

Nottinghamshire Minerals Plan.

Frack Free Misson- Response to supplementary questions:

Matter 3: Use of the phrase 'worked out' would indicate that para 4.2 is referring to quarrying, not mining operations. This should be clarified and preclude the latter.

44 Should the policy include detailed criteria for assessment of environmental impacts for each stage of development?

Yes. As the planning authority has, under the NPPF, to give consideration for the industry's clearly defined stages of development, then each should be subjected to risk & impact assessments. Each stage should be subjected to scrutiny of all relevant environmental impacts, including any compounding effects through upscaling or repeating of activities previously undertaken at an earlier stage.

45 Should the policy recognise specific impacts that can result from hydraulic fracturing?

Yes. The policy should recognise such specific impacts, some of which may be common to conventional operations, and also in terms of their scale, intensity and frequency.

There should be a definition of hydraulic fracturing suitable for planning purposes in place. That embodied in the National Infrastructure Act is dependent upon the volume of fluid used, which may only be confirmed retrospectively and does not take into account the actual mechanism of the process. The Inspector for the North Yorkshire Minerals & Waste Joint Plan recommended "Hydraulic fracturing is the process of opening and/or extending existing narrow fractures or creating new ones (fractures are typically hairline in width) in gas or oil bearing rock, which allows gas to flow into wellbores to be captured."

To maintain commercial viability, high volume hydraulic fracturing for shale gas has to be completed at scale and speed. This is necessary due to the rapid decline in productivity of the wells compared to conventional methods. Whilst conventional wells may remain commercially viable for twenty or so years, the productivity of fractured shale wells can fall 65% in the first year, and around 85% over three years.

This necessitates the concept of 'drill and fill' to be adopted, where the decline is compensated by the initial surge from further wells. Another option, which may be used in addition, would be to re-fracture the existing wells. Either of these activities will result in planning impacts which are incomparable to those from conventional activities. Therefore, shale gas activities should be warranted additional and specific considerations.

On 26th of August 2019, hydraulic fracturing activities at Cuadrilla's site at Preston New Road in Lancashire were suspended following an earthquake of 2.9 magnitude, Intensity 6 on the EMS scale¹. This resulted in a moratorium² on fracking in England being imposed on 2nd November 2019 by the Oil and Gas Authority on the grounds that it was not possible with current technology to predict accurately whether fracking would cause tremors and how big they would be. This is evidence based and post-dates the current draft of the minerals plan.

There were numerous reports of people being alarmed and disturbed along with properties being damaged as far as 6km from the site.³ Cuadrilla sent office staff and a social media manager to assess the claims and subsequently denied liability despite offering 'goodwill' payments in some cases.⁴

The 'traffic light system' developed by the industry and administered by the Oil & Gas Authority was in operation, and would normally result in the cessation of fluid injection in such an event. However, this particular seismic shock occurred some 48 hours after pumping had been

suspended for the bank holiday weekend. Ensuing lesser seismic events, continued until October 6th 2019.

It has been postulated that the sand-based substructure of The Fylde resulted in disturbances and impacts disproportionate to what would normally be expected given the magnitude of the earthquake. Hence local geological conditions, including mining legacies, should be taken into account when assessing seismic risks, rather than applying generalised protocols. The effect of continued minor geological disturbances should also be given due consideration, as illustrated by the effects of gas extraction in Groningen, Holland.⁵

Prior to Cuadrilla's efforts at Preston New Road, the legacy of coal mining had granted Ollerton in Nottinghamshire the dubious distinction of being the most seismically active place in the UK. Remediation measures included reconstruction work to heritage assets including Thoresby Hall and twice to the lake at Clumber Park.

The issue of fracking related seismic risks in the UK coalfields was the subject of a 2018 report⁶ by Professor Peter Styles, a past President of the Geological Society of London, who spent 40 years working in the field of mining seismicity, including time at Thoresby Colliery. He concluded that very careful consideration should be given to fracking operations near old mine workings, including the application of all relevant data from mining records:

'It is evident that this information already exists for the United Kingdom, albeit buried in the archives of the UK Coal Authority at present, and should be considered to be integral part of the geological database which is considered as part of the planning process for shale gas or indeed any deep underground activities in areas where coal mines have been worked in the UK.'

Given the effects of the unplanned seismicity in Lancashire, suitable assessment and precautions, including separation distances⁷ should be in place to protect the local populace, infrastructure and economy. Professor Styles cites a 500m buffer zone between mine workings and 'new technologies,' and recommends an 850m respect distance for faults.

Proposal: [Hydraulic fracturing operations will be supported providing that prior to such operations for shale gas or oil being carried out in areas which have been subjected to coal mining, specific seismic risk assessments are carried out using all available data. In addition, a fully bonded assurance scheme should be in place to cover damage or harm arising from any ensuing seismic activity with clearly defined and legally binding liabilities agreed between the Coal Authority and operating companies. Suitable separation distances between proposed fluid injection zones, geological faults and areas affected by mine workings should be clearly defined in such instruments.]

46 What are the 'protected areas' as set out in parts (1) (a) and (2) (a) of Policy MP12? If these are the protected areas defined in the Onshore Hydraulic Fracturing (Protected Areas) Regulations 2016 should they be stated in the supporting text or in a footnote?

What is the relevance of those areas to oil and gas exploration other than hydraulic fracturing?

