

Cheshire West & Chester Council

Local Plan

**Supplementary Planning Document:
Oil and Gas Exploration,
Production and Distribution**

May 2017

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**Cheshire West
and Chester**

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1 Introduction

1.1 This is a supplementary planning document (SPD) relating to onshore oil and gas development and it covers both conventional and unconventional oil and gas production. Oil and gas resources are also known as hydrocarbons. Conventional oil and gas production refers to resources that are found in types of rock that allow the oil and gas to move through them, which generally allows extraction by drilling a borehole down to porous rock where oil or gas has formed a reservoir. Unconventional resources are trapped in low-permeability rock, including shale. Unconventional methods of extraction include: hydraulic fracturing of the rock to enable the shale gas to be collected; dewatering of rock to extract coal bed methane; and underground coal gasification.

1.2 The SPD is intended to supplement the policies in the Local Plan (Part One) Strategic Policies and provide advice for applicants, and decision makers. Information is provided in Appendix A about licensed exploration areas in Cheshire West and Chester. Appendix B outlines the role of the four main regulatory bodies (the Oil and Gas Authority, Local Planning Authority, Environment Agency and the Health and Safety Executive) in assessing applications and monitoring development, and Appendix C provides background on hydrocarbons and their exploration.

1.3 The Local Plan seeks to ensure that minerals development takes place in a sustainable manner that promotes economic, social and environmental well-being. The Local Plan (Part One) has been prepared in conformity with the National Planning Policy Framework (NPPF), and the Local Plan (Part Two) is in preparation. Links to final documents and other useful information can be found below.

- Cheshire West and Chester Local Plan (Part One) Strategic Policies ⁽ⁱ⁾
- National Planning Policy Framework ⁽ⁱⁱ⁾
- National Planning Practice Guidance ⁽ⁱⁱⁱ⁾
- About Shale Gas and Hydraulic Fracturing ^(iv)
- Information from the Oil and Gas Authority ^(v)

Advice for applicants

1.4 It is important that applications, when submitted, are accompanied by sufficient information to allow full consideration of any environmental impacts and proposed mitigation measures. The validation checklist is produced to ensure applicants are aware of the necessary information that should accompany a planning application. Applicants are encouraged to discuss proposed developments with the authority at the earliest opportunity especially in advance of submission of any major application. Impacts should wherever possible be designed out of the scheme early in the appraisal process; mitigation should be

i <http://consult.cheshirewestandchester.gov.uk/file/3310073>
 ii <https://www.gov.uk/government/publications/national-planning-policy-framework--2>
 iii <http://planningguidance.planningportal.gov.uk/blog/guidance/minerals/planning-for-hydrocarbon-extraction/>
 iv <http://www.gov.uk/government/publications/about-shale-gas-and-hydraulic-fracturing-fracking>
 v <http://www.ogauthority.co.uk/exploration-production/onshore/gov.uk/oil-and-gas-onshore-exploration-and-production>

a last resort. It will also be beneficial for applicants and the authority if economic and social benefits and dis-benefits are set out as part of the application as per advice in Section 5.

1.5 Consultations with communities potentially affected by the proposed development are also beneficial and are strongly encouraged during the design phase. Community engagement should be undertaken throughout the application and development process. Further information can be found in the [Statement of Community Involvement](#). Applicants are encouraged to provide funding for independent experts to advise local communities.

1.6 Environmental Impact Assessment (EIA) is required where the proposed development is major development which is of more than local significance or with unusually complex and potentially adverse environmental impacts. Details of how and when development will require Environmental Impact Assessments are contained within the Town and Country Planning (Environmental Impact Assessment) Regulations 2011.

1.7 Proposals for unconventional gas extraction, including hydraulic fracturing are likely to be EIA development. In developing proposals for hydraulic fracturing applicants should work on the presumption that EIA will be necessary to support a planning application. For other onshore oil and gas development unrelated to hydraulic fracturing the planning authority will consider whether any proposal for onshore oil or gas extraction requires an EIA.

1.8 The proposed development is EIA development where it is within schedule 1 of the Regulations (including amongst other things applications for extracting over 500 tonnes per day of oil or 500,000m³ per day of gas), or is within schedule 2 (including amongst other things applications for deep drilling) and a screening process has shown it likely to have significant environmental effects. This screening process considers the nature, size and location of the proposed development, the environmental sensitivity of the location, and the characteristics of the potential impacts; in making this determination all applications are assessed on a case by case basis.

1.9 If the proposed development is EIA development the applicant is also encouraged to request a scoping opinion, to determine the scope of the information to be provided in the environmental assessment.

1.10 Applications that are received and validated will be entered on the planning register. The planning application will be advertised in the press and by notice on the application site. Where applicable the parish or town council will be consulted, together with statutory consultees including the Environment Agency, Natural England and statutory water and sewage companies. The relevant Ward Councillor and nearby residents^(vi) will also be notified.

1.11 There is a statutory 21 day period^(vii) for consultation responses within which representations should be sent. If representations are received outside of this period they will still be taken into account up to the time the decision on the planning application is taken. A report describing the planning

vi Owners and occupiers that are adjacent to the development

vii this may be extended at the discretion of the minerals planning authority, depending on the nature and complexity of the proposal.

application, its context and impacts, responses to the consultation, and officer recommendations is prepared by officers of the Council, and presented to the councils Planning Committee. Interested parties are also able to speak at Planning Committee. All planning applications relating to oil and gas development will be dealt with at Planning Committee in line with the Council's constitution.

1.12 The members of the Planning Committee consider the officers report, hear any representations, discuss the application, and vote on whether to grant or refuse planning permission. Each application must be considered on its own merits, in accordance with the development plan and any material considerations such as national planning guidance.^(viii)

1.13 If the decision is refused the applicant has a right of appeal to the Secretary of State. Any such appeal is considered by an independent inspector of the Planning Inspectorate, who will report their findings to the Secretary of State. The appeal process can be either by written representations, an informal hearing or by public inquiry. The decision of the Secretary of State is final, subject to a 'statutory appeal' which can consider the lawfulness of the decision that was taken.

Monitoring

1.14 If planning permission is granted the developer is required to operate within the conditions imposed on the planning permission. Monitoring and inspection visits will form a key part of the successful implementation of any planning permission, to ensure the operator complies with any conditions imposed on the planning permission. The frequency with which sites are visited will depend on the nature and scale of the development. Sites where breaches of planning control have been identified will be visited more regularly.

1.15 Where a breach of planning control is identified the Council will take appropriate and proportionate action to remedy the breach using the powers at its disposal.

1.16 Monitoring will also be carried out through the other regulatory regimes, by the Environment Agency and the Health and Safety Executive, and by an independent body as required by health and safety and other relevant regulations.

