

12 April 2016

Report of the Strategic Director of Communities
and Place

Derby and Derbyshire Joint Minerals Local Plan Consultation – Hydraulic Fracturing (Fracking)

SUMMARY

- 1.1 As a Unitary Authority, Derby City Council is the Minerals Planning Authority for the administrative area of Derby City. It is responsible for determining any minerals related applications for planning permission within this area as well as for preparing and keeping up to date a Minerals Local Plan.
- 1.2 The City Council is working jointly with Derbyshire County Council to prepare a Joint Minerals Local Plan. This will replace the existing Minerals Local Plan and set out where quarrying and mining will take place and the principles to guide the determination of applications for planning permission. A 'Joint Advisory Committee' (JAC) of City and County Members has been established to oversee the preparation of this joint plan.
- 1.3 Separate to this process, the former 'Regeneration and Culture' Overview & Scrutiny Board had been undertaking a review of fracking generally. At a meeting of this Committee last year, it was agreed that engaging with consultation on the Minerals Local Plan would provide the most appropriate basis for considering this issue and passing any comments on to the JAC in the first instance.
- 1.4 The JAC is responsible for steering the preparation of the Plan and Members of that Committee will be meeting in the next couple of months or so to consider responses to this consultation and next steps. They will be considering the full range of Minerals topics, whereas this report only considers hydrocarbons. It provides background information on fracking and sets out the key issues being consulted on as part of this topic. As responsibility for considering DCCs position on these issues lies with the JAC, no recommendations are being made. However, any comments Board has will be forwarded to the JAC and the Cabinet Portfolio holder for their consideration.

RECOMMENDATION

- 2.1 To note the report and the Issues & Options being consulted on and to forward any comments to the Derby City Members of the Joint Advisory Board and to the Cabinet Member for Communities & City Centre Regeneration.

REASONS FOR RECOMMENDATION

- 3.1 To help Board in its review of issues raised by hydraulic fracturing (fracking).

SUPPORTING INFORMATION

- 4.1 As a Unitary Authority, Derby City Council is the Minerals Planning Authority for the administrative area of Derby City. It is responsible for determining any minerals related applications for planning permission within this area as well as for preparing and keeping up to date a Minerals Local Plan.
- 4.2 As part of these duties, and to make the best use of resources, the City Council is working jointly with Derbyshire County Council to prepare a Joint Minerals Local Plan. This will replace the existing plan adopted in 2000 and will guide minerals-related development in the City and County (excluding the Peak District National Park) to 2030. It will set out where quarrying and mining will take place and the principles to guide the determination of applications for planning permission. A 'Joint Advisory Committee' of City and County Members has been established to oversee preparation of this joint plan.
- 4.3 Work to date has focussed on consultations on key issues about the scope and nature of policies. Most recently, a series of topic papers and supporting 'technical' documents have been produced to explore these matters. Comments received on these will be used to draw up a draft plan later this year for further consultation.
- 4.4 There are no active minerals sites being worked in Derby City and the Local Plan is very unlikely to propose any. Most issues are therefore likely to be of less interest to Derby residents than to those outside of the City. However, the issue of 'fracking' is topical and the Plan will need to include a policy dealing with this.
- 4.5 Separately to the preparation of this Plan, the former 'Regeneration and Culture' Overview & Scrutiny Board had been undertaking a review of fracking generally. As part of this review, City and County Council Officers attended a meeting last year to answer questions about fracking and the role of the planning system in dealing with proposals for it. At that meeting, it was agreed that the most appropriate way to take forward this part of the Review was through the consultation process of the Minerals Local Plan. As there is a formal Joint Advisory Committee established to steer the preparation of the Plan it was agreed to forward any comments to that Committee rather than to Cabinet in the first instance. As the portfolio holder is not currently a member of this Committee, it is recommended that comments are also relayed to him.
- 4.6 Fracking, more properly called 'hydraulic fracturing', is covered in the '**Strategy for Hydrocarbons**' topic paper and the '**Unconventional Gas – Shale Gas Supporting Paper.**' The aim is to produce a criteria based policy that will guide the determination of applications for fracking. It will not identify any sites for fracking, although it does include options for identifying existing and potential areas of interest – such as those areas with licences. This report provides some general background information on the process of fracking and sets out the options being consulted on in the Topic Paper, although it does not make any recommendations.
- 4.7 It is anticipated that a meeting of the Joint Advisory Committee will be held later in April or May to consider responses made and City Council Members will have the opportunity to relay any comments from this Committee. JAC Members will receive a more comprehensive report at this time covering all the topics being consulted on and comments received to date.

