

**Development Control Committee**  
Meeting to be held on 29<sup>th</sup> January 2015

Electoral Division affected: FYLDE WEST
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**Fylde Borough Council: application number. LCC/2014/0101**  
**Construction and operation of a site for drilling up to four exploration wells, hydraulic fracturing of the wells, testing for hydrocarbons, abandonment of the wells and restoration, including provision of an access road and access onto the highway, security fencing, lighting and other uses ancillary to the exploration activities, including the construction of a pipeline and a connection to the gas grid network and associated infrastructure land at Roseacre Wood, Roseacre.**

**Appendix 1 – 18**

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**Executive Summary**

Application - Construction and operation of a site for drilling up to four exploration wells, hydraulic fracturing of the wells, testing for hydrocarbons, abandonment of the wells and restoration, including provision of an access road and access onto the highway, security fencing, lighting and other uses ancillary to the exploration activities, including the construction of a pipeline and a connection to the gas grid network and associated infrastructure to land at Roseacre Wood, Roseacre.

**Recommendation – Summary**

That after first taking into consideration the environmental information and further information, as defined in the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 submitted in connection with the application, planning permission be **refused** for the following reason:

1. 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.
2. The proposed development would be contrary to Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan – Site Allocation and Development Management Policies in that it would generate an increase in traffic, particularly HGV movements, that would result in an unacceptable impact on the rural highway network and on existing road users, particularly vulnerable road users and a reduction in overall highway safety that would be severe.

## **Introduction**

This application is one of two for the construction and operation of sites for drilling up to four exploration wells, hydraulic fracturing of the wells, testing for hydrocarbons, abandonment of the wells and restoration, including provision of access roads and access onto the highway, security fencing, lighting and other uses ancillary to the exploration activities, including the construction of pipelines and connection to the gas grid network and associated infrastructure. The application the subject of this report is to develop land at Roseacre Wood, Roseacre. The other application for similar development is on land to the north of Preston New Road (ref LCC/2015/0096).

The two applications are supported by applications for monitoring arrays. Application LCC/2015/0102 for a monitoring array associated with the Roseacre Wood site is also reported on this agenda and should be read in conjunction with this application.

## **Applicant's Proposal**

Planning permission is sought for the construction and operation of a site for drilling up to four exploration wells, hydraulic fracturing of the wells, testing for hydrocarbons, abandonment of the wells and restoration, including provision of an access road and access onto the highway, security fencing, lighting and other uses ancillary to the exploration activities, including the construction of a pipeline and a connection to the gas grid network and associated infrastructure on land at Roseacre Wood, Roseacre. A supporting application for the installation of a monitoring array of 80 boreholes for seismic and water quality within the surrounding area has also been submitted (ref LCC/2014/0102).

The applications are supported by a Planning Statement (PS), Supporting Documents, an Environmental Statement (ES) and a Non Technical Summary (NTS). The PS includes a Sustainability Appraisal and the Supporting Documents include a Flood Risk Assessment, Utilities Statement and a Statement of Community Involvement.

The ES provides a full description and assessment of the following:

- The application site and surroundings
- A description of the proposed development
- Scheme alternatives
- Air Quality
- Archaeology and cultural heritage
- Greenhouse gas emissions
- Community and socio economics
- Ecology
- Hydrogeology and ground gas
- Induced seismicity
- Land Use
- Landscape and visual amenity
- Lighting
- Noise
- Resources and waste
- Transport
- Water resources

- Public health

The ES was also supported by further information submitted by the applicant in response to matters raised by consultees and in response to comments made by third parties and interest groups.

The main elements of the proposal are described below with a more detailed description in Appendix 1:

### Proposal Development

The proposed development is for the exploration and analysis of shale gas reservoirs within the Bowland Shale formation in the Fylde district of Lancashire. The shale gas (also called methane gas or natural gas) is known to be distributed within the shale rock. The total area of the surface works is 6.54ha. In addition lateral drilling and hydraulic fracturing would be undertaken in an underground quadrant which would extend up to a distance of approximately 3km over an area of approximately 562ha as projected to the surface in a south and west from the centre of the well pad. Planning permission is sought for a 6 year period.

A well pad would be constructed and wells would be drilled into the shale rock. A process called hydraulic fracturing would then be used to help the gas flow out of the rock by pumping water and other materials into the shale to dislodge the gas. The gas then flows back to the surface within the flow back fluid.

The proposed development would explore the potential flow rate of the gas in order to establish whether the gas can be extracted and if it would be economically viable to do so. Following exploratory activities the site would be abandoned and restored unless the site is found to be economically viable, in which case a planning application would be submitted for production works before the site is decommissioned.

### **Site Location and Description**

The proposed development involves surface works and underground works.

#### Surface Works

The development site for the surface works is a greenfield site located within Fylde district, at Roseacre Wood off Roseacre Road. The site is approximately 1480m north of the M55 Motorway with the nearest towns of Wesham / Kirkham approximately 3km away.

