

Appendix 13

Noise

Proposal

The applicant's Environmental Statement contains a chapter that assesses the noise and vibration impacts from the project and their effects on the surrounding sensitive receivers.

Baseline noise levels have been established by a measurement survey. This data is used to assess the potential significance of any effects. The site is in a rural location. However the proximity of the M55 to the north and A583 to the south means that during the day time road noise is a particular feature of the current environment.

Different stages of the project will have different noise levels. The noisiest activities are most likely to occur within the first two to three years of the project. However, the noise levels for all stages of the project have been assessed. The applicant says the only stage with the potential to result in a significant noise effect is where hydraulic fracturing occurs during night time (2300-0700) where noise limits are at their most stringent.

The applicant proposes to mitigate this by only operating the pumps used (only for up to 3 hours at a time during hydraulic fracturing) during weekday daytime and Saturday mornings.

Vibration impacts have been ruled out by the applicant because of the nature of the project, method of construction for the well pad, arrays and pipeline connection for the extended flow testing.

The nearest properties to the site are at Staining Wood Cottages (270m south of the site) and Plumpton Hall Farm which includes two residential properties. It is approximately 380m to the east of the well pad boundary. There are a small number of other properties very near to Staining Wood Cottages at Foxwood Chase. These are a small distance further from the site than Staining Wood Cottages.

Assessing existing noise levels and ensuring control of noise at Plumpton Hall Farm and Staining Wood Cottages will ensure that other (more distant) noise sensitive premises are protected from noise from the site.

Consultee responses and representations

LCC Director of Public Health: has provided specific advice to inform the planning process and provide public health advice to protect and improve the health of local residents living near the proposed shale gas exploration sites of Preston New Road (planning application numbers LCC/2014/0096 and 0097) and Roseacre Wood (planning application numbers LCC/2014/0101 and 0102). The advice was published as a Health Impact Assessment (HIA) in November 2014.

The Health Impact Assessment makes 45 recommendations to a broad range of agencies, suggesting actions before, during and after any permissions or permits are granted. Appendix J contains 16 specific recommendations to inform the determination of this application. Recommendation number one relates to noise:

- 1. Consider the need for further noise assessment, particularly on the proposed Roseacre Wood site and if necessary, require additional mitigation measures to reduce noise associated with the development of the sites and more particularly the drilling and hydraulic fracturing phases of the development and which could be controlled by conditions attached to any planning permission.*

Fylde Borough Council: objects for the following summarised reasons:

- The proposed drilling operations would be in relatively close proximity to residential properties and the noise and general disturbance from 24 hour drilling operations and associated activity would be significant.
- Contrary to Policy DM2 of the Minerals and Waste local Plan.
- Contrary to Policies EP26, EP27 and EP28 of the Fylde Borough Local Plan, which is considered to be in conformity with the provisions of the NPPF.

Fylde Borough Council also resolved that the following summarised noise related comments of the Council's Environmental Protection Team be considered:

- The exclusion of a sensitive noise receptor in the applicants noise report may mean current calculations are artificially elevated resulting in the prediction that noise levels will not exceed current background levels.
- Recommend that the applicant ensures that there are continuous sound level monitoring at the nearest residential property to ensure sound levels accord with WHO guidelines.
- The sound levels are currently less than WHO guidelines so residents may experience an increase in noise. Ideally criteria should be set such that “as a result of the activity at the site no dwelling shall experience sound levels that are more than 5dB above current background levels between 07.00 – 23.00 and no increase in background level between 23.00 and 07.00”
- Recommend that no HGVs arrive at or leave the site between 23:00 and 07:00.

Westby-with- Plumptons Parish Council: Recommends the application be refused because of noise pollution day and night from the 24hour operation.

Kirkham Town Council: Objects to the proposal on a number of grounds including noise.

Medlar-with-Wesham Parish Council: Objects to the proposal on a number of grounds including noise.

CPRE Lancashire: Is concerned about noise levels during the night for local residents and wildlife and is reassured by the commitment by the applicant not to frack outside normal working hours (viz. between 19.00 and 07.00) due to pumping equipment. To minimise noise pollution, they suggest the use of generators which emit less than an agreed level of perceived decibels 200 metres outside the site boundary and by not

using drilling equipment overnight during the period 1900-0700 hours. They also suggest that planning approval, if given, should be subject to a condition requiring these noise reduction standards.