Phases of development

1.17 The areas currently licensed for oil and gas exploration are identified in Appendix A.

1.18 The main activities in onshore oil and gas development are exploration, appraisal, production and decommissioning / restoration / aftercare. Developments targeting unconventional oil and gas reservoirs will likely include a need to stimulate the flow of hydrocarbons at each of these phases,

viii A material consideration is a factor to be taken into account when a decision on a planning application is reached. Ultimately what is or is not a material consideration is determined by the courts. Any consideration that relates to the development or the use of land is capable of being a material consideration: material considerations include for example the impacts associated with noise and dust, but do not include loss of a personal view or loss of property value. The weight to be given to a material consideration is a question of planning judgement for the planning authority.

through for example hydraulic fracturing and de-watering. As a result some of these developments may not have the same discrete phases; exploration and appraisal may take place as a single process using the same wells. Information on the phases of development is presented below. Individual applications will be considered on their own merits and will not take account of future hypothetical activities for which permission has not yet been sought. Planning permission for exploration and appraisal does not carry with it any presumption that long-term production from those wells, or that the development of further wells, will be permitted.

1.19 Each phase is likely to include several distinct stages, with associated increases in levels of activity and vehicle movements, including site establishment, delivery and removal of plant and equipment specific to that stage, drilling, and site decommissioning and restoration.

1.20 Not all exploration will lead to appraisal, and not all appraisal will lead to production.

Picture 1.1 Example of coal bed methane exploratory drilling rig



2 Development Plan

2.1 Section 70 of the Town and Country Planning Act 1990 requires that, when determining a planning application, the authority shall have regard to the development plan, and any other material considerations. Section 38 of the Planning and Compulsory Purchase Act 2004 requires that this determination must be in accordance with the development plan, unless material considerations indicate otherwise.

2.2 The development plan for the borough consists of the following documents:

- The Cheshire West and Chester Local Plan (Part One) Strategic Policies
- Retained policies of the Chester District Local Plan
- Retained policies of the Vale Royal Borough Local Plan
- Retained policies of the Ellesmere Port and Neston Borough Local Plan
- Retained policies of the Cheshire Replacement Minerals Local Plan
- Retained policies of the Cheshire Replacement Waste Local Plan
- Made Neighbourhood Development Plans (note these plans do not include policies relating to minerals and waste, although other policies may be relevant).

2.3 The Local Plan (Part One) was adopted in 2015 and sets out the vision for the sustainable development of the borough to 2030. The Council is also preparing a daughter document - the Local Plan (Part Two) Land Allocations and Detailed Policies. This document, when adopted, will replace all the retained policies in the former authority Local Plans. A summary of the key Local Plan (Part One) policies that are likely to have relevance to applications for oil and gas development are set out below.

ENV7 Alternative energy supplies - In line with Government guidance this policy supports proposals to exploit the borough's alternative hydrocarbon resources such to there being no unacceptable impacts on:

- Landscape, visual or residential amenity;
- Noise, air, water, highways or health;
- Biodiversity, the natural or historic environment;
- Radar, telecommunications or the safety or aircraft operations;
- Other policies of the Local Plan.

ENV7 references the UK national targets to supply 15% of energy from renewable sources by 2020 and scope for this to rise to 30-45% by 2030, and to reduce greenhouse gas emissions by at least 34% by 2020 and 80% by 2050.

STRAT1 Sustainable development - is the local expression of the presumption in favour of sustainable development referred to in the National Planning Policy Framework (NPPF). Key elements of this policy with particular relevance to oil and gas exploration are that development should:

- Mitigate and adapt to the effects of climate change, ensuring development makes the best use of opportunities for renewable energy use and generation;

- Protect, enhance and improve the natural and historic environment whilst enhancing and restoring degraded and despoiled land, seeking opportunities for habitat creation;
- Minimise the loss of greenfield land and high grade agricultural land;
- Ensure the prudent use of our natural finite resources whilst promoting the re-use, recovery and recycling of materials.

STRAT9 Green Belt and countryside - seeks to protect the intrinsic character and beauty of the Cheshire countryside. Development outside settlements must require a countryside location, and be of an appropriate scale and design not to harm the character of the countryside.

STRAT10 Transport and accessibility - development must demonstrate that additional traffic can be accommodated safely and satisfactorily within the existing, or proposed, highway network.

SOC5 Health and well-being - development that gives rise to significant adverse impacts on health and quality of life (e.g. soil, noise, water, air or light pollution, and land instability, etc) including residential amenity will not be allowed.

ENV1 Flood risk and water management - seeks to reduce flood risk, promote water efficiency measures and protect water quality.

ENV2 Landscape - seeks to protect and where possible enhance landscape character.

ENV4 Biodiversity and geodiversity - seeks to safeguard and enhance biodiversity and geodiversity through the protection of sites and / or features of international, national and local importance. Development should not result in any net loss of natural assets, and should seek to provide net gains.

ENV5 Historic environment - seeks to protect buildings, monuments, sites, places, structures, areas or landscapes of heritage interest.

ENV6 High quality design and sustainable construction - including providing for the sustainable management of waste.

ENV9 Minerals supply and safeguarding - including the safeguarding of finite natural resources and associated infrastructure from incompatible development.

2.4 There are a large number of retained policies in the Chester District Local Plan, Ellesmere Port and Neston Local Plan and Vale Royal Borough Local Plan that may also be relevant. Generally these policies provide additional detail to the Local Plan (Part One) policies and will be replaced by the Local Plan (Part Two). The Cheshire Replacement Minerals Plan does have a number of retained policies that will be particularly relevant and these are outlined in detail below.

Policy 9 Planning applications provides guidance for applicants for minerals exploration. This policy requires that applications for the exploration and/or winning and working of minerals or associated developments to be accompanied by an evaluation of the proposed development and its likely effects, direct and indirect. Where adverse effects are identified, a description of the proposed measures to avoid, reduce or remedy the effects should be provided where appropriate, as well as

monitoring/management arrangements, should planning permission be granted. In particular the following topics should be addressed for evaluation and mitigation purposes:

- Landscape and visual impact;
- Tree preservation orders;
- Archaeology;
- Nature conservation/natural heritage/legally protected species;
- Listed buildings, conservation areas, historic parks and gardens and historic battlefields;
- Hydrological, hydrogeological and soil permeability characteristics;
- Water quality;
- Flood plains;
- Noise levels;
- Dust levels;
- Illumination levels;
- Agricultural land and soil quality;
- Public Rights of Way;
- Highway management and safety;
- Alternative methods of mineral transport;
- Air-over pressure and peak particle velocity levels;
- Residential amenity;
- Ground stability and support;
- Hours of working;
- Statutory utilities and pipelines

Policy 12 Conditions sets out that when granting planning permission for the exploration of minerals or associated developments planning conditions relating to the operation, restoration and aftercare of the workings will be used where appropriate. These conditions will be designed in particular to:

- Control the timescales of operations;
- Control noise, dust, illumination and vibration levels;
- Control the hours of working and maintenance;
- Ensure satisfactory access to the site, road safety, and vehicular management;
- Ensure pollution control measures;
- Control the impact of built development
- Ensure the satisfactory disposal of quarry waste;
- Ensure the phased operation and restoration of the development commensurate with the rate of extraction;
- Control the visual impact of the development;
- Have regard to the stability and support of surrounding land;
- Ensure the protection of public rights of way;
- Ensure the satisfactory reclamation of the land;
- Ensure good practice when handling soils.