4.8 **What is fracking?**

Conventional oil and gas deposits (such as in the North Sea) are contained in permeable rocks, such as sandstone. This makes the extraction process relatively simple. Shale gas is essentially the same as North Sea gas (mostly methane) but is trapped in impermeable shale rock making extraction much more difficult. Fracking allows gas and oil to be economically extracted from this sort of rock by creating hairline fractures in the rock to increase permeability and let the gas or oil be extracted into well holes.

4.9 **How does fracking work?**

Like conventional oil and gas exploration or production, a well is drilled and several stages of metal pipes ('casing') are set in concrete within the well to seal it and prevent contamination of surrounding groundwater. A well for shale gas will usually go down vertically to the shale layer and then run horizontally along it. However, they can run at an angle.

4.10 The rock is then fractured by injecting water at high pressure, an established technique for conventional oil and gas, but used more intensively for shale. Small particles (usually sand) are pumped into the fractures to keep them open when the pressure is released, so gas can flow into the well. 98-99% of the mixture is water and sand, but small quantities of chemicals are normally added to improve efficiency, for example as lubrication to reduce friction. In the UK, operators must show the Environment Agency that all such chemicals are non-hazardous.

4.11 **Where might shale gas and oil be produced?**

Research by the British Geological Survey has identified substantial deposits of shale within the Bowland-Hodder area which extends from Lancaster to Scarborough in the north and as far south as Derby and Loughborough. Thus, the City does lie above known shale deposits, but we don't know how rich in gas they are or whether they would be commercially viable to extract. To date, little drilling has taken place in the UK (mainly in Lancaster) to answer these questions. So the process is in its infancy in the sense that we do not yet know precisely which areas will prove to be the most commercially attractive.

4.12 **The three stages of onshore hydrocarbon extraction**

There are three stages of hydrocarbon extraction irrespective of whether it is conventional or involves fracking. These are 'exploration', 'appraisal' and 'production'. Separate planning permissions will be required at each of these three stages, although they are sometimes combined.

4.13 **Exploration**

This stage seeks to acquire geological data to establish whether hydrocarbons are present. It may involve seismic surveys, exploratory drilling and, in the case of shale gas, fracking. This process will provide information about rock formations underground and give a clearer idea of the existence of gas and oil deposits.

4.14 **Appraisal**

This stage takes place following exploration when the existence of oil or gas has been proven, but the operator needs further information to establish whether it can be economically exploited. The appraisal phase can take several forms including additional seismic work, longer-term flow tests, or the drilling of further wells. It may involve additional drilling at another site away from the exploration site or additional wells at the original exploration site. It may also involve further fracking followed by

flow testing to establish the strength of the resource and its potential productive life.

4.15 **Production**

The production phase normally involves the drilling of a number of wells. These may be the wells used at the exploratory and/or appraisal stages or from a new site. Associated equipment such as pipelines, processing facilities and temporary storage tanks are also likely to be required. Production life of conventional sites is typically 20 years or more, although we don't know enough about shale gas deposits to really know how similar these will be.

4.16 **Main areas of concern**

In addition to concerns over the visual impact of mining equipment and harm to amenity resulting from noise and dust, there are a number of concerns over the process of fracking itself. These include the risk of contamination of water used in the process or of the ground through leaching from either methane gas itself or from chemicals used in the process. Another concern is the risk of the fracking process causing earthquakes or tremors. Exploration in Lancashire was stopped a few years ago following minor earth tremors thought to have been caused by fracking. A third area of concern is that increased energy production from shale gas will divert attention and resources away from renewable forms of energy.

