depleted oil and gas reservoirs. Underground storage provides larger and deeper options than storage on the surface. The following diagram illustrates gas storage underground.

Figure 7: Underground gas storage

Source: Hampshire Authorities, 2014

2.24 Depleted reservoirs can be used to store gas in the natural void left following extraction. The use of reservoirs also allows for the re-use, with modification, of the extraction and distribution infrastructure installed when the site was in production.

2.25 Gas storage has a national economic importance. It is seen as a way of managing gas supply, particularly during periods of peak demand and as a stand by in case of interruptions to imports of gas into the UK.

2.26 Underground gas storage takes place at one of Hampshire's oil fields (see Current oil and gas activity in Hampshire).
3. What does an oil or gas site look like?

3.1 What an oil or gas site looks like on the ground will depend on its location, its design and the type and phase of development taking place.

3.2 The location of a site will be determined by the results of geological and seismic surveys which will determine where viable oil or gas deposits may be located. These will be used as a guide to determine the potential location of wells.

3.3 Preparing a site involves ensuring that it can be properly accessed and that the area where the equipment will be placed has been properly graded.

3.4 Drilling pads, roads and any other associated infrastructure will be built and maintained.

3.5 The site constructed will be large enough to accommodate the drilling equipment and onsite water storage requirements, staff facilities, parking and space for vehicle deliveries and movements.

3.6 The well will be situated on a pad and will normally consist of a vertical well and potentially a small number of lateral extensions.

3.7 The site will normally be vacated after the exploration stage.

3.8 The appraisal phase may involve additional drilling at another site away from the exploration site or additional wells at the original exploration site.

3.9 A rig will be on site for the duration of the exploratory phase. It will also be used to drill any further boreholes which may be required within the appraisal and production stages.

3.10 For both oil and gas development, the production phase is likely to require a larger well pad than for previous stages.

3.11 Production pads may be different sizes from location to location, depending on the specific geology and surface location.
3.12 The level and number of HGV movements associated with a site will vary depending on the phase of the development and whether the site is a conventional or unconventional oil site.

3.13 Typically, sites will contain a number of vertical wells and associated laterals on a site, which would be about two hectares (five acres) in size.

3.14 A number of wells may be drilled from one well pad.

3.15 Associated equipment such as pipelines and gas processing facilities may be required at the production stage and will be constructed subject to additional planning permissions.

3.16 Once drilling has been completed, surface activity will diminish significantly as wells start to produce oil or gas.

3.17 When all of the oil or natural gas which can be recovered economically from a reservoir has been produced and production ceases, the facilities will be dismantled.

3.18 Wells will be filled with cement and pipes cut off 3-6 feet below ground level.

3.19 All oil or gas sites should be operated in compliance with:

- any planning permissions granted for the site;
- any environmental permits granted for the site;
- any other associated consents (e.g. from Health & Safety Executive (HSE) or DECC).

3.20 There is an expectation that oil and gas sites in Hampshire will have a Liaison Panel associated with them (see Community engagement).

3.21 The oil and gas industry has established its own onshore shale gas well guidelines. These guidelines are produced by the UK Onshore Operators Group (UKOOG), in conjunction with a workgroup which included operating and service companies with input from DECC, HSE and the Environment Agency (EA). The guidelines contain what is considered to be good industry practice and reference the relevant legislation, standards and practices.

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4. Phases of oil and gas development

4.1 Oil and gas developments are very different from other mineral workings (such as sand and gravel extraction) and are significantly less intrusive due to their size and associated limited land-take. They are also more flexible in their locational requirements compared to other minerals developments. As such, planning for the supply of oil and gas, has a number of special characteristics which are not present with other forms of development. This includes the following considerations:

- the location of oil and gas sites will depend on the presence of economically viable oil and gas deposits;
- oil and gas activity is a temporary land use although it can often take place over a long period of time;
- most adverse effects caused by working oil or gas resources can be mitigated through planning permissions and consents granted;
- as the extraction of oil or gas is a continuous process of development, there is a requirement for routine monitoring, and if necessary, enforcement to secure compliance with conditions (see Monitoring and enforcement of permitted oil and gas developments); and
- following working, surface land will be restored to make it suitable for beneficial after-use (see Restoration and aftercare of oil and gas sites).

4.2 There are three phases of oil and gas development (both conventional and unconventional) which all require planning permission. Decommissioning and restoration would follow these phases. The different phases of oil and gas development are illustrated in the following diagram.

Figure 8: Stages of oil or gas development

Source: Hampshire Authorities, 2014
4.3 Oil and gas development can only take place in areas where the DECC have issued a licence under the Petroleum Act 1998 (Petroleum Licence) (see Oil and gas licencing in Hampshire).

4.4 Exploration activities are usually small-scale and will only be granted planning permission for a temporary, often short period of time. The sites will often be located on green field (previously undeveloped) land.

4.5 Exploration will take place if there is a high probability that viable oil and gas reserves are situated in that locality, making them suitable for further investigation. The exploratory phase seeks to acquire geological data to establish whether viable oil and gas resources are present. It is likely to include drilling a number of small vertical wells, which will be drilled and fractured to determine if shale resources are present and are suitable for extraction.

4.6 The appraisal phase takes place following exploration, if the existence of oil or gas has been proven. Appraisal is required to establish the extent of the deposit or its production characteristics, such as the flow, and to determine whether it is economical to exploit it.

4.7 Once a resource has been identified as being viable and of commercial interest, planning permission may be sought for full production. The length of time to complete this stage will depend on the size and complexity of the oil or gas reservoir involved.

4.8 The following diagram highlights what each phase involves for conventional and unconventional development.
Figure 9: Exploration, appraisal and production phases of oil and gas development

Source: Hampshire Authorities, 2014
5. Extraction of oil and gas

5.1 The extraction of both conventional and unconventional oil or gas resources in the UK is not a new process. It dates back to at least the 19th century. It broadly involves the following:

- development of a well pad and borehole;
- ‘fracking’ (if required);
- extraction of the oil or gas (production);
- treatment and disposal of any water or waste materials; and
- decommissioning or suspension of the borehole.

5.2 Whilst none of the techniques employed to extract oil or gas are new, technological advances have increased control and accuracy during drilling allowing for exploitation of resources which were previously considered unreachable.

5.3 Resources can be accessed through vertical and horizontal drilling which is demonstrated in the following diagram.

Figure 10: Vertical and horizontal drilling

Source: Hampshire Authorities, 2014
The following diagram highlights the different stages of preparing, drilling and completing oil and gas developments.

**Figure 11**: Preparation, drilling, completion and restoration of oil and gas developments

**Source**: Hampshire Authorities, 2014

### Vertical drilling

5.4 Vertical drilling is used to reach the required depth below the surface. It is used for both conventional and unconventional extraction. The following diagram illustrates vertical drilling.
The oil and gas resources are then pumped out of the ground using beam pumps ('nodding donkeys') or electric pumps.

**Horizontal drilling**

Horizontal drilling maximises the amount of oil or gas resources available for hydraulic fracturing (see [Hydraulic fracturing ('fracking')](#)). It can be used for both conventional and unconventional oil or gas extraction. Recent technological advances have made tapping into shale deposits more financially viable. Horizontal drilling means it is possible to drill several laterals from one point on the surface (surface drilling pad). The following diagram illustrates the horizontal drilling process.
Figure 13: Unconventional oil and gas extraction

Source: www.blogs.can.suffolk.edu

5.7 The following diagram illustrates the stages which take place for unconventional production where horizontal drilling takes place.
As shale is less permeable (or less easily penetrated by liquids or gases), it requires a lot more effort to extract the hydrocarbons from the rock.

Hydraulic fracturing (or 'fracking') is a technique which can be used in the extraction of oil or gas by injecting fluid, usually water, at high pressure. This creates narrow fractures which allows oil or gas to flow into wellbores to allow extraction.

Although fracking is not a new process, technological advances over the last decade have made shale oil and gas resources more accessible and extraction more economically viable.

Hydraulic fracturing can also be used to stimulate the flow of oil or gas in conventional wells meaning that the UK has a history of fracking for conventional oil and gas developments.
5.12 The following diagram illustrates the ‘fracking’ process.

**Figure 15:** The hydraulic fracturing process

![Diagram of hydraulic fracturing process]

_Source: Government guidance_

5.13 The fracking process can be summarised as follows.
Completion of operations

5.14 On completion of drilling operations, a well may be suspended to allow for future testing. If it is concluded that it is commercially unviable to extract the oil or gas resources present or if the extraction of resources has been completed, then the well will be abandoned in accordance with the latest Oil and Gas United Kingdom Standards.4

5.15 Once the decision has been made to abandon a well, it will be made safe and the site infrastructure will be removed. The site will then be restored to its former condition or enhanced to a more beneficial after use. A period of aftercare will then commence (see Restoration and aftercare of oil and gas sites). It is important to note that decommissioning and restoration could take place following any of the three phases of oil and gas development.