Policy 13 Planning obligations / Legal agreements - states, that the Council will, where appropriate seek agreement under Section 106 of the Town and Country Planning Act, 1990, or such other relevant legislation is particular to:-

- Secure the long term maintenance, management and use of land or resources during operations and following completion of restoration;
- Secure the excavation, recording and publication of archaeological information;
- Secure highway modifications;
- Control traffic movements;
- Secure hydrological and hydrogeological information;
- Accommodate environmental improvements.

Policy 15 Landscape - states that applications for the exploration, and/or winning and working of minerals or associated developments will not be permitted unless during the operational life and on restoration it would not have an unacceptable impact on the landscape, and the restoration would make a positive contribution to the landscape.

Policy 16 Plant and buildings - Applications for plant and machinery or other associated development will not be permitted unless the development would satisfy all of the following criteria:

- It is designed and located within the site to minimise visual intrusion;
- It is adequately and harmoniously screened from sensitive locations;
- It is appropriately finished and coloured to assimilate into its surroundings;
- It would be removed from the site at cessation of mineral extraction unless there are overriding advantages in retention in connection with a related extraction proposal;
- The primary use is associated directly with the mineral extracted at the site.

2.5 This SPD provides further guidance on the potential issues that may arise from oil and gas exploration. These issues will have to be addressed by the applicant in line with the development plan policies set out above.

3 Pre-application

3.1 Pre-application discussions are a valuable part of the planning application process when a developer can obtain an understanding of the policy position regarding the proposals, and the supporting information that may be required when submitting their application. They can lead to the submission of better quality applications which avoids confusion and avoids wasting time and money.

3.2 Impacts should wherever possible be designed out of the scheme early in the appraisal process; mitigation should be a last resort. The industry is encouraged to discuss its proposals fully with the Council before a planning application is made so that all the options and longer term issues can be properly considered. There may be opportunities for joint meetings between applicants, the Council and other bodies, such as the Environment Agency, Health and Safety Executive and statutory water and sewerage companies.

3.3 Consultations with communities local to the proposed development, including communities in adjoining authority areas, are also beneficial and are encouraged during the design phase. Community engagement is encouraged throughout the application and development process.

3.4 The Localism Act 2011 provides for the opportunity to enter into a Planning Performance Agreement in appropriate circumstances. Planning performance agreements are essentially a project management process and tool to improve the quality of major planning applications and to provide greater certainty and transparency in the development of major schemes, in the assessment of the planning applications and in the decision making process. They include requirements and timescales for consideration and determination of planning applications, and establish regular review mechanisms.

3.5 They may be particularly relevant where:

- proposals include a complex Environmental Impact Assessment - when the minerals planning authority need to commit significant officer time.
- proposals require external expertise (consultants) that the minerals planning authority do not possess and will need to commission.

4 Phases of development

Exploration

4.1 Mineral exploration is the process of ascertaining the presence, extent or quality of a mineral deposit with a view to commercial exploitation of that mineral. It can encompass a range of activities, including geological mapping, geophysical (seismic) investigations through shot holes or vibration platforms, and the drilling and investigation of wells and boreholes to assess prospects in more detail (in some instances including lateral drilling).

4.2 Many proposals for mineral exploration are small scale, have limited environmental impacts and are permitted under the Town and Country Planning (General Permitted Development) Order 2015 (as amended). Exploration not permitted by the general permitted development order requires a specific planning permission from the planning authority, or are subject to prior notification procedures. Drilling of wells for oil and gas exploration is not permitted development and a planning application must be made.

4.3 If the resource is 'unconventional' (shale gas or coal bed methane for example) this may include stimulating the gas flow through hydraulic fracturing or de-watering. Consequently the exploration phase may include some hydraulic fracturing and de-watering.

Picture 4.1 Example of coal bed methane exploratory drilling site.



4.4 Applications for planning permission will be assessed against the effects of the exploration activity, including cumulative impacts with other structures and developments, rather than on the merits of any possible future proposals for commercial exploitation. Consideration will not include any hypothetical future proposal for development of the oil or gas resource. Applicants should indicate what knowledge has been gained from seismic investigations in selecting the well site.

4.5 National Planning Policy Guidance (NPPG) states that "there is a pressing need to establish – through exploratory drilling – whether or not there are sufficient recoverable quantities of unconventional hydrocarbons such as shale gas and coalbed methane present to facilitate economically viable full scale production". Subject to the effects on the environment being appropriately addressed and mitigated, and a satisfactory restoration and aftercare plan prepared, applications for exploration may be favourably considered.

4.6 It may be appropriate to impose conditions on a planning permission to make the application acceptable. Any permission may also be subject to off-site mitigation secured by conditions and legal agreements controlling off-site activities such as vehicle routing. Any planning obligations must meet the tests and pooling restrictions set out in the Community Infrastructure Levy Regulations 2010 (as amended).

Appraisal

4.7 Should hydrocarbons be found as a result of the exploration phase the deposit will need to be defined through further testing and appraisal. Before the appraisal information is available it is difficult to evaluate the various options available or to assess the viability and potential environmental effects of commercial exploitation.

4.8 The appraisal phase may involve the carrying out of further exploratory work around an existing exploratory well (including additional drilling, in some instances including lateral drilling) to further define the deposit, and will also involve flow testing. If the resource is 'unconventional' (shale gas or coal bed methane for example) the gas flow will need to be stimulated through hydraulic fracturing or dewatering. Any exploratory work, even if associated with an existing exploratory well, will need to obtain the necessary permissions and consents before being undertaken and should involve consultation with local communities as soon as possible.

4.9 At this stage sufficient volumes of gas may be captured to enable on site generation to take place, rather than flaring.