The site is located between the villages of Roseacre and Wharles, with Roseacre Hall and village approximately 180m to the north and Wharles approximately 465m to the south. The closest residential properties to the site are located at Roseacre village. Old Orchard Farm is approximately 270m to the south and Stanley Farm properties are approximately 435m to the north, with all accessed from Roseacre Road. The village of Elswick is located approximately 2km to the north. The Ministry of Defence facility, Defence High Frequency Communication Service (DHFCS) Inskip is located approximately 35m to the east of the surface works site entrance at Roseacre Road. It is proposed that part of the access track would utilise an existing track through the DHFCS Inskip site, requiring two new junctions at Roseacre Road and Inskip Road.

The development site is currently in agricultural use, primarily for dairy cattle and is classified as Grade 3a (good) and grade 3b (moderate) quality agricultural land. The size of the development site would be approximately 6.54ha, of which an area of approximately 1.9ha would be for the exploration site, 2.2ha for the access works within DHFCS and an area of approximately 2.44ha for the extended flow test pipeline and the gas grid connection.

The majority of the surface works development site would be bounded by fields on all sides. Roseacre Road would form eastern boundary for the access track, prior to its continuation through DHFCS Inskip. DHFCS Inskip is characterised by a large amount of radio masts including 4 approximately 180m tall. Land within the communications facility is used by agricultural tenants for grazing.

The site is currently accessed along an existing farm track which runs from Roseacre Hall to Roseacre Road and part of this track would form the proposed access from Roseacre Road, through Roseacre Wood to the exploration site. Roseacre Wood is managed for the purpose of rearing waterfowl and Holmes Wood, 425m to the southwest of the development site is managed for rearing game birds. Neither of the woods has an ecological designation.

Land surrounding the development site is in agricultural use for grazing and arable farming. The site has relatively flat and gently undulating topography. The site is located within the Lancashire County Council landscape character classification Coastal Plain.

The development site has a height of approximately 17m AOD. Nigget Brook is a designated main river and runs through the site. The area is characterised by a network of realigned watercourses and agricultural ditches, which drain north towards the River Wyre. A number of ponds are also located around the development site within the agricultural fields and these may be used by grazing animals. The development site has been categorised by the Environment Agency as being in Flood Zone 1 (low probability), this means that the probability of fluvial flooding each year is less than 0.1% (1 in 1000) from the nearby watercourses.

To the north and east and south of the site the south of the site is Roseacre Road, classified as minor road C309. Roseacre Road runs from Elswick, through Roseacre to Wharles. At Wharles, Roseacre Road junction allows access to Inskip Road (C309) heading northbound and Church Road (C296) heading southbound. The nearest 'A' class road to the site is the A585 Fleetwood Road, located 2.8km to the west.

Approximately 2km to the north of the development site National Cycle Route 90, known as the Northern Loop passes through the village of Elswick. There are two public rights of way footpaths in the vicinity of the development site. Footpath 5-13-FP4 is approximately 280m to the west of the site and 5-13-FP5 is approximately 560m to the south of the site. The footpaths connect the villages of Roseacre and Wharles and provide access to the wider footpath network, including access to Moorside Road to the south and Medlar village to the west.

### Underground Works

The maximum extent of the below ground works (for vertical and horizontal drilling and hydraulic fracturing) as projected to the surface would extend to a total area of 562ha in a quadrant shape. The northern extent of the quadrant would be around Elswick Leys settlement of Roseacre Road with the eastern extent of the quadrant around at DHFCS Inskip. The southern extent is DHFCS Inskip pass Old Orchard Farm to land around White Carr Farm, off White Carr Lane. The western boundary would run from Medlar Woods, northwards to Whin Wood and Scholar Bridge onto Elswick Leys.

The majority of the surface area of the underground works is currently in agricultural use. The surface also includes sections of roads including the Roseacre Road, White Carr Lane and Medlar Lane. The above ground area includes the village of Roseacre and residential/commercial properties including White Carr Farm, South Greenhills, North Greenhills and Elswick Leys properties.

## **Background**

There is no relevant planning history to the proposed site.

A number of planning permissions have previously been granted for unconventional shale gas exploration operations involving the drilling of a vertical borehole and hydraulic fracturing in 2010. The ones at Grange Road, Preese Hall and Anna's Road in Fylde and Banks Marsh (Beaconsall) in West Lancashire were implemented with boreholes being drilled.

The Preese Hall site was the only well that was drilled and then hydraulically fractured. The fracturing caused two seismic events. A moratorium on hydraulic fracturing was subsequently imposed by the Government in May 2011. The Government's Chief Scientific Officer appointed the Royal Society and the Royal Academy of Engineering to undertake an assessment whether hydraulic fracturing could be carried out safely. The conclusion was that it could subject to a number of recommendations. Consequently the Department of Energy and Climate Change (DECC) lifted the moratorium in December 2012, no further hydraulic fracturing has taken place. The boreholes at Annas Road and Preese Hall site have been abandoned and the wells plugged. The sites have or are being restored. The sites at Beaconsall and Grange Road are the subject of planning applications for extended periods of pressure testing.

The applicant undertook a 3-dimensional (3D) geophysical seismic survey in June 2012, which covered an area of approximately 100km<sup>2</sup> to identify locations of geological faults and to identify the a workable area of the Bowland shale for exploration activity including hydraulic fracturing. The applicant owns and operates an existing gas production facility at Elswick that was first granted planning permission for exploration in the 1980's and went into production in the 1990s. However, this site targeted a different geological horizon to that currently proposed and did not involve high pressure hydraulic fracturing as currently proposed.