4.17 Experience in the USA, where shale gas is now a major source of energy, has shown that some of these areas of concern do have foundation. However, many of the problems in America were a result of poor regulation and controls in the UK will be much tighter. National guidance is that these areas of control over production are for other regulatory bodies to address and that the planning process should not seek to duplicate them.

4.18 **The role of the Minerals Planning Authority**

The planning system controls the development and use of land in the public interest. This includes making sure that new development is appropriate in terms of its impact on health, the natural environment, general amenity and the potential sensitivity of the area or proposed development to adverse effects from pollution. The focus of the planning system should be on whether the development itself is an acceptable use of the land rather than on processes which will usually be regulated by other bodies.

4.19 Key issues that the planning system may consider include:

- noise associated with the operation
- dust
- air quality
- lighting
- visual intrusion
- landscape character
- archaeological and heritage features
- traffic
- risk of contamination to land
- soil resources
- impact on best and most versatile agricultural land
- flood risk
- land stability/subsidence

- internationally, nationally or locally designated wildlife sites, protected habitats and species, and ecological networks
- nationally protected geological and geomorphological sites and features
- site restoration and aftercare

4.20 **Issues Planning Authorities are advised to leave to other regulatory regimes**

Planning authorities are advised to not duplicate the role of other regulatory regimes, but there may be related planning considerations to be taken into account. For example, the Environment Agency has responsibility for ensuring that risk to groundwater is appropriately identified and mitigated. However, minerals planning authorities also need to prevent pollution of the water environment through controls on site construction and operation, storage facilities and surface water drainage.

4.21 Other issues can be material considerations and the planning authority should, before granting planning permission, be satisfied that these will be adequately addressed by the relevant regulatory body. Such bodies will therefore be consulted on applications for planning permission. These issues include:

- Mitigation of seismic risks – the Department of Energy and Climate Change is responsible for these controls, usually through the licence consent regime. The DECC requires seismic assessments to establish geological conditions, risk of seismic activity and mitigation measures for all fracking processes.
- Well design and construction – the Health and Safety Executive are responsible for this. Under health and safety legislation, wells are examined by independent experts throughout their operation.
- Operation of surface equipment – whilst planning conditions may be imposed to prevent run-off of liquids from the well pad, the operation of the site's equipment is controlled by the Environment Agency and the Health and Safety Executive
- Mining waste – the Environment Agency is responsible for ensuring that wastes do not harm human health and the environment. An environmental permit is required and this requires operators to produce and implement a waste management plan.
- Chemical content of fluid – this is regulated through the environmental permit required by the Environment Agency.
- Flaring or venting of gas produced as part of the exploratory phase will be subject to Department of Energy and Climate Change controls and will be regulated by the Environment Agency. Minerals planning authorities will, however, need to consider how issues of noise and visual impact will be addressed.
- Final off-site disposal of water – water that comes back to the surface following fracking may contain naturally occurring radioactive materials. It is the responsibility of the Environment Agency to ensure that the treatment and disposal at suitable water treatment facilities is acceptable.
- Well decommissioning and abandonment – Health and Safety Legislation requires the design and construction of wells to ensure as is reasonably practicable, that there is no unplanned escape of fluids from it. The minerals planning authority is responsible for ensuring the wells are abandoned and the site is restored.

4.22 **The Minerals Local Plan Consultation**

National Planning Guidance requires Minerals Plans to include policy on conventional and unconventional oil and gas exploration and extraction. It also requires such policies to be positive. In other words, policy cannot simply establish a blanket ban on such development.

- 4.23 The consultation topic paper sets out a number of issues and identifies options for developing policy which are summarised below. The issues are relatively ‘soft’, reflecting the aim to prepare a criterion based policy to guide applications should they arise rather than to identify specific locations for fracking.

4.24 **Issue 1: Emerging approach to the provision for hydrocarbons**

The NPPF and NPPG require minerals planning authorities to identify and include policies for the steady and adequate supply of minerals, to identify and include policies for the extraction of mineral resources of local and national importance in their area and to set out environmental criteria against which planning applications will be assessed. With regard to the extraction of hydrocarbons, the NPPG encourages mineral planning authorities to make appropriate provision in local minerals plans through the use of published data (where available). Local Minerals Plans are also expected to include Petroleum License Areas on their Policy Maps and set criteria based policies for each of the three phases of development (exploration, assessment and production).