4.10 As with all other forms of development an application for appraisal must be considered on its merits.

4.11 At this stage the cumulative visual effect of an increased number of wells or an intensification of development in the local area will be a key consideration. As will the concentration of vehicle movements.

4.12 It may be necessary to impose conditions on a planning permission to make the application acceptable. Any permission may also be subject to unilateral agreements for off-site mitigation and legal agreements controlling off-site activities such as vehicle routing.

Production and distribution

4.13 Proposals for the commercial exploration of a deposit should be presented to the planning authority in an overall scheme providing for the comprehensive development of the deposit, to ensure it is exploited in a way which minimises the impact on the environment and local residents. This comprehensive scheme will have to demonstrate that extraction, transportation and reclamation can be undertaken in a satisfactory way and that the potential risk from hazards can be kept to acceptable levels.

4.14 In submitting an application for the drilling of production wells the developer should justify the number of wells proposed using the knowledge gained from the exploration and appraisal stages, and demonstrate that the site(s) proposed are the most suitable given the above and below ground constraints, and that the number proposed is optimal – to minimise the cumulative visual impact the number of wellheads should be kept to a minimum.

4.15 Issues to be considered at this stage will include the need for gathering stations, compressors and scrubbers or the need for on-site generators, and the distribution infrastructure associated with either of these (gas pipelines or electricity cables). Landscape and visual impacts are likely to be significant considerations given that, whilst temporary in planning terms, the structures and land uses associated with the production and distribution phase are potentially in place for 10-20 years. However, there will be a degree of flexibility in locating the distribution infrastructure which should be utilised to reduce the visual impact; given this flexibility gathering stations should be located where they would not have unacceptable environmental impacts. Screening, landscaping and design, and sinking facilities below ground level should be utilised where necessary. Where possible they should be located where they can feed into a long distance pipeline in preference to relying on road transport.

4.16 If the resource is 'unconventional' (shale gas or coal bed methane for example) the gas flow may need to be stimulated through hydraulic fracturing or de-watering throughout the productive life of the well. This will result in periods of increased levels of activity and infrastructure throughout the production phase.

4.17 It may be necessary to impose conditions on a planning permission to make the application acceptable. Any permission may also be subject to unilateral agreements for off-site mitigation and legal agreements controlling off-site activities such as vehicle routing.

Decommissioning, restoration and aftercare

4.18 The decommissioning and restoration of a site is very important. Decommissioning and restoration could take place within any of the three phases of oil or gas development. On completion of drilling operations, a well may be suspended to allow for future testing. If it is concluded that there is no commercially viable oil or gas resources present or if the extraction of resources has been completed,

then the well will be abandoned. Once the decision has been made to abandon a well, it will be made safe and the site infrastructure will be removed.

4.19 The site will then be restored to its former use or, in some circumstances, an appropriate new use or for other environmental benefits. A period of aftercare will commence following restoration to ensure that the land returns to a state that is the same or better than it was prior to operations commencing. The most appropriate form of afteruse will be determined on a site-by-site basis following discussions between the operator and the planning authority.

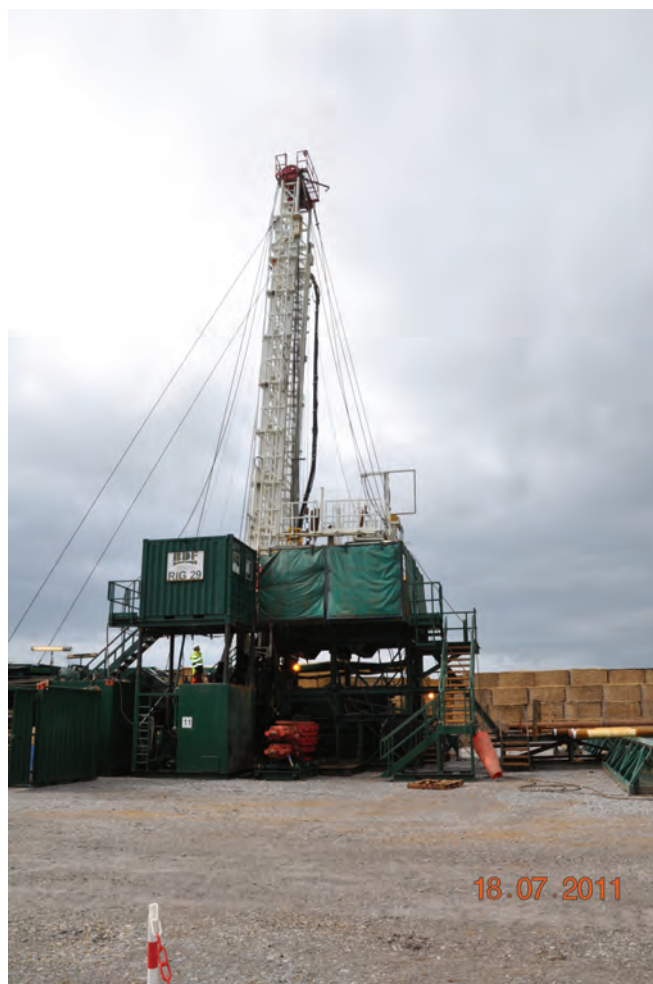
4.20 The planning authority will ensure the proper restoration and aftercare of a site through imposition of suitable planning conditions and, where necessary, through Section 106 Agreements . Any conditions attached to planning permissions related to restoration will be drafted in such a way that, even if the interest of the applicant applying for permission is subsequently disposed of, the requirements for restoration and aftercare should still be fulfilled (whether by a new operator, or in the case of default, by the land-owner).

5 Key Issues

5.1 Operators should provide sufficient information to enable a full assessment to be made of the baseline conditions, where required, and likely effects of the proposed development (where the text refers to applicants this will apply to developers where the operator is different) . Information should be provided on how these impacts are addressed, either through the design of the scheme, or through mitigation measures. The information below provides guidance on the type of information and scheme features that a developer could include as part of an application to assist in demonstrating it is in accordance with the policies of the development plan. Information other than that listed below may be necessary, depending on the particular circumstances of each application.

5.2 In accordance with the policies of the development plan the planning authority will expect the developer to address the following, and will only support development where these issues are satisfactorily addressed.

Picture 5.1 Example of coal bed methane exploratory drilling operation



High operating standards

5.3 Applicants should:

- Provide for an agreed schedule of work to avoid disruption (or prior notification of routine flow stimulation operations, where these are required through the lifetime of the development);
- Provide for suitable hours of operation as a means of minimising disturbance to neighbours;
- Provide for on-going monitoring of established baseline conditions.^(ix)

5.4 Developments should implement high operating standards, sensitive working practices, health and safety and environmental management systems to minimise harm and nuisance to the environment and to local communities throughout the operational life of the site. Sites should be developed in the least intrusive way to minimise disturbance. Operators should work co-operatively with regulatory agencies and other stakeholders to promote best practice(s), and improve formal communication with local communities, including those who could be affected in neighbouring authorities. Operators should establish local liaison groups, where there is interest from local residents. These local liaison groups should be held in public where possible. Operators should also notify neighbours in advance of new operations being carried out on site, or in advance of new applications being submitted.