## **Policy**

### **Strategic Policy**

### **European Policy**

EU Habitats Directive

## National Policy and guidance

White Paper: Energy – Meeting the Challenge

Climate Change Act Of 2008

The UK Low Carbon Transition Plan

National Policy Statement for Energy

Gas Generation Strategy

DECC About shale gas and hydraulic fracturing (fracking) 30 July 2013

House of Commons Standard Note Shale Gas and Fracking 22 January 2014

HSE Shale gas and hydraulic fracturing (fracking) Q&A

EA Regulatory Position Statement Onshore oil and gas well decommissioning and abandonment for well prior to 1 October 2013

UKOOG UK Onshore Shale Gas Well Guidelines – Exploration & Appraisal phase  
1 February 2013

CIWEM Shale Gas and Water January 2014

## Planning Policy

### National Planning Policy Framework (NPPF)

Paragraphs 11-14	Requirement for Sustainable Development
Paragraph 17	Core Planning Principles
Paragraphs 56-66	Requirement for Good Design
Paragraphs 100	Flood Risk
Paragraph 103	Requirement for Flood Risk Sequential Test
Paragraphs 109-112	Conserving and Enhancing the Natural Environment
Paragraphs 118-125	Conserve and Enhance Biodiversity
Paragraphs 142-148	facilitating the Sustainable use of Minerals
Paragraphs 186-216	Decision-making

### National Planning Policy Guidance (NPPG)

Air Quality	Air quality impacts
Climate Change	Mitigation and adaption measures
Design	Key design points
Flood Risk and Coastal Change	Flood Risk Assessment
Health and Well Being	Healthy communities / environmental risks
Land Stability	Risk of Unstable Land/ subsidence
Light Pollution	Obtrusive light impacts
Minerals	Mineral Extraction
Natural Environment	Protect biodiversity
Noise	Manage noise impacts
Water supply, wastewater, water quality	Quality and infrastructure

**Planning Practice Guidance** Planning for Hydrocarbon extraction

**Joint Lancashire Minerals and Waste Development Framework Core Strategy Development Plan documents (LMWDF)**

Policy CS1	Safeguarding Lancashire's Mineral Resources
Policy CS5	Achieving Sustainable Minerals Production

### **Joint Lancashire Minerals and Waste Local Plan – Site Allocation and Development Management Policies – Part One (LMWLP)**

Policy NPPF 1	Presumption in favour of sustainable development
Policy DM2	Development Management

### **Joint Lancashire Minerals and Waste Supplementary Planning Guidance**

SPD	Oil and gas exploration, production and distribution (draft)
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### **Fylde Borough Local Plan**

Policy SP2	Development in Countryside Areas
Policy EP11	Building Design and Landscape Character
Policy EP12	Conservation of Trees and Woodland
Policy EP15	European Nature Conservation Sites
Policy EP16	National Nature Reserves
Policy EP17	Biological Heritage Sites
Policy EP23	Pollution of Surface Water
Policy EP24	Pollution of Ground Water
Policy EP26	Air Pollution
Policy EP27	Noise Pollution
Policy EP28	Light Pollution

### **Consultations**

The following bodies have been consulted on the application and supporting documents as initially submitted and on subsequent information / clarification /comment provided by the applicant in response to requests for further information or comments made. Their views in respect of the application as initially submitted and where appropriate on the clarification information provided by the applicant are summarised as follows:

**Department of Energy and Climate Change (DECC):** Has confirmed the details of the petroleum licence for the surface site and the maximum extent for underground drilling. The licences give exclusive rights within their area for exploration, boring for and getting petroleum, but do not waive any other legal requirement applicable to these activities, including requirements for planning permission.

DECC provided information on regulatory activity under its control.

The proposed activities include hydraulic fracturing for shale gas. DECC requires the operator to produce Environmental Risk Assessments, taking account of guidance published to the industry by DECC in April 2014, which flows from the recommendations of the Royal Academy of Engineering and the Royal Society, in their report on the hazards of hydraulic fracturing for shale gas published in June 2012.

Drilling of wells requires Secretary of State consent under the terms of the licence and DECC will undertake a number of checks regarding well targeting and operator funds

and insurance before giving consent. DECC also requires for hydraulic fracturing, the implementation of measures to mitigate seismic risk including the submission to DECC of a detailed Hydraulic Fracturing Programme (HFP) for each well to be hydraulically fractured. DECC will monitor the conduct of fracturing operations in accordance with the HFP.

Proposals to flare gas during the initial testing phase will require the consent from the Secretary of State under the Energy Act 1976 and any venting is subject to DECC consent. Any venting should be reduced to a minimum. DECC's standard online drilling consent allows 96 hours of testing. To test for a longer period, the applicant will need to apply to DECC for a paper-based Extended Well Consent. DECC will expect the operator to minimise flaring during the period of any Extended Well Consent.

Abandonment of any well requires the Secretary of State's consent under the terms of the licence. DECC will check for completeness of well data before giving consent.

**Ministry of Defence (Safeguarding):** No safeguarding objections but raises the following comments and recommendations.