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4.Oil and Gas UK Standards: [www.oilandgasuk.co.uk/knowledgecentre/decom_guidelines.cfm](http://www.oilandgasuk.co.uk/knowledgecentre/decom_guidelines.cfm)
6. Mineral right ownership for oil or gas

6.1 A landowner does not own the rights to conventional or unconventional oil and gas reserves which may lie beneath their landholdings. The Petroleum Act 1998⁵ vests all rights and ownership of hydrocarbon resources to the Crown. These rights are administered by the Secretary of State for Energy and Climate Change (the Department of Energy and Climate Change - DECC) on behalf of the Crown.

Figure 17: Illustration of minerals property rights in the UK

Source: Hampshire Authorities, 2014

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7. Oil and gas licencing

7.1 PLEASE NOTE, THIS SECTION WILL BE UPDATED FOLLOWING THE 14TH ROUND ANNOUNCEMENT IN 2015.

7.2 Oil and gas development can only take place where there is an oil or gas licence in place. Licenced areas are an indication of Hampshire’s potentially viable oil and gas resources.

7.3 The licencing of onshore oil and gas operations is a long established practice in the UK and is operated by the DECC. The DECC issue licences for onshore drilling and exploration. These are known as Petroleum Exploration and Development Licences (PEDL). This means The Hampshire Authorities, as MPAs, do not have any involvement in licences for oil and gas development and have no involvement in the licencing process.

7.4 PEDLs give a company or group of companies (a joint venture of equity holders) exclusive rights to explore for, and develop, the resource in a particular geographic location subject to planning permission and the necessary associated consents. Previously, the Government has issued separate licences for separate stages of an oil or gas fields life. These included:

- Production Licences (PL); and
- Development Licences (DL).

7.5 PEDLs were introduced as part of the eighth licencing round in 1996. The DECC no longer issue PL or DL licences but a number of these are still in force, including some in Hampshire. The following diagram outlines what a PEDL means in practice to the licence holder.

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7.6 The most recent round of licencing (the 13th Onshore Licensing Round) took place in 2008\textsuperscript{7}. The 13th round included licences which were issued for shale gas in five locations in the United Kingdom, none of these were in Hampshire.

7.7 Prior to development taking place within a licence area, potential operators are required to ensure the necessary permissions, consents and permits are in place. These are highlighted in the diagram below.

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\textsuperscript{7}Oil and gas licencing: \url{www.gov.uk/oil-and-gas-licensing-rounds}
Based on information available from the DECC at the time of the publication of this study, there are existing licences located across Hampshire and within the administrative areas covered by Hampshire Authorities. Existing licences (for both conventional and unconventional oil and gas) in Hampshire are outlined in the following map. This information has been taken from the DECC oil and gas licensing webpage and is up to date at the time of publication of this guidance.

**Source:** Hampshire Authorities, 2014

**Oil and gas licencing in Hampshire**
Figure 20: Onshore licences in Hampshire (2013) as issued by DECC

Current PEDL and the SPG map

Source: Hampshire Authorities, 2014

7.9 There are no other oil or gas licences in Hampshire other than those highlighted in the map. More information on the areas covered by the licences for oil and gas in Hampshire can be found in Appendix 1: Oil and gas licences in Hampshire.

7.10 The issue of oil and gas licencing is being reassessed by the DECC. Now that the opportunities for unconventional oil and gas are being explored in the UK, it is conceivable that existing licenced areas may be re-examined regarding their potential for unconventional resources. This may take place through the 14th round of onshore oil and gas licencing. The necessary Strategic Environmental Assessment (SEA) report for the 14th licencing round was issued by the DECC in December 2013 for consultation. This identified the whole of the SPD area for consideration for licencing, as demonstrated in the following map.

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The report identified, described and evaluated the likely significant effects on the environment of the DECC’s proposals to invite applications for new licences, the reasonable alternatives to that plan, and how these effects can be reduced or offset.

Following the completion of the SEA consultation, Ministers considered the representations received before deciding to progress to a further round of licensing.

On 28 July 2014, the Government announced the start of the 14th round of licensing. A Post Adoption Statement for the SEA report was also issued. Oil and gas operators had an opportunity to apply for further oil and gas licences or the renewal of licences already in place. Operators were given 90 days to submit their nominations and associated paperwork (until 28 October 2014).

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7.14 The 14th round also reintroduced the term 'Production Licences' (PL). These will replace PEDL licences and cover all stages of oil and gas development (exploration, appraisal and production) once the 14th round has been formally issued by the DECC.

7.15 Applicants for licences can come from a single company or from a group of companies. The companies may be either British or foreign, but there are minimum residence requirements. Each application must be supported by evidence that the applicant meets the minimum criteria.

7.16 The nomination stage has now been completed and the DECC will consider the nominations before new licences are issued. The Secretary of State has full discretion to make decisions on applications for PL, but will always make them in line with published policies and objectives.
8. Current oil and gas development in Hampshire

8.1 Oil and gas resources are located in many parts of Hampshire, including Hampshire’s two National Parks. Conventional oil and gas development has taken place in Hampshire for a number of years. However, extraction has not traditionally taken place within the boundaries of the New Forest National Park to date.

8.2 The following map highlights existing oil and gas development in Hampshire.

Figure 22: Oil and gas development (conventional) in Hampshire

Source: Hampshire Authorities, 2014

8.3 In Hampshire, gas resources are more scarce than oil and there are no naturally occurring conventional gas reserves which have been discovered to date. Hampshire’s geology supports underground gas storage in some areas, such as at Humbly Grove (see Conventional production activities in Hampshire).

8.4 More information on all oil and gas sites and their associated activities is set out in Appendix 2: Current permitted oil and gas developments in Hampshire.
8.5 Existing oil and gas sites are safeguarded through the implementation of the policies contained within the Hampshire Minerals & Waste Plan to ensure that production capacity and the necessary infrastructure is protected (see Preparing a planning application).

**Conventional exploration**

8.6 Historically, borehole exploration for conventional oil and gas has taken place across Hampshire, with concentrations in the south-east, central and north-east parts of the county. This included early exploration activity during the 1930s. However, it was not until the 1980s that the industry started to search intensely for resources in Hampshire. The significant increase in oil and gas activity in Hampshire in the 1980's was a result of:

- a period of high oil prices following international conflicts;
- a change in Government policy at that time;
- increased information being available which showed that there were viable onshore resources; and
- a clearer understanding of Hampshire's geology.

8.7 At the time of the publication of this guidance, there are no permitted exploration sites located within the SPD area. However, one site is located just outside of the SPD area, within the South Downs National Park at Matterley Farm / Avington. This site was granted planning permission for exploratory drilling by HCC in 2003 and included a more recent exploration well site drilled further north at Avington in 2008. The South Downs National Park was established in 2010 and the site is now within this area. Planning permission was granted by the South Downs National Park Authority to continue to appraise hydrocarbons for a further period of up to 5 years at Matterley Farm in 2013.

**Conventional production**

8.8 The exploration activity in Hampshire undertaken over the last 30 years, has resulted in the discovery of oil in commercial quantities at three locations in Hampshire where oilfields have been established. These are:

- Stockbridge;
- Humbly Grove near Alton; and
- Horndean.

8.9 These three oilfields are all currently in production. Each of the oilfields are comprised of a central production centre with satellite well sites supporting them. They have been operating for a number of years. These are highlighted in Current oil and gas activity in Hampshire.

**Humbly Grove oilfield**

8.10 Hampshire's largest oil and gas field was discovered in 1980 at Humbly Grove. The oilfield is located in northeast Hampshire, on the northern margin of the Weald Basin.

8.11 The following map shows the location of Humbly Grove and its associated well sites.
In 1982, the oilfield was assessed to determine the depth of the oil reserve and to gain more information on flow characteristics.

Commercial production began in 1984. The oilfield currently supports four active well sites, located at Herriard, South Warnborough, Upton Grey and Weston Patrick. The oilfield has planning permission for oil and gas development up to 2025. A fifth well site (now inactive) was located at Tunworth.

All oil from Humbly Grove is collected at the Weston Common Gathering Station and piped directly to the Holybourne Rail Terminal (which is located to the east of Alton) for temporary storage and onward transfer by rail to Fawley Oil Refinery. The rail terminal has planning permission until 2025.