Friends of the Earth: Local resident groups believe that the applicant may have failed accurately to identify baseline noise levels, meaning those impacts on wintering birds (and other ecology) and the steps proposed to mitigate are called into question.

Other representations

A large number of other representations raise concerns in relation to the following summarised noise concerns:

- There will be an unacceptable level of noise / noise pollution.
- The proposed times and duration for hydraulic fracturing are excessive in an area people have chosen to live in for the peace and quiet.
- A 50db noise level during fracturing is too loud to be acceptable.
- 24 hours a day of drilling, compressor and generator noise alongside associated traffic noise will disturb residents and have negative impacts on shift workers.
- Carr Bridge residential park, residents aged 55-90 years old of which many are not in good health. They chose to live on the site for the pleasant, quiet, rural location but are greatly concerned about drilling and traffic noise.
- The impact of 24/7 noise for a local autistic child will be unbearable.
- How far away will compressor stations be heard? The thump of compressors could be sensed up to 2 miles away.
- Traffic noise will affect the peace and quiet, with HGVs thundering past properties.
- The applicants EIA site noise assessment is incorrect for Foxwood Chase as the majority of residents are retired so if the noise exceeds acceptable limits it will have a significant effect on their daily enjoyment of homes and gardens.
- The applicants EIA traffic noise assessment is incorrect for Foxwood Chase as the properties are in close proximity to the site entrance and will hear HGV's and other vehicles decelerating and accelerating on entry and exit to the site, resulting in varying noise levels not constant as reported in the EIA.
- The applicants EIA traffic assessment is incorrect as the increase in traffic noise will be significant as the noise from one HGV is equivalent to noise from 10-15 cars and there will be 100 lorries per day.
- There will be a detrimental effect from noise in Great Plumpton, due to the prevailing wind blowing from the west carrying noise to the village. The ES has not provided information on noise levels for the village.
- There will be negative impacts from noise to the nearby dog kennels and the horse welfare centre.
- There is no information regarding noise from explosives detonation and impact on residents.
- The proposed site is a quiet field so the noise will be new and concentrated
- The noise of the site will impact on local residents and visitors enjoyment of the site for leisure including walking.

- There needs to be baseline and continuous acoustic monitoring at neighbouring houses.
- Cuadrilla exceeded set noise levels at Balcombe.
- The proposal will be contrary to Noise Policy Statement for England, Defra 2010 and NPPF 2012 Paragraph 144 due to observed adverse effects from large scale, long term noise duration.
- The proposal will be contrary to FBLP Policy EP27 by emitting unacceptable constant noise in a relatively quiet rural area.
- There will be unacceptable noise impacts on wildlife
- Jacobs found the background noise level at Staining Wood Cottages to be 6dB lower than that found by Arup, despite the Jacobs survey being taken at a noisier period of the night.
- The question regarding BSI 5228-1 being a suitable standard has not been satisfactorily answered.
- It is not clear if low-frequency noise generated by all aspects of the site construction and operation, and their effects on the health and well-being of nearby residents has been taken into account.
- There are still outstanding questions arising from Jacobs review of Arup's Environmental Statements.
- Baseline traffic volumes have been overestimated in the Environmental Statement throwing doubt on their findings.
- It is not clear if the change in traffic profile, and particularly the effect of accelerating and decelerating HGV's on noise and annoyance has been fully and correctly taken into account.

Policy

Paragraph 109 of the NPPF states that the planning system should contribute to and enhance the natural and local environment by *inter alia* preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.

Paragraph 123 of the NPPF states that *planning policies and decisions should aim to:*

- *avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and*
- *Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

Assessment of 'significant adverse impacts' is directed to the DEFRA publication *Explanatory Note to the Noise Policy Statement for England*.

In the accompanying practice guidance for the NPPF the management of the noise associated with particular development types is considered in a number of separate documents. For minerals development there is National Planning Practice Guidance: Minerals (PPG).