The site of the proposed development occupies the technical safeguarding zone surround the Information Systems and Services (ISS) Inskip technical site. Having assessed the proposed development the MOD has established that it will not cause a physical obstruction or have any serious impact upon the effect operation of the transmitter/receiver installations at ISS Inskip.

The application site will occupy electro-magnetic fields produced by transmitters at ISS Inskip. The applicant should undertake a suitable assessment of the risk of electromagnetic fields on a flammable atmosphere in accordance with British Standard specifications to ensure the operation of the drilling development proposed is undertaken safely and appropriate measures are applied, if necessary, to counter the risk of fire from electrical sparks.

The ISS Inskip site consists of an extensive complex of tall guyed masts and lattice towers with associated radio transmission equipment installations. The applicant should identify the ISS Inskip technical site as supporting sensitive equipment and it should be identified as a relevant receptor in their assessment of the effects of induced seismicity.

The applicant has included usage of a road across MOD land at ISS Inskip in order to obtain a direct route for works traffic accessing the application site. The MOD does not object to the applicant's proposal to utilise this route across MOD property and will establish relevant terms of access directly with the applicant to facilitate this.

**Preston City Council:** No observations received

**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. These policies are considered to be in conformity with the provisions of the NPPF.

The Borough Council's Environmental Protection Team has advised and made recommendations as follows:

- 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.
- Recommend that no HGVs arrive at or leave the site between 23:00 and 07:00.
- 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.
- Recommend continuous monitoring of air quality as a result of increase in road traffic to demonstrate that AQ guidelines are being met, alongside EA monitoring of air pollutants from chemicals and flare burn off.
- Recommend dust significance should be reclassified from medium to large, due to a large site size and increased HGV movements on the roadways, with further mitigation measures to be implemented.
- Recommend a plan to be provided detailing the predicted lux levels originating from the site to the vicinity. As a rural area, which is very dark at night, any increase in illumination will be more prevalent. Lighting should only be permitted as the minimum needed for security and/or working purposes and that it minimises the potential for obtrusive light from glare or light trespass to an acceptable level and in accordance with guidance for mineral sites.

Fylde Borough Council subsequently provided a copy of a noise impact assessment on wintering birds, at the Annas Road Exploration Well site, which concludes that the noise from drilling operations will be essentially steady in character, producing decreasing levels from 58 – 42dB(A) in relation to increasing distances between 50m to 500m from the boundary of the well site. The Environmental Protection Team have noted that the survey data shows that the impulsive sound could be up to 16dB greater than the background noise in addition to the drilling operation. The impulsive noise levels are not included in the EIA report for the Roseacre site.

**Elswick Parish Council:** An initial objection to the proposal was withdrawn. The Parish Council does not object but makes the following summarised comments:

- In favour of the preferred traffic route which enables Elswick, a densely populated area to remain outside the routing of the tankers, ensuring the safety of over 200 children living in the village.
- A small group of residents have expressed concerns regarding the visual impact and character of landscape and the risk of methane/water contamination and environmental impacts.

**Great Ecclestone Parish Council:** No observations to make

**Medlar-with-Wesham Parish Council and Kirkham Town Council:** The Council's object to the proposal as submitted and requests that it be refused planning permission for the following reasons:

- The potential major problems outweigh the benefits.
- The Chartered Institute of Environmental Health has highlighted shortcomings of the regulatory system regarding local environment and public health risks.
- Potential for earth tremors despite the traffic light system. Tremors can damage property and associated services including septic tanks. Any damage to underground services could result in watercourse pollution.
- Air pollution from gas emissions. Flaring can lead to over 250 pollutants including methane.
- Potential well failure and the huge potential for land contamination, particularly to aquifers and agricultural land.
- Light pollution from the 24hour operation.
- Potential flow back water site leakages and spillage during disposal and transportation.
- No information on water treatment plans. Where will flow back water be treated and will any new treatment plan accept waste from other UK sites.
- Increasing vehicle movements, particularly HGV's will exacerbate existing problems along the A585 and at the M55 Junction 3 at peak times.
- Increase in ambient noise levels from the continuous operation of this site and any future sites in the parish.
- Potential impact on resident's water supplies.
- The visual impact of the development cannot be minimised.
- Detrimental impact on property values and insurance premiums.
- Concern regarding future site expansion for production following exploratory phase. An increase in well heads will lead to further noise, traffic and pollution.
- Impact on local Wildlife including wintering and migrating birds, birds of prey, game birds, garden birds and bats from increased noise, traffic and lighting.

**Newton-with-Clifton Parish Council:** Objects to the proposal as submitted and requests that it be refused planning permission for the following reasons:

- The 'Wharles route' along Lodge Lane, Clifton Lane and Station Road is considered unsuitable for the projected number and type of HGVs and if approved is detrimental to highway safety and parish amenity
- The suggested routes has several potentially hazardous sections to highway safety and is lacking a sufficient number of constructed passing places
- The route comprises a dangerous right turn exit from Lodge Lane, Clifton onto the A583 which could adversely affect highway safety
- Clifton Lane/ Lodge Lane in Clifton is in close proximity to a children's recreational park and children have to cross the road to access the park. The proposed increase in type and volume of traffic is clearly hazardous to their highway safety.
- The site access/egress through Elswick is shorter in distance and as a consequence a reduced environmental impact.