Source: Hampshire County Council, 2014
8.15 Gas is artificially stored underground at the Weston Common Gathering Station at Humbly Grove. This storage facility was developed from the depleted oil reservoir in 1995. It is linked via a pipeline to the National Grid at Barton Stacey. The gas storage facility subsequently led to increased pressure upon the oilfield which has both increased production and extended the life of the oilfield. The storage of gas at this facility is currently permitted until 2025.

8.16 The following map shows the location of Holybourne rail export terminal.

Figure 24: Holybourne rail export terminal

Source: Hampshire Authorities, 2014

8.17 The relevant planning permissions for Humbly Grove are set out in Appendix 2: Current permitted oil and gas developments in Hampshire.

Stockbridge oilfield

8.18 The Stockbridge oilfield lies on the south-western margin of the Weald Basin in Hampshire and is also referred to as Larkwhistle Farm.

8.19 The following map shows the location of the Stockbridge oilfield and its associated well sites.
Exploratory boreholes were drilled at Stockbridge in 1984 and subsequent testing confirmed the presence of oil. A further appraisal programme was undertaken in 1986 and Stockbridge oilfield began the production of oil in 1989. The oilfield currently supports four active well sites, located at Crawley (two separate sites), Goodworth Clatford and South Wonston. The oilfield has planning permission until 2016. A wellsite at Wallers Ash, South Wonston originally formed part of the oilfield but this has since been restored.

Oil produced and accumulated at these sites is tankered by road to the Hamble Oil Terminal, on the south Hampshire coast. It is then sent by pipeline (which runs through the New Forest National Park) to the Wytch Farm Oilfield in Dorset.

The relevant planning permissions for the Stockbridge oilfield are set out in Appendix 2: Current permitted oil and gas developments in Hampshire.

**Horndean oilfield**

The Horndean oilfield lies on the southern margin of the Weald Basin. Oil was discovered in the area in 1983 and the oilfield has been producing oil since 1988.
8.25 The following map shows the location of Horndean and its associated well sites.

**Figure 26: Horndean Oilfield**

Source: Hampshire Authorities, 2014

8.26 The oilfield currently supports three active well sites, located at Horndean and Rowlands Castle as well as a production centre at the main Horndean oilfield site. Some of these well sites are located within the South Downs National Park. The oilfield has planning permission until 2020.

8.27 Oil produced from all three well sites at Horndean is tankered by road to the Holybourne Rail Terminal for onward transfer by rail.

8.28 The relevant planning permissions for the Horndean oilfield are set out in Appendix 2: Current permitted oil and gas developments in Hampshire.

**Unconventional oil and gas development**

8.29 Currently, there is no shale oil or gas exploration, appraisal or production activity or associated ‘fracking' taking place in Hampshire.
9. Key issues that will need to be taken into account when oil or gas development is proposed in Hampshire

Climate change

9.1 This section considers climate change in relation to possible impacts on Hampshire.

9.2 Climate change refers to the long-term change in average weather patterns affecting any region or the Earth as whole. Concerns have often been raised that oil and gas development will contribute towards climate change, in particular through the generation of Greenhouse Gases (GHG). It is acknowledged that oil or gas development would have an impact on climate change as it involves the extraction of non-renewable fossil fuels. As a result, the use of these fossil fuels will have a carbon impact.

9.4 A recent report by David McKay and Tim Stone on potential GHG emissions associated with shale gas extraction and use assesses the potential GHG emissions from the production of shale gas in the UK and the compatibility of such emissions with the UK’s legislated climate change targets. Any emissions of methane from unconventional gas operations, including leakage, will need to be taken into account in the UK's GHG inventory. This will count towards UK carbon budgets and international commitments on emissions reduction.

9.5 Oil or gas developments should seek to reduce their potential impacts on climate change through their design and operation.

More information:
- Joint Baseline Report (2014)

Nature Conservation

9.6 Hampshire has extensive designations for nature conservation and landscape. These include:

- Special Protection Areas (SPA);
- Sites of Special Scientific Interest (SSSI);
- Special Areas of Conservation (SAC);
- Ramsar Sites;

12. Potential greenhouse gas emissions associated with shale gas extraction and use (McKay and Stone, 2013),
• local nature conservation designations (including Sites of Importance for Nature Conservation (SINC);
• National Parks; and
• Area of Outstanding Natural Beauty (AONB).

9.7 It is important that these features are not adversely impacted by oil and gas development. The following map highlights the nature conservation designations in Hampshire.

Figure 27: Nature conservation designations in Hampshire

Source: Hampshire Authorities 2014

More information:
• Joint Baseline Report (2014)
• Hampshire Biodiversity Information Centre

Designated landscapes and the countryside

9.8 Hampshire has a rich and diverse landscape which includes many landscape designations. The following map highlights landscape designations in Hampshire.

Source: Hampshire Authorities 2014

More information:
• Joint Baseline Report (2014)
• Hampshire Biodiversity Information Centre

13.Hampshire Biodiversity Information Centre: www3.hants.gov.uk/biodiversity/hbic
Oil and gas development already occurs within designated areas in Hampshire. For example, exploration has taken place just outside of Hampshire, within the South Downs National Park at Matterley Bowl (Avington) and as part of exploratory works for the Horndean oilfield.

Many other counties such as Surrey and Dorset have existing oil and gas developments taking place within designated areas, without significant impacts to the special qualities and settings of the designations. For example, the production of oil from the Wytch Farm oilfield in Dorset takes place within an AONB and in an area which also features other designations such as SSSI, SPA, World Heritage Coastline, Ramsar sites and National Nature Reserves. In Surrey, conventional oil production takes place within a AONB.

Hampshire's landscape outside of designated areas and sites is also important and highly valued. It is therefore important to respect its special qualities.

Oil and gas development, although temporary, can have an impact on the landscape.
The Green Belt

9.13 Hampshire has one Green Belt designated in the south west of Hampshire and its location is highlighted on the following map.

Figure 29: South West Hampshire Green Belt in Hampshire

Source: Hampshire Authorities, 2014

9.14 Oil and gas development, as a mineral development, is only considered to be a temporary use. It is therefore not considered to be inappropriate in the Green Belt provided that it preserves the openness of the Green Belt and does not conflict with the purpose of including the land within the Green Belt.

9.15 Minerals developments are generally considered to be acceptable in the Green Belt as they are temporary land uses.

More information:
- Joint Baseline Report (2014)

Historic Environment

9.16 Hampshire has many areas and sites which are designated for their historic importance. These include:

- scheduled ancient monuments;
- conservation areas; and
- historic parks and gardens.

9.17 The following map highlights the historic heritage designations in Hampshire.

Figure 30: Hampshire's historic environment

Source: Hampshire Authorities, 2014

9.18 The Hampshire Archaeology and Historic Buildings Record provides information on sites and buildings of historical importance in Hampshire.\(^{15}\)
9.19 Oil and gas development may play a positive role in promoting archaeological investigations and protecting heritage assets. Development should protect and wherever possible enhance the historic environment and heritage assets of both designated and non-designated sites including their setting. It is important that the historic environment is not negatively impacted by oil and gas development.

More information:
- Joint Baseline Report (2014)

Soils

9.20 Hampshire has rich and diverse soils which are largely associated with agriculture. Soils are vulnerable to modern day pressures and minerals development can influence them if they are not considered and managed in an appropriate way.

9.21 It is important that any soils are protected as part of oil and gas development. Minerals development should protect, and wherever possible enhance soils. Soils should also be protected throughout the life of the development.

More information:
- Joint Baseline Report (2014)

Protection of local communities

9.22 Oil and gas development activities should not result in or give rise to unacceptable amenity impacts. High operating standards, sensitive working practices and site management are essential for all oil or gas developments, to minimise the harm to local communities and the environment.

9.23 National planning guidance on onshore oil and gas\textsuperscript{16} states that there 'is no standard minimum separation distance for proposals for hydrocarbon extraction'. It indicates that 'any proposed separation distance should be effective, properly justified but reasonable' and sets out issues to be taken into account when coming to this approach.

9.24 In relation to unconventional gas extraction, the Royal Society and Royal Academy of Engineering (RSRAE) carried out an independent review of the scientific and engineering evidence relating to the technical aspects of the risks associated with 'fracking' in the UK\textsuperscript{17}. The findings have been accepted by the Government including the main conclusion that the risks associated with 'fracking' for shale gas could be managed effectively in the UK provided that operational best practices are implemented and enforced through regulation.

