

Comments of the Lancashire Branch of the Campaign to Protect Rural England (CPRE) on the Publication Consultation Version of the Draft Joint Lancashire Minerals and Waste Local Plan (DMWLP)

The Lancashire Branch of the Campaign to Protect Rural England (CPRE Lancashire) is delighted to respond to this consultation. We hope that our comments help Lancashire County Council to progress a Joint Lancashire Minerals and Waste Local Plan that will best protect and enhance rural Lancashire as new development is planned.

We are a local charity with members who believe a beautiful, thriving countryside is important for everyone, no matter where they live. We have been standing up for the countryside for more than 80 years. Millions of town and city dwellers recharge their batteries with a walk or a bike ride in the local Green Belt, spend weekends and holidays in the countryside, or enjoy fresh local produce. People who live in rural areas keep our countryside beautiful and productive.

The countryside is unique, essential, precious and finite - and it's in danger. Every year, a little more is lost forever to urban sprawl, new roads, housing and other developments. Rural shops and services are closing, and increasingly intensive farming is changing the character of the countryside. Climate change, too, will have serious impacts on the rural environment, so we do sincerely hope that as minerals and waste are planned, the intrinsic characteristics of rural Lancashire are fully valued.

Section 1 - Introduction

1.1.2 The characteristics of the Plan area (last bullet point)

Comment: Rural Rail is neglected and in need of improvement, particularly
a) North - South, Ormskirk - Preston, b) East West, Burscough - Wigan and
c) Colne - Skipton should be reopened. There are no East - West interregional motorways (the M65 ends at Colne in Lancashire).

Section 2 - Protecting and Enhancing our Natural and Built Environment

2.1.11 Screening

Comment: Earth bunds and temporary top soil spoil heaps should be seeded to minimise dust emissions in advance of screen planting

2.1.23 Air Quality Dust

Comment: Chemical analysis of dust emissions should be undertaken of samples collected outside landfill site boundaries to identify the possible presence of

materials harmful to health and the environment. This is of particular importance outside urban Hazardous Waste Landfill sites. All hazardous materials should be transported in sealed bags or containers to minimise exposure of employees and the public.

2.1.52 Public Health

Comment: Developers should undertake air quality assessments and chemical analysis of soil samples collected outside site boundaries prior to development so that baseline data are available to serve as reference for ongoing monitoring during the site operation, so enabling any problems to be identified and remedied to reassure those living or working near to the facility.

2.4 Policy MW4, Proposals for waste management developments

Comment: Developers should provide an economic justification of the need for their schemes and be required to demonstrate that adequate alternative sources do not exist.

3.3 Sustainable Construction and Waste Management in New Developments

3.3.3 (Justification)

Comment: Developers should be required to submit Construction Site Waste Management Plans for all developments, for it is only by considering how waste created by brownfield development might be managed in advance that thought can be given to the possible re-use or remediation of the materials, both demolition and excavated contaminated soils/waste. Broad descriptive terms like “significant” and “very large scale” can provide a justification for avoiding the development of strategies for waste minimisation. Many small developments, particularly in urban settings may, in aggregate, create more waste than those described as “significant” or “very large scale”.

Section 4.1.3 Managing Sand and Gravel Aggregate Supply

4.1.3.1 (Policy MW 13, Justification)

Comment: The Joint Authorities should give support to the supply of sea dredged aggregates in preference to land based resources where these are shown to be suitable and contribute to flood risk reduction and navigation.

Section 4.4 - Onshore Oil and Gas Developments

A. Status of the Written Ministerial Statement (WMS) of Greg Clark, Secretary of State for Business, Energy and Industrial Strategy, and James Brokenshire, Secretary of State for Housing, Communities and Local Government, on 17 May 2018