**Roseacre, Wharles and Treales Parish Council:** Objects to the proposal for the following summarised reasons:

- Contrary to Policy SP2 and NPPF due to the huge industrial scale, associated utilities and infrastructure and thousands of HGV movements on narrow lanes.
- Cuadrilla has not adequately assessed alternative sites. The development should be located in a SP1 site which has appropriate infrastructure.
- The need for mineral extraction has not been demonstrated.
- Contrary to NPPF and CS5 as mineral development should have no adverse impacts on natural environment and human health.
- Cumulative effects for this site with Preston New Road and other potential sites have not been assessed.
- Not sustainable development due to location, road restrictions, water supply issues, permanent waste repository and lack of suitable waste treatment.
- Regulations are not robust to provide adequate protection. The safe operation of shale gas operations is not yet assured.
- Contrary to Policy EP26 and CS5 as the flare will emit 15,000 tonnes of methane and there is no mitigation for the health hazards of particulate matter.
- Contrary to NPPF as it will not support a low carbon future.
- Air quality monitoring regime is not acceptable. Need baseline data and real time publicly available data on a range of pollutants and the combined impact of flaring, fugitive emissions and equipment and transport emissions.
- Evidence from USA, America and UK Breast Cancer charity regarding emissions and risks to human health.
- Dust assessment is inadequate and does not take account of construction and daily utilisation of passing places through Wharles and Dagger Lane.
- Contrary to Policy EP27 and SP9 as it will not meet required noise limits and will have an adverse impact on the amenity of local residents.
- The baseline noise measurement is inadequate and the minimum approach for assessment of noise impact should be BS4112.
- Noise impacts on Stanley Mews have not been considered.
- There is no need for 24hr a day drilling, as per the UKOOG website guidance.
- Drilling noise levels might be exceeded, so need real time monitoring, with immediate enforcement if levels are exceeded.
- HGVs will have significant noise impacts causing health and wellbeing impacts including daytime nuisance and sleep disturbance.
- Contrary to Policy EP28 due to sky glow. As no mitigation is possible night-time operations should not be permitted.
- Drivers will have loss of visibility from glare from the installation.
- Contrary to Policy CL1 which requires minimal potable mains water in new developments with a need to recycle and conserve water resources.
- Potential water supply problems water required is higher than estimates.
- If tankered water is required, it will increase traffic and emissions.
- Water supply route re-zoning infers potential impact to Roseacre and Wharles
- Contrary to Policy EP25, treatment facilities are inadequate/ not available as there are no authorised treatment sites in the Northwest and proposed sites have insufficient capacity. Waste should not be transported great distances.
- Contrary to Policy CS9 as fracking fluids will create permanent waste on site.
- Flowback fluid calculations are disputed. Higher rates and no suitable disposal could result in risk of breach of the well pad containment area.

- The development is a harmful hazardous installation. Radioactive chemicals, including NORM are in flow back fluid chemicals.
- Contrary to Policies EP10, EP23, EP24, EP30 and CS5 as the development will not protect ponds, watercourses, groundwater or natural resources and will increase surface run off, resulting in poorer air and water quality.
- Any spills, well blowouts, accidents or releases into local drainage ditches (and wider watercourse system) poses could contaminate surface and groundwater. Monitoring will not mitigate due to lead times for test results.
- Risk of imperfectly sealed wells leaking into groundwater.
- Seismic activity could cause wells to leak and the heavily faulted geology could create pathways for seepage of fluid and gases into aquifers.
- Storm weather could increase surface water drainage volumes with risks to site containment and potential discharge of contaminated surface run-off.
- Contrary to Policies EP15, EP19 regarding impacts on protected species.
- No surveys of barn owls and brown hare and surveys for water vole and badger taken outside of recommended survey times.
- Wintering birds and the functional link between designated sites has not been considered, a full habitats assessment is needed.
- Adverse impacts on rural tourism, leisure and countryside character.
- Visual impact of the development could be reduced by enclosure of site works, horizontal rig and a waste methane generator instead of a flare stack.
- Local planning authority should support a thriving rural community, but this development will have an adverse impact on local communities.
- Local community is fearful for the future with adverse impacts on health and wellbeing, community cohesion and quality of life.
- Decline in house sales, if unable to sell cannot move on to next life stage.
- Health risks from carcinogenic silica, benzene, particulate matter and volatile compounds. Potential early mortality, asthma, stroke, heart disease, fertility issues, neural tube defects, congenital heart defects and low birth weights.
- HGV traffic volumes will have an unacceptable adverse impact on the community through air and noise pollution and general nuisance,
- Strongly dispute existing and proposed traffic data in comparison to own parish traffic survey and predictions, with particular regard to HGV requirements and movements throughout the life of the development.
- HGV movements could be higher subject to HGV availability and the quantity of construction materials, water and flow back fluid to be transported.
- The proposed HGV route is unsuitable with restricted sight lines, narrow carriageways, poor road surfaces and no kerb edgings.
- It is physically impossible for HGVs to go round corners without traversing centre line or all of the road in some places along the proposed route.
- Significant safety and conflict risks to all road users including walkers, cyclists, horse riders, children/pushchairs, mobility impaired, and for those accessing local farms, businesses and schools including Salwick school.
- Concern regarding impacts at Wharles village, Shorrocks Cottage, Dagger Road, Salwick Road, Station Road, Moss Lane East and Roseacre Road,
- Traffic increase to Roseacre Road, Inskip Road, Dagger Road will cause significant congestion and hazards to pedestrians and cyclists.
- Potential conflict between HGVs and agricultural machinery e.g. Dagger Lane
- Traffic especially HGVs should be using the primary route network.
- Traffic access and exist should be confined to DHFCS Inskip
- HGV movements should be restricted to 09.30-15.00hrs.