\textsuperscript{15} Archaeology and Historic Buildings Record: www3.hants.gov.uk/landscape-and-heritage/historic-environment/historic-buildings-register.htm
\textsuperscript{16} Planning practice guidance on onshore oil and gas, paragraphs 69 and 70 (DCLG, 2013)
9.25 Oil or gas developments could affect a community’s access to public rights of way, open spaces or outdoor recreation uses whilst the development is in progress where proposals are located in such areas. Development could also affect routes favoured by cyclists, equestrians and walkers near oil or gas sites.

9.26 It is important that any noise generated from oil or gas developments is appropriately managed to ensure that there is not an unacceptable impact on habitats, landscapes and local communities. Noise mitigation may include noise management or the screening of sites and other mitigation measures.

9.27 It is important that the issue of emissions is taken into account in any oil or gas proposal. Oil and gas development should not release emissions to the atmosphere, onto land or into water (above appropriate standards).

9.28 Other GHG such as methane can be released during the oil and gas development and this can lead to the need for localised flaring (burning off excess gas). Shale gas and oil are both fossil fuels and their extraction would lead to greater carbon emissions than energy sourced from renewables. As well as representing a legal and financial risk to the UK (because of legally-binding emissions reduction targets), an energy future based on shale gas would likely result in increased global warming and climate change.

9.29 Appropriate standards for the control of emissions and protecting water resources are also set by other agencies such as the Environment Agency as part of their responsibility for protecting and improving the environment and as the regulatory body for issuing Environmental Permits, as well as local environmental health officers at District and Borough Councils. Often these standards are based on national legislation, policy and guidance, and minerals and waste development should meet these standards.

9.30 The Health and Safety Executive are responsible for the regulation of health and safety aspects of oil and gas development (see What other regulatory regimes or agencies may be involved or have an interest in the planning process?).

9.31 The location of public strategic infrastructure such as water, electricity and gas networks may also restrict the location of oil or gas developments in some instances.

9.32 The HMWP clearly states that oil and gas development should not have an unacceptable impact on coastal, surface or groundwaters. For both conventional and unconventional oil and gas, drilling will be required in the exploratory phase and any future extraction of deposits. This will involve drilling through existing geology and potentially aquifers to reach potential shale gas deposits. It is therefore important that water resources are protected.

**Land stability and seismic activity**

9.33 Safeguards are in place to mitigate the risks of seismic activity\(^\text{18}\). This includes a Traffic Light system to address concerns and monitor seismicity during fracking operations.

\(^{18}\)Written Ministerial Statement by Edward Davey: Exploration for Shale Gas].
The HSE also have a role in the regulation and monitoring of seismicity associated with oil or gas developments.

If a planning application is submitted to the MPA for consideration, the MPA will consult the HSE and the DECC on the issue of potential seismic impacts. The MPA will take into account the advice of the HSE and then DECC on this issue when coming to a position on the potential impacts associated with any proposal for oil or gas.

**Aerodrome safeguarding**

Oil and gas developments could potentially endanger aircraft from bird strike and structures. Bird-strike zones around aerodromes cover significant parts of Hampshire. Consideration should be given to the potential negative impacts if a proposal includes locating oil and gas sites within these zones.

Other hazard zones, such as those around military installations, chemical plants and storage areas for dangerous substances, cover some areas of Hampshire and can restrict certain types of development in those locations, to avoid increasing risks to those living and working in the vicinity.

The following map highlights the main public safeguarding zones in Hampshire.
Chemical use

9.39 The use of chemicals during oil and gas development is tightly controlled in the UK. All chemicals need to be authorised by the EA and should be disclosed.

9.40 During the preparation of the extraction site, operators will need to place a thick, impermeable membrane across the site to prevent any potential spillage of water or other chemicals used in drilling and hydraulic fracturing from leaching into nearby soil or groundwater.

9.41 Well design and barrier planning is subject to detailed guidance\(^\text{19}\), in particular on the installation and testing of barriers to prevent leaching of chemicals into nearby soil.

\(^{19}\)Oil and Gas UK’s Well Integrity guidelines
**Cumulative impacts**

9.42 Oil and gas developments should not cause an unacceptable cumulative impact. Cumulative impacts may relate to a number of the issues, some of which are already highlighted within this section, such as:

- dust;
- health and safety;
- lighting;
- water resources;
- public safety;
- visual impact;
- land stability; and
- seismicity.

9.43 Potential cumulative impacts of minerals and waste development are particularly relevant in areas which are already under significant development pressure, or have concentrations of existing and potential future minerals and waste development.

9.44 It is important that possible cumulative effects arising from any existing or approved phases of hydrocarbon extraction are taken into account. There could also be circumstances where two or more planning applications should be considered together. For example, where the applications in question are not directly in competition with one another, so that both or all of them might be approved, and where the overall combined environmental impact of the proposals might be greater or have different effects than the sum of their separate parts.

9.45 It is unlikely that cumulative impact will be an issue at the exploration phase of development, regardless of how close individual well pads are to each other, due to the nature of the activity and the short time it takes to complete this phase.

More information:
- Joint Baseline Report (2014)

**Water resources and flooding**

9.46 For both conventional and unconventional oil and gas, drilling will be required in the exploratory phase and any future extraction of deposits. This will involve drilling through existing geology and potentially aquifers to reach potential shale gas deposits. It is therefore important that water resources are protected.

9.47 The EA protects water resources meaning it has a key role to play in the regulation of oil and gas development on the water environment. It is advised that applicants should discuss proposals for the protection of ground and surface waters with the EA in advance of any planning application being submitted.

9.48 The EA's regulatory function will also ensure risks to the water resources do not occur.

9.49 The following map highlights the Groundwater Source Protection Zones in Hampshire.
Oil and gas development should not result in increased flood risk to the area in which it is located.

Waste water following the extraction process (for both conventional and unconventional) returns to the surface following its use. This requires management, treatment and disposal. Proposals will need to include information on the measures which will need to be put in place for the appropriate management of waste water as well as fuels and oils.

More information:
- Joint Baseline Report (2014)
Transport

9.52 One of the major concerns associated with oil or gas developments will relate to heavy good vehicle (HGV) movements and impacts on surrounding, often rural roads. Oil and gas development should have a safe and suitable access to the highway network and where possible minimise the impacts of its generated traffic through the use of alternative methods of transport.

9.53 The following map highlights the location of Hampshire’s main highway and rail networks.

Figure 34: Road and rail infrastructure in Hampshire

Source: Hampshire County Council, 2014

9.54 All oil and gas proposals will be required to demonstrate how impacts on highway safety, pedestrian safety, highway capacity and on the environment and amenity will be mitigated.
It will be essential that all oil and gas developments have a safe and suitable access onto the highway network.

Where an oil or gas site is served by roads that would be otherwise unsuitable for access, improvements will need to be made as part of the development. It may be necessary to agree the route that vehicles will use as part of the planning permission and this will be conditioned or subject to a legal agreement.

More information:
- Joint Baseline Report (2014)

Waste disposal

Oil and gas developments will create waste materials which will require adequate disposal and management. It is important that any waste generated through oil and gas development is managed in an appropriate way and any proposal for oil and gas development will need to ensure it has adequately considered this issue.

Waste disposal issues will also be considered through Environmental Permitting.

It is likely that each stage of oil and gas development will generate some form of waste which will require management or disposal. Waste generated may include:

- drill cuttings from drilling activities; and
- flowback water.

Some of the wastes generated during oil and gas development will require disposal (e.g. to landfill). This may include drill cuttings.

Oil and gas extraction can produce mining wastes which need to be effectively managed. This is set out in the European Mining Waste Directive\(^{20}\) which aims to reduce as far as possible any adverse effects on the environment. It also aims to reduce any resultant risk to human health from the management of waste from the extractive industries. Almost all of the Directive is transposed in the UK through the Environmental Permitting (England and Wales) Regulations 2010\(^{21}\) which are regulated by the EA.

Muds associated with drilling operations will be made up of various chemicals.

Flowback water will be collected and contained on-site in closed tanks. This water will then need to be discharged to the sewer system or transported to a waste water treatment works. Flowback water associated with both conventional and unconventional developments may contain Naturally Occurring Radioactive Materials (NORM) at low levels. Procedures for the management of NORM are well established in the United Kingdom. These will include pretreatment prior to conventional water treatments.

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\(^{21}\) Environmental Permitting (England and Wales) Regulations 2010
Design

9.64 The sustainable design and operation of oil and gas development is critical to ensuring potential impacts are reduced or avoided. Oil and gas development should not have an unacceptable adverse visual impact and should maintain or enhance the local landscape and townscape. Many of the aspects picked up in this section on protecting health, safety and amenity will relate to the design of the overall development in one way or another. All proposals for oil and gas development should ensure that the design of the development is of high quality.