Noise

5.5 Where development is proposed, a noise impact assessment should be submitted. The Council's Environmental Protection team have identified that the starting point is that onshore oil and gas development should not result in an unacceptable rise in background noise levels as measured as an L90dB(A) at the nearest sensitive receptors. The noise impact assessment should demonstrate that the noise levels as a result of the development shall be 5dB(A) or more below the measured background level at the nearest facade of the residential property when measured as a rating level in accordance with British Standard BS4142:2014. In the event that the appropriate level cannot be achieved without mitigation, applicants should carry out detailed investigations and submit appropriate levels of mitigation, including details of the noise output, and the provision of purpose designed attenuation for all noise generative plant and equipment.

Air quality

5.6 Applicants should carry out detailed investigations and submit appropriate levels of mitigation addressing releases to air. Operators must minimise the release of gases as a condition of their licence and must be able to show that their activities have not led to air pollution at levels higher than those set out in their environmental permits. Operators must also submit a waste management plan to the relevant environmental regulator, stating what waste gases they expect and how they will minimise them. Operators may also need to submit a dust management plan to the Local Planning Authority. Environmental impact assessments, where required, will consider these emissions before any operations

ix Some elements will be controlled through the land use planning system by the planning authority, some will be controlled through the environmental permitting system by the Environment Agency

begin. Operators will be required to monitor air quality and provide the results to the Environment Agency. The local environment, and residential areas, must not be harmed by dust. Should an emission occur, the activity may need to be suspended until a revised dust management plan is submitted and approved by the Local Planning Authority.

Surface and ground water protection

5.7 Applicants should carry out detailed investigations into the effect of the proposed development on groundwater and surface water courses. Developers should discuss proposals for ground and surface water protection with the Environment Agency prior to submitting a planning application. Measures should include storing fuels and oil in appropriately designed tanks with impervious bunds and requiring operation(s) to take place on impervious hard-standings. Wastewater should be stored in purpose designed storage tanks. Wastewater generated on site should be re-used where possible and the operator should install on-site wastewater treatment if appropriate, or should demonstrate sustainable means of disposing of the waste water off site. Where chemicals are used as part of any process applicants must provide full details of the substances to be used and this is a requirement for the EA permit.

5.8 There is the potential with unconventional resources for impacts on the available water resource through abstraction from the water table or existing water sources. Details should be provided of the amounts of water that will be used in all operations, including information on the source of the water and the impacts associated with its implementation. Demand could however be substantially reduced if it could be met from recycling and reuse of flowback water and this is encouraged where appropriate^(x). The Environment Agency will take account of the proximity of the site to groundwater extraction points and open water courses when assessing potential impact on water levels and water quality.

Flaring

5.9 Applicants should demonstrate to the Oil and Gas Authority that flaring or venting are kept to the minimum that is technically, economically and environmentally justified. The view of the Oil and Gas Authority will be taken into account when determining the application. The noise and visual impacts of any flaring or venting will be taken into account and should be minimised as much as possible. Gas should be utilised where possible. Utilisation may necessitate connection to the grid, either for gas or on-site generated electricity; where connection to the grid is proposed, details should be provided including routes of interconnection to transmission lines. Proposals for disposal of waste gases will be assessed by the Environment Agency.

Landscape and visual impacts

5.10 Applicants must:

-
- x Proposals should be in accordance with the Strategy for the Management of Solid Low Level Radioactive Nuclear waste from the Non-nuclear Industry in the UK, and the Low Level Waste Strategy and the Strategy for the Management of Naturally Occurring Radioactive Material waste in the UK.

- Provide for screening of production, distribution and security infrastructure appropriate to the landscape character area and the nature and duration of impact, including the opportunity for off-site landscaping, where necessary and deliverable.
- Provide for the cowling of flares where they are necessary.
- Provide for the screening of plant and machinery, including flare stacks where they are necessary.
- Provide for the utilisation of gas produced through flow testing where the quantities produced and duration of production are sufficient to justify the installation of infrastructure for energy production.

5.11 Developments should, where necessary and deliverable, comprehensively and effectively mitigate all landscape and visual impacts arising from the development, by means appropriate to the landscape character of the area, and appropriate to the relevant stage of development. In particular, there should be a restrained use of lighting to eliminate glare and minimise light pollution on local amenity and intrinsically dark landscapes. Details of proposed lighting should be submitted as part of any planning application.

5.12 Advance screening of sites can be an important component of mitigation and screening measures, alongside the appropriate siting of the drilling and distribution infrastructure. Consideration needs to be given to the time required for natural screening to grow to a sufficient height and density to be effective, and opportunities for off-site screening where possible.

5.13 Information on the measures to deal with gas (i.e. gas processes) and whether the gas will be used on site should be submitted with the planning application; together with details of above ground infrastructure including distribution off-site. Neighbouring operators are encouraged to work together to ensure efficient provision of gas collection and water treatment infrastructure in order to reduce the cumulative visual impacts of a number of developments in a local area. Above ground separation distances between the boundary of the site and adjacent developments may be acceptable in specific circumstances, where it is clear that, based on site specific assessments and other forms of mitigation measures (such as working scheme design and landscaping) a certain distance is required.

5.14 Applicants will also need to take into consideration the height of extraction rigs and levels of illumination on the rigs where developments are in close proximity to the flight path(s) for Liverpool John Lennon, Manchester and Hawarden (Chester) airports. Policy ENV7 of the Local Plan (Part One) requires there to be no unacceptable impact on radar, telecommunications and aircraft operations from proposals to exploit alternative hydrocarbon resources.

Traffic and transport

5.15 Applicants must:

- Provide for suitable access, including access for emergency vehicles.
- Provide for appropriate traffic routing potentially through the use of Section 106 agreements.
- Provide for the maintenance of the local highway infrastructure should damage occur.

5.16 Heavy goods vehicles (HGVs) can have adverse impacts on residents and other sensitive land-uses; they can also cause damage to roads and verges, especially at the point of access to sites; they can contribute to noise and they can impact on road safety, if unsuitable roads are used.