- Contrary to LTP objectives of safe and punctual travel between home and workplace and sustainable transport.
- Passing places for HGV will be restricted at all points along the route and proposed passing places are not suitable or in keeping with the surroundings.
- No consideration of utilisation of passing places at Wharles and Dagger Lane.
- Poor and hazardous road surfaces will be made worst by daily HGV use
- Potential cumulative effect with Westinghouse traffic and displacement of Salwick traffic over canal bridge and conflict at Treales near the school.
- No route identified for oversized vehicles during mobilisation / demobilisation.

**Woodplumpton Parish Council:** No observations received

**Health & Safety Executive:** No objection; the proposed operations will be conducted in accordance with recognised regulations standards and good industry practice. From a well's operations perspective there are no issues or concerns with the proposals

HSE has provided clarification of relevant regulations applicable to onshore well; how it regulates shale gas activity; what information it requires and working with the Environment Agency. HSE's regulatory framework ensures that information is provided at key stages in the lifecycle of a well and allows HSE inspectors to assess whether risks are being adequately controlled and if not to take the appropriate regulatory action.

The Health and Safety at Work Act 1974 (HSWA) requires those who create health and safety risks to workers or the public as part of their undertaking have a duty to manage and control the risks so far as is reasonably practicable. This is supplemented with more specific regulations particular to the extraction of gas and oil through wells, which includes shale gas operations.

The Borehole Sites and Operations Regulations 1995 (BSOR) applies to all onshore oil and gas wells. These Regulations require notifications to be sent to HSE about the design, construction and operation of wells, and the development of a health and safety plan which sets out how risks are managed on site.

To comply with BSOR the well operator must submit a notification to HSE at least 21 days before work commences. The notification includes information on the design of the well, the equipment to be used to construct it, the programme of work, the location, depth and direction of the borehole, the relationship to other wells and mines, the geology of the drilling site and identified risks and their proposed management. The HSE will assess the well design before construction starts and will identify any issues which will have an impact on well integrity. Any issues will be addressed by the operator and safety features will be incorporated into the design. Further notifications are required if there are any material changes to the information previously supplied.

The Offshore Installations and Wells (Design and Construction) Regulations 1996 (DCR) includes specific requirements for all wells, whether onshore or offshore, and include well integrity provisions which apply throughout the life of shale gas or oil wells. They also require the well operator to send a weekly report to HSE during the construction of the well so that inspectors can check that work is progressing as described in the notification.

To comply with DCR the operator must report to HSE every week during construction and during work to abandon the well, to provide HSE with assurance that the operator is constructing and operating the well as described in the notification. The weekly report details well integrity tests, the depth and diameter of the borehole, the depth and diameter of the well casing and details of the drill fluid density. The drill fluid density allows the inspector to gauge the pressure in the well and identify any stability issues.

If the operator is not complying with the notification, the HSE can take appropriate regulatory action. HSE uses a risk based interventions on particular sites and operators and to ensure well integrity. The HSE has a team of expert well engineers who cover hydrocarbon wells onshore and offshore. In considering well integrity a lifecycle approach is used including notifications, weekly well reports, operator meetings and on-site inspections being used to manage the risks appropriately.

The operator must also appoint an independent well examiner in a quality control role who will ensure that the well is designed, constructed, operated and abandoned in accordance with industry and company standards and that regulatory requirements are met. Specialist well engineers help develop best practice standards for the onshore industry with the United Kingdom Onshore Operators Group (UKOOG). All members of UKOOG have to comply with the latest standards published in February 2013.

A well operator must also report to HSE any occurrences covered by RIDDOR – Reporting of Injuries, Diseases and Dangerous Occurrences Regulations. These could include a blowout (i.e. an uncontrolled flow of well fluids); the unplanned use of blowout prevention equipment; the unexpected detection of hydrogen sulphide (H<sub>2</sub>S) which is an explosive gas; failure to maintain minimum separation distance between wells and mechanical failure of any safety-critical element of a well. HSE can investigate any well incidents that would have an effect on well integrity and ensure the operator improves their operations.

Since 2012, the HSE and the Environment Agency have an agreement covering joint regulation of shale gas operations. HSE and EA inspectors will meet all new and first-time operators of shale gas wells to advise them of their duties under the regulations and to jointly visit all shale gas sites during the exploratory gas phase of shale gas development.