9.65 Oil and gas developments should not have an unacceptable visual impact. Proposals should maintain and enhance the character of the local landscape or townscape.

Community benefits

9.66 The Hampshire Authorities support the use of community benefits associated with oil and gas development. Oil and gas developments can provide community benefits in their host areas. Community benefits may be as a result of the actual development, or through the restoration of the site, and can be used to address local issues. For example, funds associated with many mineral extraction sites in Hampshire have already been used to fund local infrastructure improvements such as play areas and replacement village hall roofs.

9.67 Although outside of the planning system, the Hampshire Authorities encourage community benefits. However, any schemes will not be taken into account during the decision making process.

9.68 The oil and gas industry has set out its commitment to community engagement in its Charter\(^\text{22}\). The industry has committed to a package for communities that host shale development in their area. This includes:

- £100,000 in community benefits to be provided per well-site where 'fracking' takes place at the exploration stage;
- 1% of revenues at production stage will be paid out to communities;
- operators will publish evidence each year of how these commitments have been met; and
- regular review of the Charter as the industry develops and operators consult further with local communities.

Restoration of oil or gas sites

9.69 All oil or gas sites will be restored following completion of the development. This means that restoration of all oil and gas sites is a key site consideration at the planning application stage. Restoration involves returning the land to an acceptable condition following development. Sites will either be restored to the former land use or to a new use. Any proposal for oil and gas development in Hampshire will need to consider the provisions of Policy 9 (Restoration of quarries and waste sites) of the HMWP.

\(^{22}\)Oil and Gas industry community charter: [www.ukoog.org.uk/community/charter](http://www.ukoog.org.uk/community/charter)
9.70 The MPA will ensure the proper restoration and aftercare of a site through imposition of suitable planning conditions and, where necessary, through Legal Agreements.

9.71 There are many forms of use of land once oil and gas development has been completed and restoration and aftercare of land has been achieved. These may include:

- creation of new habitats and biodiversity;
- use for agriculture;
- forestry; and
- recreational activities.

9.72 All oil or gas sites should be restored to a beneficial afteruse. Restoration should be in keeping with the character and setting of the local area. Proposals should show how restoration will contribute to local objectives for habitats, biodiversity and community uses. The restoration of oil or gas sites could occur at any phase of development and this issue will need to be adequately considered in any proposal submitted. The most appropriate form of afteruse will be determined on a site-by-site basis following discussions between the operator and the relevant MPA.

9.73 As oil and gas development takes place over three stages, it is possible to require the restoration of well sites to be undertaken at the end of each stage, rather than allowing the operator to keep the site on hold before moving on to the next stage.

9.74 The successful completion of the restoration of the site will be subject to monitoring by the relevant MPA and enforcement, if required, to ensure compliance with any planning permissions granted.
Glossary and acroynms

**Aftercare**: Action necessary to bring restored land up to the required standard for an agreed after-use such as agriculture, forestry or amenity.

**Afteruse**: The use that land, used for minerals working or waste uses, is put to after restoration.

**Amenity**: Something considered necessary to live comfortably.

**Appraisal**: An assessment of a proposal for the purposes of determining both its value, viability and deliverability taking into account the positive and negative impacts the development would have.

**Area of Outstanding Natural Beauty (AONB)**: Areas of countryside considered to have significant landscape value, and protected to preserve that value. Originally identified and designated by the Countryside Commission under Sections 87 and 88 of the National Parks and Access to the Countryside Act 1949. Natural England is now responsible for designating AONBs and advising Government and other organisations on their management and upkeep.

**Beneficial afteruse**: In relation to *Policy 9 (Restoration of minerals and waste developments)*, beneficial afteruses are when following minerals or waste development, the land is returned back to a beneficial condition following the end of development through restoration. Restoration involves effective planning to ensure that a site's end use (afteruse) is in keeping with the character and local area and therefore is of benefit once it is restored. In relation to *Policy 20 (Local land-won aggregate)* of the HMWP, beneficial afteruses will include mineral extraction which takes place to facilitate another end use development.

**Bird strike**: Risk of aircraft collision with birds, which are often attracted to landfill sites containing organic waste.

**Bird Strike Zone**: An area identified where minerals and waste development may be impacted by its location. Landfill and mineral operations, including site working and restoration options, in these areas can be affected due to the need to keep birds away from aircraft flight paths.

**British Geological Survey (BGS)**: The BGS provides earth science information, expertise, services and impartial advice in all areas of geoscience.

**Carbon dioxide (CO2)**: The most important greenhouse gas produced by human activities.

**Climate change**: The significant and lasting change in the distribution of weather patterns over periods ranging from decades to millions of years and the implications on the environment and community.

**Conservation areas**: Designated areas of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance.

**Conventional oil and gas**: Oil and gas where the reservoir is sandstone or limestone.
Countryside: Areas that are not urbanised.

Cretaceous: A geological period 142 to 65 million years ago, notable for the extinction of the dinosaurs.

Crude oil: Crude oil is unrefined petroleum.

Cumulative impact: Impacts that accumulate over time, from one or more sources.

Department of energy and climate change (DECC): The UK Government department which works to make sure the UK has secure, clean, affordable energy supplies and promotes international adaptation and mitigation to climate change. DECC issues licences for oil and gas development in the UK.

Directional drilling: Non-vertical wells which begin with slanted but straight holes often used for mineral exploration and to avoid surface obstacles. Wells may also begin vertically but progressively build angle to intercept the hydrocarbon reservoir in a longer section than can be achieved by vertical drilling. Such non-vertical wells can be deployed radially from a single well pad.

Emissions: In the context of the HMWP, emissions are gases released into the atmosphere as a result of human activity. A prominent greenhouse gas is carbon dioxide which arises from the combustion of fossil fuel and consequently contributes to climate change.

Energy security: The uninterrupted availability of energy at an affordable price.

Environment Agency (EA): A public organisation with the responsibility for protecting and improving the environment in England and Wales. Its functions include the regulation of industrial processes, the maintenance of flood defences and water resources, water quality and the improvement of wildlife habitats.

Environmental Impact Assessment (EIA): Systematic investigation and assessment of the likely effects of a proposed development, to be taken into account in the decision-making process under the Town and Country Planning (Environment Impact Assessment) (England and Wales) Regulations 1999. The process is undertaken for a proposed development that would significantly affect the environment because of its siting, design, size or scale.

Environmental Permit: Anyone who proposes to deposit, recover or dispose of waste is required to have a permit. The permitting system is administrated by the Environment Agency and is separate from, but complementary to, the land-use planning system. The purpose of a permit and the conditions attached to it are to ensure that the waste operation which it authorises is carried out in a way that protects the environment and human health.

Exploration: The stage at which developers search potential areas for hydrocarbon (oil and gas) resources. This may involve exploratory drilling to locate oil for instance. Should resources be found, further permissions will be required in order to progress to the next stages of development – such as appraisal or production.

Flood risk: Areas which have a flood risk have the potential to flood under certain weather conditions. Flood risk zones are determined by the Environment Agency. Areas at risk of flooding are categorised as follows:
• Flood Risk Zone 1: Low Probability;
• Flood Risk Zone 2: Medium Probability;
• Flood Risk Zone 3a: High Probability; and
• Flood Risk Zone 3b: Functional Floodplain.

**Flood Risk Zones (FRZ):** Defined geographical areas with different levels of flood risk. Flood risk zones are defined by the Environment Agency.

**Fracking:** See 'Hydraulic fracturing'

**Gas:** Is a hydrocarbon (see 'Hydrocarbons'). Gas is a non renewable resource.

**Green Belt:** An area designated in planning documents, providing an area of permanent separation between urban areas. The main aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open; the most important quality of Green Belts is their openness. There is one Green Belt located in Hampshire, in the south west of the county.

**Greenhouse gas (GHG):** Gases resulting from various processes which, when emitted into the atmosphere, trap heat from the sun causing rises in global temperatures – a process often referred to as the greenhouse effect.

**Groundwater Source Protection Zones (GPZ):** Geographical areas, defined by the Environment Agency, used to protect sources of groundwater abstraction.

**Hampshire Archaeology and Historic Buildings Record (HAHBR):** This is the Historic Environment Record (HER) for Hampshire County Council. It is an index to the known archaeological sites and finds, historic buildings, designed and historic landscapes, parks and gardens and industrial monuments in the county. The unitary authorities of Southampton and Portsmouth maintain their own Historic Environment Records.