1. This Statement is a material consideration in plan-making and decision-taking, alongside relevant policies of the existing National Planning Policy Framework (2012), in particular those on mineral planning (including conventional and unconventional hydrocarbons).
2. It directs Mineral Planning Authorities (MPAs) to confine their determination of applications relating to the discovery and production of shale gas to consideration of surface factors and to leave underground factors to be controlled by the regulatory authorities, namely the Environment Agency, the Health and Safety Executive, and the Oil and Gas Authority.
3. In particular, the WMS states that there is an expectation that MPAs 'recognise' the fact that Parliament has defined hydraulic fracturing (HF) as set out in the Petroleum Act 1998 (as amended by the Infrastructure Act 2015). The HF process is defined in terms of the volume of fluid used, rather than in the nature of the process itself.
4. Recently, the lawfulness of the WMS was unsuccessfully challenged on the grounds that it had not been subject to an Environmental Assessment and that developers could evade restrictions by using volumes of HF fluid slightly less than those specified in the Act.
5. The judge's decision has not yet been handed down, but it has been widely reported in the media and we have seen the complainant's barrister's summary of the judgment. In refusing judicial review, the judge ruled that an Environmental Assessment is unnecessary, however in relation to the definition of HF, he found that the reference in the WMS to an *expectation* that MPAs 'recognise' the fact that Parliament has defined fracking in legislation was no more than that.

6. Further, the judge made the point that once a MPA had noted the existence of that definition, they were perfectly entitled to apply the wider definition contained in paragraph 129 of the national Planning Practice Guidance (NPPG) - provided of course that they explain their reasons for doing so.

(NOTE: NPPG par. 129 - What is hydraulic fracturing?)

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 or oil to flow into wellbores to be captured.

Paragraph: 129 Reference ID: 27-129-20140306
Revision date: 06 03 2014)

7. The complainant's barrister advised that a challenge was unlikely were the MPA to adopt the NPPG definition of HF and CPRE urges that this definition is used in DMWLP and by the regulatory authorities).
8. Further CPRE urges Lancashire County Council and its associated MPAs (LCC) incorporate in the DMWLP all considerations relating to land use, which is the domain of Planning Policy, even when the issues originate at depth and are also a matter for the Shale Environmental Regulator (comprising the Environment Agency, the Health and Safety Executive, and the Oil and Gas Authority).

B. Planning considerations

9. HF operations are potentially hazardous because they involve large pressures, the storage of dangerous chemicals at harmful concentrations and potentially large volumes of flowback fluid, and escape of flammable gas. Despite the oversight of HF operations by the Shale Environmental Regulator, the possibility of substantial harm remains as acknowledged in the following extract from the application to the LCC (reference LCC/2014/0096) of Cuadrilla Bowland Ltd. (Cuadrilla) in respect of their Preston New Road (PNR) site at Little Plumpton, Preston:

**Paragraph 48, Section K3.2, Environmental Statement, Volume 2,
Appendix K, p. 17**

A blowout is a rare event where the uncontrolled release of formation fluids (oil, gas and/or water) from the well results from failure of all pressure control systems, i.e. well barriers. Since multiple barriers (mud density, casing and well head blow-out preventers) are used that are collectively designed to withstand significantly more pressure than anticipated, blowouts are usually related to human error and/or multiple equipment failure. This can occur as a result of a series of failures in observation, to properly react, or properly maintain and test equipment. If a blowout occurs, fluids and solids from within the well are released and could be dispersed over an area

extending beyond the site containment system. Blowouts may take hours to days to contain, depending on the size of the reservoir that contained the high-pressure. Blowouts can only occur as a result of a series of failures and cannot occur due to a single event of failure, hence their rarity.