In relation to noise the PPG states that applicants *should carry out a noise impact assessment, which should identify all sources of noise and, for each source, take account of the noise emission, its characteristics, the proposed operating locations, procedures, schedules and duration of work for the life of the operation, and its likely impact on the surrounding neighbourhood.*

Proposals for the control or mitigation of noise emissions should:

- consider the main characteristics of the production process and its environs, including the location of noise-sensitive properties and sensitive environmental sites;*
- assess the existing acoustic environment around the site of the proposed operations, including background noise levels at nearby noise-sensitive properties;*
- estimate the likely future noise from the development and its impact on the neighbourhood of the proposed operations;*
- identify proposals to minimise, mitigate or remove noise emissions at source;*
- Monitor the resulting noise to check compliance with any proposed or imposed conditions.*

The PPG continues by adding that *Mineral planning authorities should take account of the prevailing acoustic environment and in doing so consider whether or not noise from the proposed operations would:*

- give rise to a significant adverse effect;*
- give rise to an adverse effect; and*
- Enable a good standard of amenity to be achieved.*

In line with the Explanatory Note of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure would be above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.

The PPG recommends appropriate noise standards and advises that *Mineral planning authorities should aim to establish a noise limit, through a planning condition, at noise-sensitive property that does not exceed the background noise level ($L_{A90,1h}$) by more than 10dB(A) during normal working hours (0700-1900). Where it will be difficult not to exceed the background level by more than 10dB(A) without imposing unreasonable burdens on the mineral operator, the limit set should be as near that level as practicable. In any event, the total noise from the operations should not exceed 55dB(A) LAeq, 1h (free field). For operations during the evening (1900-2200) the noise limits should not exceed the background noise level ($L_{A90,1h}$) by more than 10dB(A) and should not exceed 55dB(A) LAeq, 1h (free field). For any operations during the period 22.00 – 07.00 noise limits should be set to reduce to a minimum any adverse impacts, without imposing unreasonable burdens on the mineral operator. In any event the noise limit should not exceed 42dB(A) LAeq,1h (free field) at a noise sensitive property.*

Where the site noise has a significant tonal element, it may be appropriate to set specific limits to control this aspect. Peak or impulsive noise, which may include some reversing beepers, may also require separate limits that are independent of background noise (e.g. L_{max} in specific octave or third-octave frequency bands – and that should not be allowed to occur regularly at night.)

For particularly noisy short term events such as soil stripping and road construction the PPG advises:

Increased temporary daytime noise limits of up to 70dB(A) LA_{eq} 1h (free field) for periods of up to eight weeks in a year at specified noise-sensitive properties should be considered to facilitate essential site preparation and restoration work and construction of baffle mounds where it is clear that this will bring longer-term environmental benefits to the site or its environs.

Where work is likely to take longer than eight weeks, a lower limit over a longer period should be considered. In some wholly exceptional cases, where there is no viable alternative, a higher limit for a very limited period may be appropriate in order to attain the environmental benefits. Within this framework, the 70 dB(A) LA_{eq} 1h (free field) limit referred to above should be regarded as the normal maximum.

Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan (JLMWLP) states that development for minerals operations will be supported where it can be demonstrated that all material social, economic or environmental impacts that would cause demonstrable harm can be eliminated or reduced to acceptable levels. In assessing proposals account will be taken of the proposal's setting, baseline environmental conditions and neighbouring land uses, together with the extent to which its impacts can be controlled in accordance with current best practice and recognised standards.

Policy EP27 of the Fylde Borough Local Plan states that development which would unnecessarily and unacceptably result in harm by way of noise pollution will not be permitted. Where appropriate, planning permission will be granted subject to conditions to minimise or prevent noise pollution. This policy is considered not to be in conflict with the NPPF.

Assessment

The Environmental Statement contains a noise assessment including details of existing background noise levels at noise sensitive receptors and details of predicted noise levels from proposed operations including traffic, drilling and hydraulic fracturing.

The assessment outlines the available British Standards and guidance in relation to noise measurement and recommended acceptable noise levels. From this the applicant employed noise levels based on recommendations and guidance set out in BS5228-1:2009 – *Code of practice for noise and vibration control on construction and open sites*, which the applicant considers is the most appropriate by virtue of being representative of the nature of the proposed development.

Drilling would take place for 24 hours per day. The first drilling phase would last for five months. Three other separate drilling phases would then follow. Each of the three phases would last for three months. Between each drilling phase would be a hydraulic fracturing stage that would last for two months. Hydraulic fracturing would not take

place at night time, and would last for three hours per day. Cumulatively there would be 14 months of 24 hour drilling.

The applicant has advised that different stages of the proposed development would generate different noise levels and noise levels for all stages of the project have been assessed. The applicant has concluded that the only stage with the potential to result in a significant noise effect would be where hydraulic fracturing occurs during night time (2300-0700) where noise limits are at their most stringent. The applicant proposes to mitigate this by only operating the pumps used (only for up to 3 hours at a time during hydraulic fracturing) during weekday daytime and Saturday mornings.