In response to comments raised by Friends of the Earth in their representation to the proposed development, HSE have clarified the following

- HSE have continued to monitor Preese Hall site during abandonment activity and that there has been no unplanned release of fluids from the well.
- HSE will continue to monitor abandonment activity on all onshore and offshore wells to ensure all work is completed to industry standards and the risk of release of fluids from wells post abandonment is as low as reasonably practicable.
- With regard to risk of leaks from gas wells and the risk of exposure to benzene, the DCR sets out the requirement that there should be no unplanned release of fluids from the well so far as is reasonably practicable. The HSE will review well notification information to ensure that the operator is managing the risks in such a way that the well is designed, constructed and abandoned safely.

- BSOR Regulation 10 requires the well operator to provide all persons engaged in borehole operations with appropriate health surveillance.
- The HSE is aware of the warning issued by NIOSH regarding exposure to silica. The HSE will look at how the well operator manages exposure to silica. It is expected that sealed units will deliver sand to site and mix it into fracturing fluid so that the exposure risk is minimised.
- HSE do not consider that the regulations are inadequate, flawed or ineffectively applied and enforced. The UK health and safety regulations are robust and the regulatory regime governing oil and gas operations is world leading.
- HSE receives well notification information 21 days before work starts. Until the notification is received HSE cannot make a full appraisal of the design of the well and the programme of work and give assurance that the well operator is managing the health and safety risks appropriately including the risk of an unplanned release of fluids.

**Public Health England (PHE):** Initially recommended that the Local Planning Authority (LPA) request and consider further information regarding sensitive receptors, atmospheric pollution, risks to surface waters and groundwater, environmental monitoring, radon, NORM, resources and waste, dust, noise, light and odour, accidents and incidents.

The applicant provided further information to address the issues raised by PHE. PHE has subsequently advised that the planning authority should confirm:

- That they are satisfied with the applicants assessment of site emissions and whether generator and engine emissions can be scoped out of the assessment due to their size and short operational periods.
- That emissions from activities and infrastructure at the site (e.g. generators, pumps and blenders) have been considered within the baseline methodology and the subsequent dispersion modelling assessment.
- The applicant has considered emissions from start-up, shut-down, abnormal operation and accidents when assessing potential impacts.
- They are satisfied with the fugitive emissions assessment and are satisfied there will be mitigation measures in place to identify and minimise fugitive emissions if resulting air quality impacts are identified to be a concern once operational.
- The operator is happy to provide details on the baseline monitoring protocol in response to a planning condition.
- They are satisfied with details of monitoring locations, what is being monitored for, and the schedule for monitoring frequencies.
- They are satisfied with the proposed definition of significant variation for other determinants, regarding air emissions and surface water and ground water potential contaminants.
- They are satisfied with the applicant's proposal for drill cuttings coated with low toxicity oil based muds to not be covered.

PHE has also commented that whilst human health is not considered the primary receptor by the applicant that the public health section of the ES would have identified and considered routes by which emissions may lead to population exposure and consider them in the conceptual model. Potential public health impact should be considered during the assessment of probabilities.

**Environment Agency (EA):** No objection in principle and recommends the following:

- A scheme to dispose of surface water has been submitted to and approved in writing by, the local planning authority. The scheme shall include full details of the proposed separator and isolation valve and shall subsequently be implemented as approved.
- The developer should contact the Environment Agency with regard to works affecting Nigget Brook, a Main River watercourse
- Routine monitoring of the surrounding watercourses should be extended to include routine monitoring of on-site surface water quality and maintenance and inspection of surface water drains, valves and interceptors. Surface water runoff retained on site during drilling and hydraulic fracturing operations must be tankered away for off-site disposal and must not be discharged into the watercourse.
- The Control of Pollution (Oil Storage) (England) Regulations 2001 will apply if it is intended to store over 200 litres of oil at the site. If these regulations do not apply any facilities above ground for the storage of oils, fuels and chemicals should be in accordance with Environment Agency specifications regarding impervious bases and bund design as provided.
- Radon release during the flaring of gas is exempt from their Environment Agency permitting requirements by the Natural Gas Exemption Order 2002 and from regulation under the Environmental Permitting Regulations 2010. This is on the basis of its low risk, widespread use and that it was not amenable to regulation. Discharges of radon in natural gas, being flared or vented at gas sites is not subject to regulation under radioactive substances regulation (RSR).
- The Water Resources Act (WRA) 1991, Section 199 requires that the developer gives the Environment Agency advance notice of intent to drill a mineral investigation borehole.
- The proposed development is located in Flood Zone 1 which is defined as having a low probability of flooding in the National Planning Practice Guidance. The Agency has reviewed the Flood Risk Assessment submitted with the application and is satisfied that the development would not be at risk of flooding or increased flood risk off-site.

**Highways Agency (HA):** No objection due to there being no significant impact on the strategic road network, namely A585 (T) and M55.

**National Air Traffic Services (NATS):** No objection. The proposed development does not conflict with safeguarding criteria.

**Civil Aviation Authority (CAA):** No objection. The proposed structures would not formally constitute aviation en-route obstructions, but recommend that the planning authorities check for any safeguarding issues with local aerodromes e.g. Blackpool Airport and Warton Aerodrome and it would be sensible to establish the related viewpoints of local emergency services air support units.