10. Although such events are rare, they do occur and the associated harm can be very serious. CPRE asks that the DMWLP requires that potential sensitive receptors (e.g. residents, schools, public communal areas, livestock, crops and agricultural land at risk of contamination with radioactive substances and heavy metals, businesses, etc.) be identified and that measures to mitigate harm put in place in so far as possible.
11. Because a well pad is responsible for many factors adverse to residential amenity (including noise, vibration, light pollution and loss of visual amenity) some of which may, for some operations, be continuous night and day, CPRE asks that the DMWLP should specify that a well pad may not be closer than 500 m from a residential site of any kind (and from other similar sensitive receptors), except under special circumstances. In addition to being in the interest of residential amenity, this requirement will also reduce potential harm arising from the risk described above in par. 9.
12. CPRE asks that the DMWLP should require developers to specify in their application the formation or formations to be subject to HF and the technology to be used to prevent HF fluid penetrating contiguous formations and that they have engaged seismologists competent to use it (please see par. 20 for the significance of this requirement).
13. CPRE also asks that the DMWLP should require developers to provide independent evidence that the preliminary acquisition of seismic data and its analysis is sufficiently detailed to ensure a reliable and adequately detailed understanding of the geology and fault structures of the formations through which boreholes will pass and especially those which will be subject to HF.
14. CPRE's experience of the supervision of Cuadrilla's activities at its PNR site is that the regulatory authorities cannot be relied on. At the time of Cuadrilla's application to the LCC, we made several recommendations for strengthening the Environment Agency's draft Permit, none of which was accepted. Subsequently, all our recommendations were adopted in new Guidance and eventually the Permit was amended to conform to the new Guidance. The Environment Agency is too frustrating to deal with, and too slow to recognise the value of advances in technology to regulate efficiently and spontaneously. We have also had and are continuing to have unsatisfactory experiences in our dealings with the Oil and Gas Authority.

15. This is why MPAs must check that regulation is being done effectively; we do not ask that MPAs regulate underground procedures themselves, only that they take an interest in processes at depth which have the potential to influence surface land use.
16. Consistent with the previous paragraph, recent events accompanying HF at Cuadrilla's PNR site indicate there has been a lack of understanding of both the geology and fault structure. Independent geologists, Prof. David Smythe and Trina Froud, have each critically reviewed (ref. Frackland, 22 October 2018 and Drill or Drop, 17 November 2018, respectively) the available information of the geology and fault structure relevant to HF procedures at Cuadrilla's PNR site from the time of Cuadrilla's application to the LCC (ref. LCC/2014/0096) until the second Hydraulic Fracture Plan. The contents of each of these reports are very worrying; the following extract from Prof. Smythe's paper is typical of the many criticisms of Cuadrilla's performance:

To cite one example of Cuadrilla's incompetence: a supposedly 400 m thick [section] of [the] Millstone Grit [formation], mapped by Cuadrilla as late as last year to overlie the Bowland Shale, was proved by PNR-1 (the vertical donor well for the horizontal PNR-1z) earlier this year to be *completely absent*. This Upper Carboniferous layer should have been found, according to Cuadrilla, between the Bowland Shales and the Permian sediments above. Cuadrilla's mis-mapping and misunderstanding after all this time constitutes a severe geological failure. The usual mismatch between the geological prognosis and the actual outcome when drilling in a supposedly well-understood basin is routinely just a few metres in layer thickness differences.
17. The failure to recognise that the vertical borehole PRN-1 did not pass through the Millstone Grit formation was symptomatic not only of incompetent seismometry but also of poor drilling practice. The Millstone Grit formation has very different properties from those of the Upper Bowland Shale, so the absence of approximately 400 m of Millstone Grit should have been detectable by core sampling and analysis of drill cuttings alone.
18. It is also a matter of very great concern that the two vertical boreholes cut through a major fault and some minor faults, which significantly increases the potential for loss of integrity of the wells and the movement of fluid and gas towards surface aquifers. The Shale Environmental Regulator Group has not commented on this very unsatisfactory situation. CPRE asks that the DMWLP provides for a formal arrangement for liaison between the LCC and the Shale Environmental Regulator Group to provide a forum for the LCC to express concerns and seek reassurance about standards of regulation where they impinge on surface land use.
19. It is not possible to consider here all the numerous deficiencies of Cuadrilla's analysis of the seismic data, and it is our understanding that all

the data have not been disclosed (on the grounds of commercial sensitivity) to the Environment Agency, the British Geological Survey, or the specialist groups at Liverpool, Durham and Newcastle Universities so they could benefit from more detailed and hopefully more expert analysis. Because we believe it is essential that there should be independent review of the adequacy of the seismic data and the soundness of their interpretation, CPRE asks that the DMWLP should specify that, as a condition of LCC planning consent, seismic data shall be published as they become available, thereby contributing to minimising the risks associated with the HF process.