Vibration impacts have been ruled out by the applicant because of the nature of the project, method of construction for the well pad, arrays and pipeline connection for the extended flow testing.

The assessment concludes that there would be no significant adverse impacts on sensitive receptors and consequently no further mitigation is required. Nevertheless, a number of possible noise reduction measures are suggested and the applicant has more recently stated that recommended noise limits in the PPG could be achieved.

Proposed mitigation measures for drilling include:

- Installing enclosures to mud pumps.
- Fitting noise absorbent materials to the housing containing shale shakers and generators.
- Identify items of pipework or equipment that can be fitted with rubber bushings to reduce vibration and impact noise.

Proposed mitigation measures for hydraulic fracturing include:

- Confine fracturing pumping operations to Monday to Friday 0700 to 1900 and Saturdays 0700 to 1300 only with no fracturing on Sundays or Bank Holidays.
- Installation of an acoustically designed, up to 5m high hoarding around the fracturing pumps

Additionally, real time noise monitoring could be installed throughout the development.

The applicant's background noise readings and predicted noise levels are considered to be sufficiently robust and have been verified by independent noise measurements undertaken by consultants on behalf of LCC with the exception that background noise readings were found to be lower than those set out in the ES. Furthermore, it is concluded that it is unlikely there are any tonal or impulsive aspects to the noise from the drilling rig or from the hydraulic fracturing phase of the project.

The closest residential properties to the site are at Staining Wood Cottages (270m south of the site) and Plumpton Hall Farm which includes two residential properties. It is approximately 380m to the east of the well pad boundary. There are a small number of other properties very near to Staining Wood Cottages at Foxwood Chase. These are a small distance further from the site than Staining Wood Cottages.

Background noise levels at Staining Wood Cottages have been recorded as low as 29.5 dB L_{A90} at night (LCC's own measurements) and 56 dB L_{A90} during the day. Noise from operations is predicted to raise background noise levels by approximately 12.5 dB at night.

Background noise levels at Plumpton Hall Farm have been recorded as low as 26 dB L_{A90} at night (LCC's own measurements) and 50 dB L_{A90} during the day.

The difference between existing low background noise levels and predicted noise levels is of concern. Fundamentally, the PPG states that *Mineral planning authorities should take account of the prevailing acoustic environment and in doing so consider whether or not noise from the proposed operations would give rise to a significant adverse effect and whether it would enable a good standard of amenity to be achieved.*

PPG-Minerals seeks to ensure that noise is minimised as far as practicable and it should be demonstrated that noise would be no more than 10dB above background during daytime and evening working at noise sensitive receptors (subject to a maximum of 55dB) and that for any operations during the period 22.00 – 07.00 noise would be reduced to a minimum, without imposing unreasonable burdens on their operations subject to a ceiling noise limit not exceeding 42dB(A) $L_{Aeq,1h}$ (free field) at a noise sensitive property.

Fylde Borough Council's Environmental Health Team has commented that residents may experience an increase in noise with the proposed development and ideally criteria should be set such that “as a result of the activity at the site no dwelling shall experience sound levels that are more than 5dB above current background levels between 07.00 – 23.00 and no increase in background level between 23.00 and 07.00”.

Clearly there is a balance to be struck between not imposing unreasonable burden on developers and ensuring that there would be no impact or an acceptable impact on local residents and the environment. The applicant has indicated that a range of noise attenuation measures could be employed to reduce noise levels but that further attenuation would result in unreasonable burden. What constitutes unreasonable burden has not been explained.

Notwithstanding assurances by the applicant that *PPG –Minerals* maximum noise levels could be achieved for both day and night periods, it is considered that there has not been clear demonstration that noise impacts would be reduced to an acceptable level given the low background levels in the area. Therefore it is concluded that noise from the proposed operations would be above the significant observed adverse effect level (SOAEL) as defined in the *Noise Policy Statement for England*. This is the level above which significant adverse effects on health and quality of life occur.

Conclusion

The proposed development would be contrary to Policy DM2 of the JLMWLP and Policy EP27 of the Fylde Borough Local Plan as it has not been satisfactorily demonstrated that noise impacts would be reduced to acceptable levels and would therefore unnecessarily and unacceptably result in harm to the amenity of neighbouring properties by way of noise pollution.