5.17 Applicants should seek to mitigate these potential effects, through all phases of development, using planning or highway agreements where necessary, including through committing to pre and post commencement surveys to determine if any damage caused to the highway can be attributed to the development and compensated for. The aim is to ensure that the state of the local highway network is not adversely affected and local communities are not disadvantaged. There may also be scope to restrict hours of working in order to control vehicle movements at peak times, and thereby reduce the development's impact on the local road network.

Site restoration and aftercare

5.18 Developers must provide for an appropriate restoration scheme, in accordance with plan policies. Developers should include details for appropriate decommissioning and restoration of the site at the planning application stage. The level of detail required will depend on the expected duration of operations on the site. Restoration should be reflective of the sites former use, and restored to its former standard or higher, it should be in keeping with the surrounding landscape, and applicants should demonstrate that proposals provide for net gains in biodiversity where possible.

5.19 It may be necessary for the operator to enter into a planning obligation or financial guarantee (bond) sufficient to provide for the restoration of the proposed development in the event of operator failure.

Flood risk

5.20 All development must follow the sequential approach to determining the suitability of land for development, directing development to areas at the lowest risk of flooding. Any developments that fall within a prescribed flood risk area will need to include the submission of a flood risk assessment, demonstrating that the development would not adversely contribute to fluvial flood risks or surface water flooding, and would not be susceptible to it, and provision should be made where there is a risk to ensure that the risk is minimised. If works are to be carried out in, over, under or near a main river, flood defence or sea defence, the applicant will need to apply to the Environment Agency for a permit.

Heritage assets

5.21 Applicants must consider the proposed developments impact on heritage, archaeological and conservation assets. In particular the minerals planning authority has a statutory duty, under the Planning (Listed Buildings and Conservation Areas) Act 1990, to pay special regard to the desirability of preserving the setting of a listed building (s66) and for special regard to be paid to the desirability of preserving or enhancing the character or appearance of a conservation area (s72). These will be given considerable importance and weight, relative to other material considerations, when considering any planning application.

Nature conservation

5.22 Developers will need to consider the proposed developments impact on biodiversity, and on the hierarchy of protected sites, through habitat destruction, or through the disturbance of species on surrounding land, including the habitat of wintering and migratory wildfowl or impacts. The developer should provide information on how nature conservation interests are likely to be affected by the proposed development, and on any proposed habitat mitigation and compensation, including through Section 106 agreements where necessary. Standing advice on how to review planning applications that might affect protected species is available from Natural England at:

<https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications>

Land stability

5.23 Developers will need to consider the proposed developments impact on land stability. The view of the Oil and Gas Authority, Environment Agency and Health and Safety Executive on potential implications of the development on land stability, seismic risk and the impacts of any existing land instability on the proposal will be taken into account. The proximity to and potential impact of subsidence should also be taken into account. This includes potential subsidence resulting from salt mining, brine extraction or natural salt dissolution. The proximity and impact of geological faults should be taken into account. The route of HS2 may also be a potential constraint on oil and gas development, for example in terms of land stability or access.

Soils and agriculture

5.24 Applicants will need to consider the effect of development on the ability to work agricultural land and should avoid the loss of any best and most versatile agricultural land necessary to facilitate the proposed development. If possible, any topsoil removed from the location of well heads should be stored on site and re-used on the site.

Economic impact

5.25 Applicants should set out the the positive and negative economic impacts of the proposed development. The National Planning Policy Framework states that "when determining planning applications, local planning authorities should...give great weight to the benefits of the mineral extraction, including to the economy". This includes direct benefits of the extraction, and indirect benefits e.g. through the development of a local supply chain or other supporting infrastructure and services. These should be considered alongside the potential negative impact on local businesses operating in the area, but outside the oil and gas industry. When considering the economic impact reference should be made to any relevant local economic growth strategy.

Health impact

5.26 Applicants will need to consider the impacts of the proposed development on the health and wellbeing of local communities close to the proposed development. These should include direct impacts on health caused through emissions to land, water, and air, and from transportation, and indirect impacts on health that might occur through social, economic and community factors. The views of the

Environment Agency and Health and Safety Executive in relation to health issues will also be taken into account and the planning process will not seek to duplicate their controls. Accessibility for emergency services should also be provided to sites and information should be provided on contingency planning for potential incidents / emergencies.

5.27 Applicants should consider providing baseline, and on-going health surveillance monitoring in a way that provides confidence to the community in terms of its independence, integrity and accuracy. As set out in Appendix B, the Environment Agency and Health and Safety Executive have statutory roles in relation to impacts and monitoring.