- 4.25 In accordance with national planning policy, the Plan, as a minimum, will identify the areas currently subject to Petroleum Licences and any operational sites at the time of publication but will not seek to identify specific sites for future development due to the limitations of the existing information. It may be able to identify areas where hydrocarbons resources are present and where development could be undertaken and this is addressed in a separate issue below. The Plan will also set out criteria for the assessment of planning applications. The NPPG indicates the use of separate criteria policies for each of the three phases of development (exploration, appraisal and production), but in practice there may be little or no difference in the criteria that could be used for the first two phases. The number and form of criteria policies to be included in the Plan will be determined through responses to the consultation.

4.26 **Issue 2: Identification of hydrocarbon resources within the plan area**

The National Planning Practice Guidance states that the exploratory, appraisal or production phase of hydrocarbon extraction can only take place in areas where the Department of Energy and Climate Change (or any successor) has issued a licence under the Petroleum Act 1998 (Petroleum Licence). The new Minerals Local Plan will identify Petroleum Licence Areas and any existing oil and gas extraction sites which are present in the Plan area.

- 4.27 The NPPG also encourages mineral planning authorities to make provision for hydrocarbons by the use of published data on the location of conventional and unconventional hydrocarbons, use of ordnance survey based policies maps and available data on existing wells. This will allow authorities to highlight areas where proposals for hydrocarbon extraction may come forward and manage potentially conflicting objectives for use of land. It suggests that potential new working sites could be identified where these have been brought forward by the industry. It does not advocate mineral safeguarding areas for the extraction of conventional and

unconventional sources of hydrocarbons given the depth of the resource, the ability to utilise directional drilling and the small surface area requirements of well pads.

- 4.28 There are practical limitations concerning the extent to which the new Minerals Local Plan can identify areas where hydrocarbon extraction may be possible and also potentially acceptable. The level and accuracy of information which is currently available about the location, scale and the economic viability of the remaining hydrocarbon resource is very limited. In the absence of detailed information about an individual site and how the hydrocarbon would be extracted it is difficult to assess the acceptability of working the resource.
- 4.29 **Option 1:** Identify on a plan the minimum information required by new Government guidance – that is current Petroleum Exploration Development Licence (PEDL) areas and existing working sites. This would satisfy the minimum requirements of national guidance and is best related to the availability of information. However, the information would be of limited use as PEDLs cover large areas and the presence of a licence does not mean hydrocarbons are definitely present and the absence of a PEDL does not definitely mean they are not present in that location.

Option 2: In addition to Option 1 - Identify on a plan the extent of other areas where conventional and unconventional oil and gas resources are known to be present. From information which is currently available, the Plan could show broad areas where oil and gas resources are known to exist, both within and outside the PEDL licences. This option would provide a more comprehensive picture of available hydrocarbon resources and would fulfil the approach encouraged by the NPPF of highlighting areas where proposals for hydrocarbon extraction may come forward.

Option 3: In addition to Option 2 - Identify on a plan the extent of other areas where conventional and unconventional oil and gas resources are known to be present and other areas where geological conditions indicate that further resources of hydrocarbons may be found. It may be possible to provide this from information held, but its accuracy could not be guaranteed and may be insufficient for inclusion in the Plan. It may also raise unnecessary concerns about the prospect of development.

- 4.30 **Issue 3: Identification of constraints on the production and processing of conventional and unconventional hydrocarbons**
These are the planning issues that will be taken into account in determining applications for the extraction of hydrocarbons and could cover environmental, economic and social constraints. The NPPF identifies the environmental issues that should be taken into account and these provide a starting point. However, it does not set out any economic or social constraints. There is therefore a need to establish the geographical area over which constraints will be identified, what these constraints should be and how best they should be presented.