**Hampshire Authorities:** The Hampshire Authorities comprises Hampshire County Council, Southampton City Council, Portsmouth City Council and the New Forest National Park Authority who have worked in partnership to produce this supplementary guidance.

**Hampshire County Council (HCC):** The County Council that governs the county of Hampshire in England. The authority is one of the partners in the Hampshire Minerals & Waste Plan and the preparation of this document.


**Health and Safety Executive (HSE):** The national independent watchdog for work-related health, safety and illness.

**Heavy goods vehicles (HGV):** A vehicle that is over 3,500kg unladen weight and used for carrying goods.
**Highway capacity**: In relation to *Policy 12 (Managing traffic)* of the HMWP, highway capacity is the capacity level set for the highway.

**Historic England (HE)**: This is a non-departmental public body which acts to preserve and protect England’s historic environment. This body was formerly a constituent part of English Heritage, which is now a charitable organisation that cares for historic buildings, monuments and sites.

**Horizontal drilling**: Horizontal drilling is used to maximise the amount of oil or gas resources available for hydraulic fracturing. It is used for both conventional and unconventional extraction. Recent technological advancements have resulted in horizontal drilling which has made tapping into shale deposits more financially viable. Horizontal drilling means that it is possible to drill several laterals from only one point on the surface (surface drilling pad).

**Hydraulic fracturing**: Hydraulic fracturing (or ‘fracking’), is a technique used in the extraction of oil or gas by injecting water at high pressure. The technique uses fluid, usually water, which is pumped at high pressure into the rock to create narrow fractures. It opens and or extends existing narrow fractures or creates new ones in gas baring rocks. This allows gas to flow into wellbores to be captured.

**Hydrocarbons**: Hydrocarbon comprising petroleum (oil and gas natural liquids) and gas are fossil fuels that occur concentrated in nature as economic accumulations trapped in structures and reservoir rocks beneath the earth surface. They are principally valued as a source of energy.

**Impermeable rock**: A rock which prevents the through flow of fluids such as oil or water.

**Integrated Sustainability Appraisal (ISA)**: An appraisal process, which fulfils the statutory requirements of Sustainability Appraisal and Strategic Environmental Assessment (See Sustainability Appraisal).

**Joint Baseline Report (2014)**: Outlines the baseline information on the main sustainability issues for Hampshire and supports the Sustainability Appraisal.

**Jurassic**: A geological period 200 to 145 million years ago, notable for being the age of the dinosaurs it is also the period when oil deposits in the North Sea were laid down.

**Landfill**: The deposit of waste into voids in the ground.

**Low-Level Radioactive Waste (LLW)**: Low Level Waste (LLW) is the lowest activity category of radioactive waste. It is classified as waste containing radioactive materials other than those acceptable for disposal with ordinary refuse, but not exceeding 4GBq per tonne of alpha or 12 GBq per tonne of beta/gamma activity. Low-level wastes includes metals, soil, building rubble and organic materials, which arise principally as lightly contaminated miscellaneous scrap. Metals are mostly in the form of redundant equipment. Organic materials are mainly in the form of paper towels, clothing and laboratory equipment that have been used in areas where radioactive materials are used – such as hospitals, research establishments and industry. LLW contains radioactive materials other than those acceptable for disposal with municipal and general commercial or industrial waste. A sub-category of LLW is Very Low Level Waste (VLLW).
Methane: The main constituent of natural gas (a fossil fuel). It is found in naturally occurring gas field deposits within the ground, but can also be harvested as a by-product of anaerobic decomposition of organic materials by bacteria. Methane is used as fuel to generate heat and power, and when released into the atmosphere acts as a powerful greenhouse gas, and is much more potent than carbon dioxide.

Million tonnes (mt)


Minerals and Waste Planning Authorities: The local planning authorities (County and Unitary Councils) responsible for minerals and waste planning. In Hampshire, Hampshire County Council, Portsmouth and Southampton City Councils, the New Forest National Park Authority and South Downs National Park Authority are minerals and waste planning authorities.

Monitoring: Minerals and waste developments are monitored to ensure that they comply with the policies of the plan and planning conditions attached to their permissions. The Plan will also be subject to monitoring.

National Nature Reserve (NNR): A nationally important biological or geological site declared by Natural England and managed through ownership, leasehold or a nature reserve agreement.

National Park: These are large areas of countryside which have been designated, and therefore protected by law in order to conserve their natural scenic beauty, wildlife and cultural heritage for future generations. There are two national parks in Hampshire. These are the New Forest National Park and the South Downs National Park. Each National Park is managed by its own National Park Authority.

National Planning Policy Framework (NPPF): Published in March 2012, the NPPF sets out the Government's planning policies for England and how these are expected to be applied.


New Forest National Park: The New Forest National Park was created in March 2005. The National Park lies mainly in south-west Hampshire – from east of the Avon Valley to Southampton Water and from the Solent coast to the edge of the Wiltshire chalk downs.

New Forest National Park Authority (N FNPA): The New Forest National Park Authority took up its full powers in April 2006. Its purposes are to conserve and enhance the natural beauty, wildlife and cultural heritage of the park, to promote opportunity for understanding and enjoyment of its special qualities and to seek to foster the social and economic well-being of local communities within the park. The authority is one of the partners in the Hampshire Minerals & Waste Plan and the preparation of this document.

Naturally Occurring Radioactive Minerals (NORM): Naturally occurring radioactive materials where human activities have increased the potential for exposure compared with the unaltered situation.
**Onshore oil and gas:** Refers to an oil or gas extraction site located on dry land. Can be either conventional or unconventional extraction.

**Oil:** Is a hydrocarbon (see 'Hydrocarbons'). Oil is a non renewable resource.

**Planning application:** Operators proposing a new minerals or waste development need to apply for permission from the relevant planning authority in order to be allowed carry out their operations.

**Planning permission:** Once planning applications have been reviewed by the relevant planning authority, permission may be granted - i.e. consent for the proposed development is given. Permissions may have certain conditions or legal agreements attached which allow development as long as the operator adheres to these.

**Portsmouth City Council (PCC):** The city of Portsmouth is administered by Portsmouth City Council, a unitary authority. The authority is one of the partners in the Hampshire Minerals & Waste Plan and the preparation of this document.

**Production:** Obtaining useful end products from minerals or waste material - which may include the extraction of sand and gravel, producing recycled and secondary aggregate, extraction of oil and gas and the generation of energy from waste.

**Ramsar Sites (Wetlands of International Importance):** Sites of international importance for waterfowl protected under the Ramsar Convention of the Conservation of Wetlands of International Importance, ratified by the UK Government in 1976.

**Re-use:** Any operation by which products or components that are not waste are used again for either the same purpose for which they were conceived or other uses.

**Recovery:** Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.

**Recycling:** The series of activities by which discarded materials are collected, sorted, processed and converted into raw materials and used in the production of new products. Any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.

**Reservoir:** A subsurface pool of oil or gas hydrocarbons, contained in porous or fractured rock formations trapped by impermeable overlying rock.

**Restoration:** The process of returning a site to its former use, or restoring it to a condition that will support an agreed after-use, such as agriculture or forestry.

**Rights of Way (RoW):** Paths which the public have a legally protected right to use.

**Rock porosity:** This indicates a rocks ability to hold a fluid such as oil or water. Porous rocks contain spaces between the individual rock grains which can hold a fluid. Such rocks include sandstone, chalk and limestone. (See Rock Permeability)
Rock permeability: A measure of the resistance of a rock to the through flow of liquid. The more pressure needed to push a liquid through a rock the lower its permeability. (See Rock Porosity)

Safeguarding: The method of protecting needed facilities or mineral resources and of preventing inappropriate development from affecting it. Usually, where sites are threatened, the course of action would be to object to the proposal or negotiate an acceptable resolution.

Safeguarded site: Safeguarding protects minerals and waste sites from development pressures and inappropriate encroachment from nearby developments, preventing the unnecessary sterilisation of their associated resources and infrastructure.

Scheduled Ancient Monument (SAM): Nationally important archaeological sites included in the Schedule of Ancient Monuments maintained by the Secretary of State under the Ancient Monuments and Archaeological Areas Act 1979.

Section 106 agreement (S106): The Town and Country Planning Act 1990 allows a local planning authority (LPA) to enter into a legally-binding agreement or planning obligation with a landowner when granting planning permission. The obligation is termed a Section 106 Agreement. These agreements are a way of dealing with matters that are necessary to make a development acceptable in planning terms. They are increasingly used to support the provision of services and infrastructure, such as highways, recreational facilities, education, health and affordable housing.