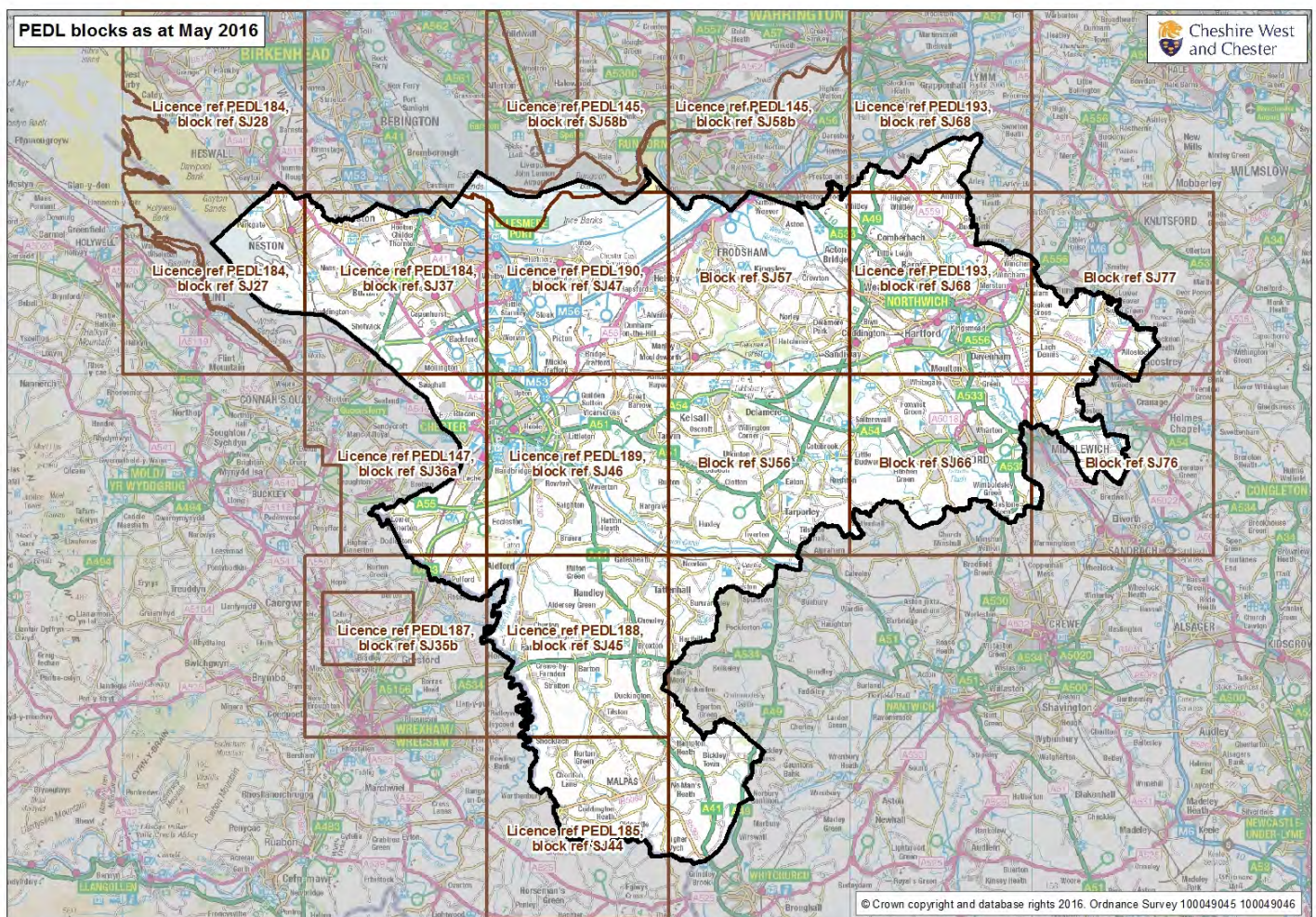
Cumulative impacts

5.28 Oil and gas development should not cause an unacceptable cumulative impact arising from the interactions between minerals and waste developments, and between mineral, waste and other forms of development in the locality. These cumulative impacts may relate to many of the impacts identified above such as noise, visual impact, water resources etc. The potential cumulative impacts of oil and gas developments (including both simultaneous and sequential development) and the way they relate to existing developments must be addressed to an acceptable standard as part of a planning application. Applicants must consider the interaction with other existing developments in the area such as housing, and impacts on existing surrounding uses and planned development.

A Licensed exploration areas

This may change if licences are issued or expire in subsequent licensing rounds.

Map A.1 Licensed exploration areas



B Regulatory bodies

There are four regulatory bodies responsible for on shore and gas exploration and exploitation. The Council will work closely with the other bodies involved in the process of consenting hydrocarbon extraction in order to ensure a co-ordinated and integrated approach. Information about the role of each key body is set out below. Additional information is available in the Regulatory Roadmap: Onshore oil and gas exploration in the UK regulation and best practice guidance prepared by the Department of Energy and Climate Change (2013). This includes a diagram showing the bodies responsible for each stage of the process:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/503067/Onshore_UK_oil_and_gas_exploration_England_Dec15.Pdf

Oil and Gas Authority

Companies seeking to explore for or produce oil or gas must first obtain a petroleum exploration and development licence (PEDL) from the Oil and Gas Authority (an executive agency of the Department for Business, Energy and Industrial Strategy). These licences are bid for by operators in licensing rounds.

The issue of a PEDL conveys no permission for operations on land, but gives exclusivity for exploration operations against other oil and gas exploration companies within a defined area. The Oil and Gas Authority regulates the efficient use of the resource (i.e., the oil or gas in the ground) by scrutiny of the drilling operations and production plans, as well as proposals for flaring or venting, and any hydraulic fracturing programme and the methods proposed to monitor, report and mitigate the associated seismic risk.

The Planning Authority

Cheshire West and Chester is the planning authority for all development in the area including for minerals. This involves managing the planning process according to planning rules set out by the government to assess applications for mineral developments, including mineral exploration. The minerals planning authority must determine applications in accordance with planning law.

Minerals planning authorities assess applications for the location of any wells and wellpads, and impose conditions to ensure that the impact on the use of the land is acceptable.

Where developments involving onshore oil and gas development are not classed as permitted development and actually require planning permission, the minerals planning authority must determine planning applications in accordance with the NPPF, together with policies in the Development Plan. Planning applications are considered on their merits and whether or not they are in compliance with the policies in the Development Plan. Safety and environment are important factors and we consider the advice provided by other agencies before making those decisions. A planning application can only be refused if it is contrary to the policies of the development plan and there are legitimate reasons to do so. If planning permission is granted, the minerals planning authority monitor and inspect the operations to ensure they comply with any conditions imposed.

The minerals planning authority will consider the land use implications of matters regulated by the other regulatory authorities, such as emissions to atmosphere, water and seismic risks for example, but will not seek to duplicate their regulatory controls through the imposition of conditions etc.

The Environment Agency (EA)

The Environment Agency's key role in on-shore drilling is to protect groundwater including aquifers, and surface water including rivers and water courses from pollution. The EA also ensure appropriate treatment and disposal of mining waste, control emissions to air and manage any naturally occurring radioactive materials.

An environmental permit (under the Environmental Permit Regulations) will be required for oil and gas developments, and may include industrial emissions activity, mining waste activity, groundwater activity, waste discharge activity, abstraction, and radioactive substances activity. The chemical content of hydraulic fracturing fluids are also covered by the environmental permitting regime.

The EA are also a statutory consultee in the planning process and will discuss proposals and provide advice to planning authorities. The EA provide advice as part of pre-application enquiries, for scoping of any Environmental Impact Assessment and on the planning application itself. Where risks to the environment are significant, for example where development is proposed contrary to groundwater protection policy and practice, the EA will object to the planning application.

Operators must demonstrate to the EA that their proposed activities are not harmful to people or the environment. The EA use a variety of compliance methods such as audits, site inspections, check monitoring and / or sampling, and reviewing operator records and procedures. They may ask operators to monitor the effects their activities have on the environment and report these for inclusion on EA public registers through the permits issued. The EA have the power to serve notice on an operator to stop an activity; and where an offence is committed, the EA can prosecute.

The EA have provided a document, 'Onshore Oil and Gas Sector Guidance', which is available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/545924/LIT_10495.pdf

Health and Safety Executive (HSE)

The HSE regulate the well operator's management of the health and safety risks associated with oil and gas exploration and extraction. The key risk the operator must manage is that of an unplanned release of fluids from the well (gas or liquid) that could lead to fire or explosion. Work cannot start on an oil or gas well before the operator has submitted a notification to the HSE, which is then scrutinised by HSE's own wells engineers. The notification must include details of the well design and how this design has taken account of the geological conditions that the well will pass through. It is only when the HSE well engineers are satisfied that the health and safety risks have been properly identified and can be managed effectively that the operator can begin drilling the well.