20. It has been our understanding that Cuadrilla undertook to monitor the penetration of HF fluid in real-time during the HF process, so that known faults could be avoided (the HF process would be stopped in the event of the HF front approaching a fault or a boundary of the target formation, taking account of the resolution/uncertainty of the monitoring technology). That there have been an unexpected number of surface earth tremors detected sufficient to give a red Traffic Light System response, appears to indicate that the real-time monitoring of the penetration of the HF fluid has not been working properly, or that there are many significant faults which have not been detected and are being penetrated by HF fluid, which is quite probable in the light of par. 16. In commenting on this situation, the public announcements of the Shale Environmental Regulator Group appear to denote an alarming degree of complacency in that they are a pains to reassure the public that all is well. However, they fail to explain that the Traffic Light System response is determined by unfelt surface tremors, even at the epicentre (the position on the surface directly above the underground centre), while at the actual centre at depth, where the energy is released, the disturbance could be sufficiently great to damage the well. (NOTE: The fact that the well remains gas tight does not mean it is undamaged, only that any damage does not extend the entire length of the cement casing surrounding the steel well tube.)

21. Further complacency by the Shale Environmental Regulator Group concerning the fate of the HF fluid is evidenced by the following statement (ref. Preston New Road: *Keeping you informed - Assessment of seismic activity*, Shale Environmental Regulator Group, Update no.6, November 2018):

We have assessed that there is no groundwater in the shale and we do not expect fractures to enter the layer of Millstone Grit above. If fractures were to go beyond the underground permitted boundary (set at the upper boundary of the shale rock) the impact is likely to be materially insignificant. The environmental permit does not allow for any chemicals that are hazardous to groundwater to be used in hydraulic fracturing fluid.

22. This statement is based on a misunderstanding of the HF process. When the HF fluid penetrates the shale rock and opens up existing fissures, it liberates

more than gaseous hydrocarbons (mainly methane at the PNR site); in addition, it picks up soluble compounds of heavy metals including radionuclides, to the extent that, even after first use of the HF fluid, the flowback fluid is stored on site in double-sided tanks. Cuadrilla has stated it intends to reuse flowback fluid for HF. Although this has the advantage of reducing the amount of water used, it has the disadvantage that the burden of contaminant increases very significantly after each HF (ref. Beneficial Reuse of Produced and Flowback Water, D.R. Stewart, US EPA Technical Workshop 2013). As an example taken from the cited paper, the dissolved barium (as Ba²⁺) increased from 0.22 mg/l in the HF fluid to 4,300 mg/l after the fourth HF (cf. the US EPA maximum permitted concentration of barium in drinking water is 2.0 mg/l; the WHO guideline is 0.7 mg/l). So it is quite wrong of the Shale Environmental Regulator Group to claim that, because the HF fluid does not contain any chemicals that are hazardous to groundwater, it does not matter if formation fluid escapes into the Millstone Grit formation.

23. This situation is further justification of CPRE's call for a formal arrangement for liaison between the LCC and the Shale Environmental Regulator Group to provide a forum for the LCC to express concerns about standards of regulation where they impinge on surface land use.
24. CPRE asks that the DMWLP includes an Acidisation Policy. We believe it is necessary to have the policy in place so as to be prepared to deal with an application to use the technology to discover and produce gas/oil from, for example, the Millstone Grit formation. Dilute hydrochloric acid is already commonly used to descale and remove accumulated small particle debris associated with drilling, but where the intention is to widen fissures by pumping even at a pressure below that necessary for fracturing rock, the process should be regarded as well stimulation and be treated in the same way as HF.
25. CPRE believes that hydrofluoric acid is too dangerous even to have on site, let alone be used for well stimulation, and we ask that the DMWLP prohibits its use.
26. As with applications using standard HF technology, the Acidisation Policy should require the target formation to be specified along with the technology to be used to ensure the acidisation fluid does not reach contiguous formations. Further, as before, the Policy should provide for an arrangement for liaison with the regulatory authorities to be in place so that the LCC can influence the regulatory process in so far as it concerns surface land use.

Section 4.6 Landfill

4.6.1 Policy MW 21, Landfilling of Waste

Comment: The landfilling of timber and plastics should be prohibited to encourage recycling.