Sedimentary rock: A type of rock formed from sediments and particles of rock usually carried in a body of water, which settle out to form layers of sediment. Over millions of years these layers are compressed and compacted forming rocks such as shale, limestone, chalk and sandstone.

Shale gas: A natural gas (predominantly methane) which is found in shale rock. Natural gas produced from shale is often referred to as unconventional.

Shale oil: Shale oil is an unconventional oil produced from oil shale rock by pyrolysis, hydrogenation, or thermal dissolution. These processes convert the organic matter within the rock into synthetic oil or gas. The resulting oil can be used immediately as a fuel or upgraded to meet refinery feedstock specifications and can be used for the same purposes as those derived from crude oil.

Sites of Importance for Nature Conservation (SINC): A local designation conferred on an area of particular interest in Hampshire for its biodiversity by the Hampshire Biodiversity Information Centre according to criteria agreed with Natural England and the Hampshire Wildlife Trust. These sites may be designated for a range of ecological interests and may be of national importance.

Site of Special Scientific Interest (SSSI): A national designation for an area of special interest because of its flora, fauna, or geological or physiographical features, selected by Natural England and notified under Section 28 of the Wildlife and Countryside Act 1981.

Source Protection Zone (SPZ): Geographical areas defined by the Environment Agency and used to protect sources of groundwater abstraction.
**Source rock:** Rocks from which hydrocarbons have been generated or are capable of being generated.

**Southampton City Council (SCC):** The city of Southampton is administered by Southampton City Council, a unitary authority. The authority is one of the partners in the Hampshire Minerals & Waste Plan and the preparation of this SPG.

**South Downs National Park:** The National Park was formally established on 1 April 2011 and includes areas in the Hampshire County Council boundary.

**South Downs National Park Authority (SDNPA):** The South Downs National Park Authority took up its full powers in April 2011 and is responsible for all planning in the South Downs National Park. The authority was one of the partners in the Hampshire Minerals & Waste Plan.

**Special Area of Conservation (SAC):** Areas which have been given special protection under the European Union’s Habitats Directive. They provide increased protection to a variety of wild animals, plants and habitats and are a vital part of global efforts to conserve the world’s biodiversity.

**Special Protection Area (SPA):** An area of importance for the habitats of certain rare or vulnerable categories of birds or for regularly occurring migratory bird species, required to be designated for protection by member states under the European Community Directive on the Conservation of Wild Birds (79/409/EC).

**Statutory consultee:** These are organisations and public bodies who are required to be consulted concerning specific issues relating to planning applications and help inform any decision made by the planning authority.

**Sterilisation:** When a change of use, or the development, of land prevents possible mineral exploitation in the foreseeable future.

**Strategic Environmental Assessment (SEA):** A system of incorporating environmental considerations into policies, plans, programmes and part of European Union Policy. It is sometimes referred to as strategic environmental impact assessment and is intended to highlight environmental issues during decision-making about strategic documents such as plans, programmes and strategies. The SEA identifies the significant environmental effects that are likely to result from implementing the plan or alternative approaches to the plan. The Integrated Sustainability Appraisal (ISA) includes the SEA of the Plan alongside Sustainability Appraisal.

**Sustainable Development:** Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

**Thermal dissolution:** A refining process which is used for the extraction of shale oil.

**Townscape:** The appearance of a town or city; an urban scene.

**Triassic:** A geological period 250 to 200 million years ago, during this time early dinosaurs evolved.
Unconventional hydrocarbons (oil and gas): Refers to oil and gas which comes from sources such as shale which act as the reservoirs (see 'shale gas').

United Kingdom (UK)

Urban areas: An area characterised by higher population density and significant built development in comparison to areas surrounding it. Urban areas may be cities, towns or conurbations.

Vertical drilling: Vertical drilling is used to reach the required depth below the surface. It is used for both conventional and unconventional extraction. Conventional extraction methods generally involve drilling a borehole down to porous rock where oil or gas has formed in a reservoir. For conventional production, if the site is going to be vertically drilled, a hole will be drilled straight into the ground.

Visual impact: Generally the perceived negative effect that the appearance of minerals and waste developments can have on nearby communities.

Waste: The Waste Framework Directive 75/442 (as amended) defines waste as 'any substance that the holder discards or intends or is required to discard'.

Waste Water Treatment Works (WWTW): A facility where sewage volumes are reduced by de-wathering and aerobic and anaerobic biological treatment.
Appendices

Appendix 1: Oil and gas licences in Hampshire

This appendix sets out the onshore oil and gas licences in Hampshire. This is based on information available from the DECC and is correct at the time of the publication of this guidance. It does not include licence areas located fully within the SDNPA. There are no other valid oil or gas licences in Hampshire other than those below. The following maps and tables highlight each of these licence areas and associated operators or equity holders in Hampshire.
Licence PL233

The licence area lies to the north and north west of Winchester and includes the areas of Crawley, South Wonston, South Wonston and a part of Kings Worthy. The PL233 licence area is covered by blocks SU/33c ALL, SU/43a ALL and SU91a ALL which is held by the operator IGas PLC. The equity holder for this licence is Island Gas Limited and the equity holders group is IGas PLC. IGas PLC hold a 100% interest in the licence.
Licence DL002

The licence area lies to the north west of Winchester and includes Up Somborne. The licence area is covered by block SU/33f ALL and SU/43e ALL which are both held by the operator Island Gas Limited. The equity holder for this licence is Island Gas Limited and the equity holders group is IGas PLC. IGas PLC hold a 100% interest in the licence.
Licence PEDL021

This licence area lies to the south of Andover and includes the areas of Monxton, Upper Clatford, Goodworth Clatford and Wherwell. The licence area is covered by block SU/34a ALL which is held by the operator Island Gas Limited within the operators group IGas PLC. The equity holder for this licence is Island Gas Limited and the equity holders group is IGas PLC. IGas PLC hold a 100% interest in the licence.
Licence PEDL070
This licence area covers to the south east of Winchester including the areas of Chilcombe and Morestead. The PEDL070 licence area is covered by block SU/52a ALL which is held by the operator Island Gas Limited. The equity holders for this licence are Island Gas Limited, Brigantes Energy Limited, Corfe Energy Limited, Egdon Resources Avington Ltd, Egdon Resources UK Ltd, Aurora Production (UK) Limited and UKOG (GB) Limited. The equity holders group are IGas PLC, Corfe Energy, Corfe Energ, Egdon Resources, Egdon Resources, Aurora Production PLC and UK Oil and Gas Investments PLC who hold a 50%, 5%, 5%, 6.67%, 20%, 8.33% amd 5% interest in the licence respectively.
Licence PEDL256

The licence area lies to the north of Portsmouth and covers Paulsgrove, Southwick and part of Waterlooville. The PEDL256 licence area is covered by block SU/60a ALL which is held by the operator N P Weald Limited and the operators group of Northern Petroleum PLC. The equity holders for this licence are Egdon Resources UK Ltd, Oil and Gas Investments Limited, Magellen Petroleum and N P Weald Limited and the equity holders group are Egdon Resources, Northern Petroleum PLC, Magellen Petroleum Corporation and Northern Petroleum PLC who hold a 7.5%, 2.5%, 40% and 50% interest in the licence respectively.
Licence PEDL126
The licence area lies in the south east of Hampshire and includes part of Horndean and Hambledon. The licence area is covered by block SU/61a ALL and SU/81 a ALL which are held by the operators Northern Petroleum (GB) Limited and UKOG (GB) Limited within the operators group of Northern Petroleum PLC and UK Oil & Gas Investments PLC. The equity holders for SU61a are Egdon Resources UK Ltd, Magellen Petroleum UK Ltd and Northern Petroleum (GB) Limited and SU81/a is UKOG (GB) Limited. The equity holders group for SU/61a are Egdon Resources, Magellen Petroleum Corporation, Northern Petroleum PLC who hold a 10%, 40% and 50% interest in the licence respectively. The equity holder for SU/81a is Magellen Petroleum Corporation who hold a 100% interest in the licence.
Licence PL116
The licence area lies to the north east of Hampshire from Herriard in the west across to Bentley in the east. The licence area is covered by block SU/64b ALL and SU/74 ALL which are both held by the operator Humbly Grove Energy Limited within the operators group of Petronas Energy Trading. The equity holder for SU/64b ALL and SU/74 ALL is Humbly Grove Energy Limited and the equity holders group is Petronas Energy Trading who hold 100% interest in the licence respectively. The equity holder for SU/81a is Magellen Petroleum Corporation who hold a 100% interest in the licence.
Licence PEDL155