Once work starts on the well, the operator must send weekly operations reports to the HSE during the drilling and well construction process. This allows the HSE well engineers to scrutinise the ongoing construction of the well. The operations report includes the results of well integrity tests conducted on

the well. If the well is to be used for high volume hydraulic fracturing a site visit will also take place during the construction of the well.

This scrutiny continues through any operation of the well where there is a risk of a release of fluids including decommissioning. In addition, the operator must report the failure of any safety barrier, the deployment of any equipment to prevent an unplanned release, or any unplanned release of fluids from the well to the HSE.

There is also a requirement for the operator to introduce their own well examination scheme and appoint an independent competent person to further scrutinise activity on the well. This is not a regulatory role, but supplies important quality assurance for the operator.

Further information is available in the HSE shale gas guide for planners document:
<http://www.hse.gov.uk/offshore/shale-gas-planners.pdf>

C Hydrocarbons

Hydrocarbons (gas and oil) are predominantly extracted from permeable rock formations such as sandstones. Here hydrocarbons have flowed over time from their source rock through the permeable rock until they are trapped under an impermeable rock formation where it collects and forms a reservoir.

'Unconventional' or 'tight' reservoirs are rock formations that are not as permeable. These are both source rock and reservoir. Processes need to be applied to these formations in order to stimulate the flow of gas.

One example of this kind of formation is shale^(xi) with significant organic content. The Cheshire Bowland Shales have been identified as having potential to hold shale gas which could be exploited for commercial purposes. Shale gas mainly consists of methane, although other gases may also be present. Shale has low permeability (i.e. does not allow gas to flow) so gas production in commercial quantities requires the rock structure to be fractured to provide permeability; the process to achieve this is known as hydraulic fracturing ('fracking').

Similar processes can also be applied to old coal mines or coal seams (Coal Bed Methane), which may require dewatering operations and possibly hydraulic fracturing, or be generated by burning the coal in place underground (Underground Coal Gasification), which requires the injection of oxygen and steam into the coal measure^(xii).

Hydraulic fracturing ("fracking") is a generic term for operations which aim to improve hydrocarbon flow rates in low permeability oil/gas reservoirs by increasing the natural fracturing in the rocks, or by creating artificial fractures. These operations vary, in choice and volume of fluid injected, pressures and rates, depending on specific reservoir attributes.

The fluid consists of water, fine sand particles to act as a proppant and a combination of chemicals chosen relative to geology type to act as a lubricant. Fluids are pumped into the shale under pressure in a controlled way to fracture the rock. Additional fluids are pumped into the well to maintain the pressure in the well so that fracture development can continue and the proppant can be carried deeper into the formation. A well may be too long to maintain sufficient pressure to stimulate fractures across its entire length. Plugs may be inserted to divide the well into smaller sections ('stages'). Stages are fractured sequentially, beginning with the stage furthest away and moving towards the start of the well. After fracturing, the plugs are drilled through and the well is de-pressurised. This creates a pressure gradient so that gas flows out of the shale into the well.

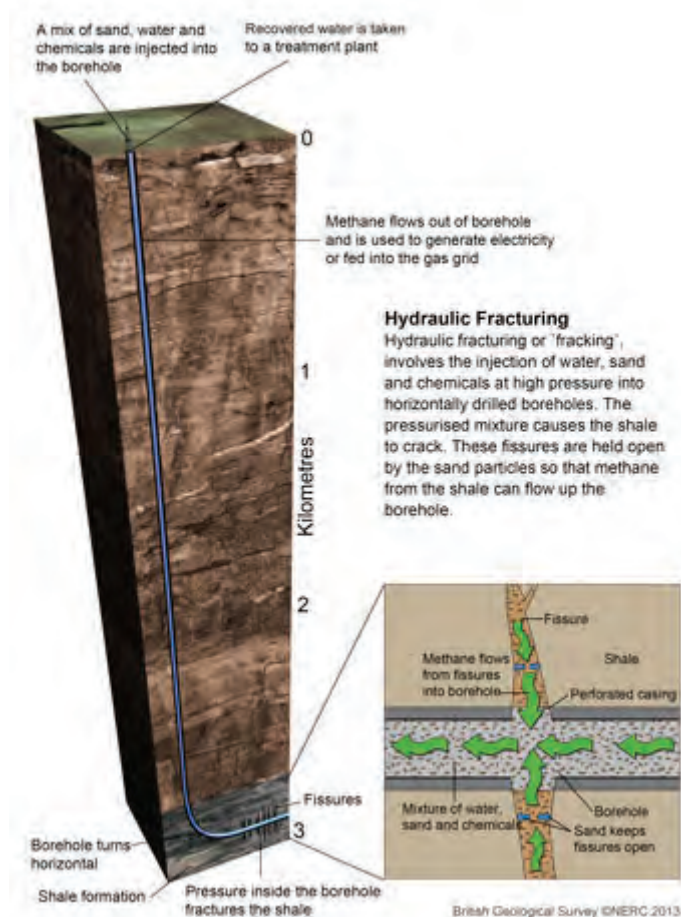
As the pressure is released, the pressurised fracturing fluid flows back to the surface ('flow-back water') but it now also contains saline water with dissolved minerals from the shale formation ('formation water'). Some fracturing fluid is left within the shale including the sand which resides within the fractures and

xi Shale is a common type of sedimentary rock formed from deposits of mud, silt, clay and organic matter

xii The exploration of these require permission from the Coal Authority (for access to the coal) and a licence from the Oil and Gas Authority.

creates a migratory path way from which gas can flow to the surface via the borehole. Fracturing fluid and formation water returns to the surface over the lifetime of the well as it continues to produce shale gas ('produced water') and may contain naturally occurring radioactive materials (NORM), depending on the source rock. This is common to oil and gas exploration, but due to the processes involved in fracking, it has the potential to generate larger volumes. Vertical and horizontal drilling is often used with shale gas wells, with lateral extensions up to 10,000 feet (3km or nearly 2 miles) within the shale, to enable the creation of a very large fracture network within the shale. A diagram showing hydraulic fracturing is provided in picture C.1.

Picture C.1 Hydraulic fracturing



Accessing Cheshire West and Chester Council information and services

Council information is also available in Audio, Braille, Large Print or other formats. If you would like a copy in a different format, in another language or require a BSL interpreter, please email us at **equalities@cheshirewestandchester.gov.uk**

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Türkçe bilgi almak istiyorsanız, bize başvurabilirsiniz.

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Tel: 0300 123 8 123 **Textphone:** 18001 01606 867 670

email: equalities@cheshirewestandchester.gov.uk

web: www.cheshirewestandchester.gov.uk