- 4.31 **Identification of the geographical areas in which the planning constraints are shown on a map**

Option 1: - Identify constraints for current PEDL areas only. This would meet the minimum requirements of national guidance. However, this information is likely to become outdated fairly quickly as new PEDL's are granted. Review of formal Plans not a quick process.

Option 2: - Identify constraints for current PEDL areas and also for those parts of the Plan area where hydrocarbon resources are known to be present. This would provide a comprehensive picture of constraints for all areas where hydrocarbon extraction could possibly take place and would avoid the need for further consultations in the future if and when new PEDLs were issued.

4.32 With reference to constraints identified in the NPPF, it is proposed to include the following environmental constraints:

- Landscape
- Biodiversity/Ecology
- Heritage
- Archaeology
- Geology/Geomorphology
- Water Protection/Flood Zones
- Green Belt
- Contaminated Land

4.33 It is also proposed that the Plan will identify:

- Cumulative constraints
- Social constraints
- Economic constraints

4.34 **Issue 4: The use of criterion based policies for conventional and unconventional hydrocarbon developments**

This issue comprises two parts. Part a) is asking whether separate criteria should be developed for all three stages of exploration, assessment and production or whether, given that issues for the first two of these are much the same there should be just two criteria to avoid repetition. Part b) is asking whether the same criteria should be used for both conventional and unconventional hydrocarbon extraction or whether there should be two separate policies.

4.35 a) the use of separate policies for each stage of hydrocarbon developments

Planning permission is required for each of the separate phases of development; exploration, appraisal and production. Minerals Local Plans should include criteria based policies for each of these phases. However, based on past experience, there are unlikely to be significant differences between the issues which are relevant to the exploration and appraisal stages. Indeed these stages are often combined in to one planning application.

Option 1: Include only two separate criteria policies; one for exploration and appraisal and another for production.

The provision of one criteria policy for both the exploration and appraisal stages would help streamline the Minerals Local Plan whilst providing a policy basis that correlates to the way in which many hydrocarbon development proposals are formulated.

Option 2: Include separate criteria policies for each of the three stages of development. Probably repetitive.

This is more comprehensive, but probably would include unnecessary repetition.

4.36 b) The use of additional criteria policies for oil or gas, for conventional or unconventional sources or for different extraction technologies

With regard to the use of criteria policies, national planning guidance does not differentiate between the various sources of hydrocarbons or the different methods of production, be they conventional or unconventional. So there is no requirement for separate policies, but consultees are being asked whether they think that these do raise sufficiently different issues to merit this. The consultation presents a number of options to help us determine the approach of the new Minerals Local Plan.

Option 1: Include only two or three separate criterion based policies for the three phases of hydrocarbon developments (as determined by the responses to the options above).

This option would establish one set of criteria policies for the phases of all forms of hydrocarbon developments, whether conventional or unconventional. It would provide a clear and succinct framework for the assessment and determination of development proposals. It would be unambiguous and both developers and local communities would readily know the criteria that would be used to determine planning applications.

Option 2: Include a separate set of criterion based policies for the phases of each of the different types of hydrocarbon (e.g. conventional oil and natural gas, gas from coal measures and gas from unconventional sources such as the hydraulic fracturing of shale deposits).

This approach would establish different criteria based policies for the exploration, appraisal and extraction of the different types of hydrocarbons. Consultees are being asked whether they think these stages raise significantly different issues which merit the inclusion of criteria policies specifically tailored to each form. For instance, differences may include how and where conventional and unconventional hydrocarbons are found beneath the ground and the differences in how they are extracted or the facilities that would be required above ground.

In practice, however, there are many similarities in the methods used to extract hydrocarbons irrespective of how and where they are located. Most differences could be covered in a comprehensive single set of criteria policies for all forms of development. Furthermore, the inclusion of separate policies could lead to unnecessary duplication and possible confusion, particularly for any hybrid developments extracting oil and gas from one site or by employing more than one extraction method.

Option 3: In addition to Option 1, include only an additional set of criterion based policies specifically for hydraulic fracturing.