The licence area includes the areas of Havant, Emsworth and Warblington. The licence area is covered by block SU/70a ALL which is held by the operator N P Weald Limited within the operators group of Northern Petroleum PLC. The equity holders are Egdon Resources UK Ltd, Magellen Petroleum UK Ltd and N P Weald Limited the equity holders group are Egdon Resources, Magellen Petroleum Corporation and Northern Petroleum PLC who hold 10%, 40% and 50% interest in the licence respectively.
Licence PL211
The licence area covers lies in the south east of Hampshire and includes part of Rowlands Castle, Horndean and a part of Waterlooville. The licence area is covered by block SU/70c ALL which is held by the operator Island Gas Limited within the operators group of IGas PLC. The equity holders are Island Gas Limited, Northern Petroleum (GB) Limited, Northern Petroleum (UK) Limited and NP Oil and Gas Holdings Limited and the equity holders group are IGas PLC, Northern Petroleum PLC, Northern Petroleum PLC and Northern Petroleum PLC who hold 90%, 5%, 2.5% and 2.5% interest in the licence respectively.
Licence PEDL231

The licence area lies in the east of Hampshire and includes Petersfield, Liss, Liphook, Bordon, Lindford, Grayshot, Selborne and Alton. The licence area is covered by blocks SU/72 ALL, SU/73 ALL, SU/82 ALL and SU/83 ALL which are held by the operator Celtique Energie Weald Limited within the operators group of Celtique Energy Holdings. The equity holders are Celtique Energie Weald Limited and Magellan Petroleum (UK) Ltd and the equity holders group are Celtique Energy Holdings and Magellan Petroleum Corporation who hold 50% interest in the licence each respectively.
Licence PEDL238

This licence area lies in the south west of Hampshire, close to the border with Dorset. It includes Bransgore. The licence area is covered by blocks SY/99b ALL and SZ/19a which are held by the operator NWE Mirrabooka (UK) PYT.LTD within the operators group of Norwest Energy. The equity holders are NWE Mirrabooka (UK) PYT.LTD and Wessex Exploration PLC and the equity holders group are Norwest Energy and Wessex who hold 50% interest in the licence each respectively.
The licence area lies to the north west of Winchester and includes the areas of Littleton, Sparsholt and a part of Harestock. The licence area is covered by blocks SU/43c ALL which are held by the operator Island Gas (Singleton) Limited within the operators group of IGas PLC. The equity holder is Island Gas (Singleton) Limited and the equity holders group are IGas PLC who hold a 100% interest in the licence.
Appendix 2: Permitted oil and gas sites in Hampshire
The following table gives more detail on oil and gas sites in Hampshire. These sites either have permission for the exploration or production of oil and gas. It is important to note that at the time of publication of this guidance, none of the sites listed have planning permission for unconventional oil and gas (such as shale gas).
<table>
<thead>
<tr>
<th>Site code</th>
<th>District / Borough</th>
<th>Site</th>
<th>Operator</th>
<th>Activity</th>
<th>Relevant planning permissions</th>
<th>Current permission end date</th>
<th>Restoration</th>
<th>Safeguarded in the adopted Hampshire Minerals &amp; Waste Plan</th>
</tr>
</thead>
</table>
| BA057    | Basingstoke       | Weston Common Gathering Station | Petronas Energy Trading Limited | Active oil field and gas storage - Gathering and production station for Humbly Grove Oilfield (plus 6 wellsites). Oil piped to Alton Rail Terminal | • BDB33874  
• BDB36014  
• BDB039088  
• BDB46946  
• BDB038249  
• BDB040711  
• BDB4756  
• BDB55930  
• BDB55931  
• BDB/64542  
• BDB/62586  
• BDB/64815  
• BDB/67621  
• BDB/68298  
• BDB/68613  
• BDB/67621  
• BDB/75565  
• 14/01027/CMA | 2025 | Agriculture and forestry | Yes |
| BA105    | Basingstoke       | Humbly Grove (A) Wellsite Upton Grey | Petronas Energy Trading Limited | Active well site. Oil piped to Alton Rail Terminal | • As above | 2025 | Agriculture and forestry | Yes |
| HR091    |                   | Humbly Grove (B) Wellsite |       | Currently used for waste and recycling although site has permission for oil and gas and the permission has been implemented, no oil or gas extraction has ever taken place. | • As above | | |
| BA106    | Basingstoke       | Humbly Grove (C) Wellsite Weston Patrick | Petronas Energy Trading Limited | Active well site | • As above | 2025 | Agriculture and forestry | Yes |
| BA107    | Basingstoke       | Herriard (A) Wellsite, Tunworth | Petronas Energy Trading Limited | Inactive well site | • As above | 2025 | Agriculture and forestry | Yes |
| BA108    | Basingstoke       | Herriard (X) Wellsite, Herriard | Petronas Energy Trading Limited | Active well site. Oil piped to | • As above | | |

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<table>
<thead>
<tr>
<th>Code</th>
<th>Location</th>
<th>Wellsite, Town</th>
<th>Operator</th>
<th>Description</th>
<th>Reference Numbers</th>
<th>Year</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EH066</td>
<td>East Hampshire</td>
<td>Horndean (B) Horndean</td>
<td>IGas Energy Ltd</td>
<td>Active well site. Oil piped to Alton Rail Terminal</td>
<td>52417, F25667/41, F25567/40, F25667/046/CMA, F25667/42C, F25567/36C</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>EH133</td>
<td>East Hampshire</td>
<td>Holybourne Rail Export Terminal, Alton</td>
<td>IGas Energy Ltd</td>
<td>Rail export terminal for Humbly Grove and Horndean Oilfields</td>
<td>2025, 2025, 2025, 2025, 2025</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>HR073</td>
<td>Hart</td>
<td>Humbly Grove (X) Wellsite, South Warnborough</td>
<td>Petronas Energy Trading Limited</td>
<td>Active well site. Oil piped to Weston Common Gathering Station</td>
<td>03/00817/ADJ, 11/01156/CMA, 14/00863/CMA, 00/000241/CMA</td>
<td>2025</td>
<td>Forestry and agriculture</td>
</tr>
<tr>
<td>TV104</td>
<td>Test Valley</td>
<td>Hill Farm Barton Stacey</td>
<td>IGas Energy Ltd</td>
<td>Active well site. Oil tankered to Larkwhistle Farm wellsite</td>
<td>TVN.M.00005</td>
<td>2016, 2016</td>
<td>Agriculture</td>
</tr>
<tr>
<td>TV179</td>
<td>Test Valley</td>
<td>Land Adjacent to Fullerton WTW</td>
<td>IGas Energy Ltd</td>
<td>Active well site. Oil tankered to Larkwhistle Farm wellsite</td>
<td>TVN.M.003, TVM001</td>
<td>2016, 2016</td>
<td>Agriculture</td>
</tr>
<tr>
<td>TV180</td>
<td>Test Valley</td>
<td>Hurstbourne Tarrant Wellsite</td>
<td>Yates Company (UK)</td>
<td>Restored</td>
<td>TVM002</td>
<td>Restored</td>
<td>Yes</td>
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<tr>
<td>WR080</td>
<td>Winchester</td>
<td>Larkwhistle Farm Wellsite, South Wonston</td>
<td>IGas Energy Ltd</td>
<td>Active well site</td>
<td>03/02825/HCM, W10378/03, 10/0133/HCS, W10378/02</td>
<td>2016</td>
<td>Agriculture</td>
</tr>
<tr>
<td>WR157</td>
<td>Winchester</td>
<td>Folly Farm Wellsite, Crawley</td>
<td>IGas Energy Ltd</td>
<td>Active well site. Oil tankered to Hamble Terminal</td>
<td>HCC/2003/0164</td>
<td>2016</td>
<td>Agriculture</td>
</tr>
<tr>
<td>WR158</td>
<td>Winchester</td>
<td>Wallers Ash Wellsite, South Wonston</td>
<td>IGas Energy Ltd</td>
<td>Restored</td>
<td>As above</td>
<td>Restored</td>
<td>Yes</td>
</tr>
</tbody>
</table>
This document can be made available in large print, on audio media, in Braille or in some other languages.
For further information, please contact Minerals and Waste Planning Policy in the Strategic Planning group:
Telephone: 0300 555 1389
Email: planning.policy@hants.gov.uk
Write to:
Minerals and Waste Planning Policy
Strategic Planning
Economy, Transport & Environment Department
Hampshire County Council
Floor 1 Elizabeth II Court West
Winchester SO23 8UD

Internet: www.hants.gov.uk/county-planning