Protected areas should be clearly defined in the plan so as to avoid any ambiguity in processing and considering of scoping and planning applications. In addition to those protections defined under the Onshore Hydraulic Fracturing (Protected Areas) Regulations, the scale and intensity of proposed development should be assessed especially with regards industrialisation in areas around Nottinghamshire cultural heritage sites and tourist attractions, such as Sherwood Forest, Clumber Park, and Creswell Crags, the latter having been proposed as a tentative World Heritage site.

The adopted North Yorkshire Minerals plan includes 500m separation distance from dwellings which was agreed by the planning inspector.

With regards conventional assets, please see the first paragraph of response to Q 47 (below.)

47 Should the policy or the supporting text state what circumstances are likely to constitute 'exceptional circumstances'?

Yes. The fundamental requirement would be to soundly demonstrate that the resource being sought is particular to that location, that its unique properties are of such socio-economic benefit that cannot be met by other means, and its extraction is in alignment with the principles of sustainable development and any proposal demonstrates that it will have a net zero impact on climate change.

This would have to be balanced against the values and unique characteristics of the natural, environmental and cultural assets at risk.

48 What would be required to demonstrate the need for development and what is the justification for this requirement?

As with question 47, the fundamental requirements would be to soundly demonstrate that the properties of resources being sought are of such socio-economic benefit that cannot be feasibly or economically met by other means, e.g. energy conservation, renewable sources. Also, its extraction should be in alignment with the principles of sustainable development and climate change commitments.

Justification.

Since hydraulic fracturing was first mooted in the UK over a decade ago there has been a dramatic shift in both the UK energy landscape, in terms of usage, supplies and economics.

In the first decade of this century, a robust and energetic domestic insulation program was the main driver in a 20% reduction in UK gas demand. In the subsequent decade government support for such schemes was cut, thereby propagating demand and dependency on imports.⁸

Many of the arguments used to justify the development of a UK shale gas industry have been rendered invalid, some also having been shown to be contrived and dubious. For example, the postulation that shale gas being would act as a 'green bridge' to a low carbon economy has been discredited due to the levels of fugitive methane emissions resulting from the process.⁹

This would be compounded by the energy consumed in producing 'blue' hydrogen. The processes of methane steam reformation (to produce hydrogen) and carbon capture are themselves net consumers of energy. The use of Carbon Capture and Storage is contrived in so far as it is dependent upon unproven technology; despite numerous attempts over two decades, it has yet to be adopted at scale.¹⁰

The government's own 2017 Gas Security of Supply report stated that future energy security would not be dependent upon new indigenous sources⁸, nor would fracking reduce the price of gas to consumers.¹¹

Also, in terms of security of supplies, the UK still exports gas to non-geographically dependent nations at times of low demand, whilst over the past seven years offshore storage facilities have been cancelled or shut down on commercial grounds. In this regard, it is also of note that the industry talks of shale gas development reducing 'net' imports, indicating that the gas will be primarily regarded as a marketable commodity.

The manner in which the shale lobby have repeatedly realigned their reasoning is itself indicative of a contrived rationale to justify pursuing their goal; having numerous weak justifications does not constitute a strong case.

In the same timeframe evidence of adverse public health and environmental impacts have become more numerous and thereby the epidemiology for the public health case against fracking more robust.¹²

Any current energy scenario is a result of past & current government policies; robust demand forecasts can only be relied upon for the life of any government, a timescale exceeded by the scope of this plan. However, the overarching global intent and the UK's responsibility is to reduce fossil fuel extraction and use, also in accordance with SP3 and Nottinghamshire Sustainable Community Strategy.

Estimates of shale gas reserves in the UK are speculative at best. Comparisons with US production have been called into question due to differences in geological history, also population density and the presence of associated infrastructure.^{13,14.}

Frack Free Misson

Date: 15th June 2020.

References:

1. http://www.earthquakes.bgs.ac.uk/education/ems_synopsis.html
2. <https://www.gov.uk/government/news/government-ends-support-for-fracking>
3. <https://drillordrop.com/2020/05/29/data-reveals-where-people-reported-damage-from-fracking-earthquake/>
4. <https://drillordrop.com/2019/09/26/cuadrilla-sent-office-staff-to-check-property-damage-from-uks-biggest-fracking-earth-tremor/>
5. <https://www.theguardian.com/environment/2018/jan/23/gas-field-earthquakes-put-netherlands-biggest-firms-on-extraction-notice>
6. <http://www.talkfracking.org/wp-content/uploads/2018/05/Fracking-and-Mining-Styles-Final.pdf>
7. <https://link.springer.com/article/10.1007/s40948-018-0081-y>
8. <https://www.e3g.org/news/media-room/home-insulation-crash-in-england>
9. https://www.newscientist.com/article/2241347-fracking-wells-in-the-us-are-leaking-loads-of-planet-warming-methane/?fbclid=IwAR3_nE0PZmp3WQ0pe7L4SPy5tZCdIOPRIIZC_sJuxgzB5trRx_pm4x6oViY
10. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770450/gas-security-supply-assessment.pdf
11. <https://investigatingbalcombeandcuadrilla.files.wordpress.com/2019/10/fracking-for-shale-gas-in-england-report-1.pdf> (Key findings; CCS; Para. 2.8 price of gas)
12. <http://concernedhealthny.org/compendium/>
13. <https://www.theguardian.com/environment/2017/aug/17/uk-fracking-may-produce-less-fuel-than-claimed-says-geologist>
14. <https://www.sciencedirect.com/science/article/pii/S0048969717304096>

End.