This option recognises that the issues raised by most forms of hydrocarbon development are sufficiently similar such that one set of criteria based policies would suffice, but that the hydraulic fracturing of shale gas does raise sufficiently different issues to warrant a separate criteria policy. However, at present there are only a limited number of sites which have reached the exploration stage and none have developed to the production stage and therefore there is little empirical evidence or experience about the issues such developments do raise. It should also be remembered that many of the issues which have caused public concern in this country would be matters for other regulators and not for the planning system. These could not therefore be addressed in the Local Plan.

4.37 Issue 5: The range of criteria to be included in the policies for conventional and unconventional hydrocarbons.

Views are sought on what criteria should be included in the policies for hydrocarbon developments in general and what criteria should be included in any policies specifically relating to fracking should a case for a separate policy be justified.

- 4.38 The DCLG publication, Planning practice for onshore oil and gas, July 2013, (reference 10) identified the principal environmental issues of hydrocarbon extraction that should be addressed by mineral planning authorities. These have not been carried forward into the National Planning Practice Guidance, March 2014 advice on hydrocarbons, although a similar list has been included to identify the environmental issues which could apply to all forms of mineral developments. Although the DCLG publication has been cancelled following the release of the NPPG, it is considered that these two documents still identify the environmental issues which are relevant to hydrocarbon developments and which could be used to help identify and establish the list of criteria that will be included in the policies. These are:

- Noise associated with the operation
- Impact of dust.
- Impact on air quality
- Impact of lighting
- Visual intrusion into the local setting and the wider landscape caused by any buildings or structures within the application area
- Impact on landscape character
- Importance of archaeological and heritage features
- Generation and impact of traffic
- Risk of contamination of land
- Impact on soil
- Impact on the best and most versatile agricultural land
- Flood risk
- Impact on the water environment
- Land stability and subsidence
- Impact on internationally, nationally or local designated wildlife sites, protected habitats and species, and ecological networks
- Impact on nationally protected geological and geomorphological sites and features
- Establishment of site restoration and aftercare requirements

4.39 Issue 6: Criteria to be applied to proposals for the hydraulic fracturing of shale gas.

The emergence of hydraulic fracturing as a means of extracting gas for use in our energy supplies has become a major issue in recent years. Although the scale and economic viability of the resource in the Plan area is yet to be established, it is an aspect of mineral working that must be addressed in the Minerals Local Plan. Whilst hydraulic fracturing proposals could be assessed and determined using a set of policies which apply to all hydrocarbon developments, consultees are being asked if they consider there to be any issues unique to fracking that are so significant that it merits individual consideration in the event that the Plan includes a separate policy on shale gas.

OTHER OPTIONS CONSIDERED

5.1 The consultation includes a range of options on issues for discussion.

This report has been approved by the following officers:

Legal officer Financial officer Human Resources officer Estates/Property officer Service Director(s) Other(s)	Stephen Teasdale, Planning & Highways Solicitor Amanda Fletcher, Head of Finance Tim Clegg
For more information contact: Background papers: List of appendices:	Andrew Waterhouse 01332 642124 andrew.waterhouse@derby.gov.uk Towards a Strategy for Hydrocarbons – available on CMIS Unconventional Gas – Shale Gas Supporting Paper – available on CMIS Appendix 1 – Implications

Appendix 1

IMPLICATIONS

Financial and Value for Money

- 1.1 There are no financial implications as a direct result of this report. The financial implications of future decisions will have to be assessed at that time and the necessary approvals gained.

Legal

- 2.1 Preparing a Minerals Local Plan is a statutory duty on the Council.

Personnel

- 3.1 Staff resources for Derby City's contribution to Minerals Planning work is met within existing resources of the Spatial Planning Group.

IT

- 4.1 None.

Equalities Impact

- 5.1 Effective scrutiny benefits all Derby people and the very nature of the Scrutiny Commission's work means that equality issues are addressed.

Health and Safety

- 6.1 None.

Environmental Sustainability

- 7.1 The Minerals Local Plan is subject to a formal Sustainability Appraisal which will be considered as part of the independent Examination process.

Property and Asset Management

- 8.1 None.

Risk Management

- 9.1 None.

Corporate objectives and priorities for change

- 10.1 Derby City Council Plan 2015/18