The CAA initially thought the application had no flaring which could cause a danger to overflying aircraft. Following clarification that there would be routine flaring, the CAA confirmed that it is for the developer to be satisfied that the operations involving the flaring and/or venting of gas would not potentially endanger overflying aircraft or where there is a potential risk, to mitigate that level of risk. As the flare is to be contained in

a flare stack it would seem reasonable for the developer to consider that flaring of gases would not be an issue to aircraft operation.

The assessment of whether gases released will be under pressure such as to cause turbulence affecting overflying aircraft also needs consideration. Any resultant turbulence, if generated, may dissipate within a few feet of the top of the stacks and the developer might consider that this represents no risk to the safety of aircraft.

**Blackpool Airport Ltd:** Initially objected on the basis that the proposal conflicted with safeguarding requirements as it presented a hazard to the safe operation of aircraft in the vicinity of Blackpool Airport. The hazard related to the potential for bird strike and it was recommended that a bird strike assessment and mitigation plan was undertaken. Clarification regarding the exclusion of mitigation measures by the applicant from the wintering bird survey was also requested.

Following the submission of a bird strike assessment by the applicant and written confirmation from Natural England and the county council that the mitigation has been agreed by them, Blackpool Airport would withdraw their objection.

Blackpool Airport have requested that bird management requirements should be re-evaluated if compensatory habitats are provided at the site; if bird numbers and behaviour change and start to pose a risk to aircraft or if land management / ownership or working practices by the site owner/operator changes.

**National Grid Gas:** No objection. The development site is in close proximity to a high pressure gas pipeline – Feeder 21 Carnforth to Treales. National Grid have no objection to the proposal subject to the access track which runs over the pipeline being reinforced to protect the pipeline and for a Deed of Consent to be agreed prior to construction vehicles crossing the pipeline.

**United Utilities plc:** No objection subject to the inclusion of a specific worded condition to protect assets from HGV movements.

In the Environmental Statement for the application United Utilities confirmed the following:

The principal water demand would be during the hydraulic fracturing operations. During other times, water would be required to support the drilling operation, site cleaning and welfare operations. The water demand during hydraulic fracturing operations is anticipated to be approximately 765m<sup>3</sup> of water per day (a maximum of one hydraulic fracturing stage will be carried out in a single day). This water would be supplied from the United Utilities (UU) potable water network.

A large trunk main 1.5km to the north of the site has the capacity to supply the well pad site without restrictions. However, due to its distance this is not the preferred point of connection. UU's preferred point of connection is the 6" main in Roseacre Road. UU have undertaken hydraulic modelling and confirmed that it should be possible to meet the 765m<sup>3</sup> /day demand for the majority of the time from the 6" main in Roseacre Road with minor enabling works.

To ensure that supply can be maintained to other UU customers, UU propose to install a pressure sustaining valve [PSV] to ensure that the pressure in their network is

maintained to meet their supply commitments to existing customers [principally local residential properties and farms]. During times of high demand on the network, the PSV would function to limit the Roseacre Wood site. In each scenario, the valve operates automatically, such that when demand on the network falls [for example during the night] Cuadrilla would be able to draw flows at a higher rate. This restriction can be overcome by providing sufficient on-site storage such that storage tanks could be filled at times of low demand. In addition the re-use of fracturing fluid and potential use of collected rainwater would help to reduce total water demand and hence the flow rate drawn from the UU mains networks.

Since the submission of the Environmental Statement, discussions have continued with United Utilities Water PLC to identify the best solution for all parties. To meet the needs of our customers and the Roseacre Wood Exploration scheme, the local water supply networks [District Meter Area (DMA)] will be reinforced [at the Applicant's expense] and re-zoned. The reinforcement works will be undertaken in a neighbouring DMA, this will increase its capacity and allow the boundary of the DMA to be extended [i.e. transfer properties into the newly reinforced DMA] and therefore free up capacity for the Roseacre Wood Exploration scheme.

**Police Emergency Planning:** No objection. Lancashire Constabulary has advised that the development will not impact upon the Constabulary apart from potential protests.

**Natural England:** No objection. An initial objection was made due to the need for further information to be supplied to the planning authority to check the likelihood for significant effects in accordance with the Habitats Regulations. Further information was required to address impacts on air quality, Special Protection Area (SPA) birds, land use and cumulative effects.

Following the receipt of additional information from the applicant, Natural England concluded that the specific issues they had raised had been addressed and therefore withdrew their objection.

Natural England also confirmed that points raised by Friends of the Earth relating to matters within their remit have been resolved with the applicant such that Natural England withdrew its objection.

**The Woodland Trust:** Objects on the grounds that the application site includes a section of woodland called Roseacre Wood which appears to be ancient woodland. NPPF paragraph 118 requires refusal of a development if it results in the loss or deterioration of irreplaceable habitats including ancient woodland. Furthermore traffic using the proposed access track adjacent to the woodland would have a detrimental impact on the ancient woodland and contrary to NPPF paragraph 18.

Natural England was subsequently consulted to check the status of Roseacre Wood and confirmed that Roseacre Wood is not on the ancient woodland inventory and is not considered by Natural England to be ancient woodland. As a woodland BAP habitat it may have interesting biodiversity that would need to be taken into consideration.

**The Wildlife Trust:** Objects and request planning permission be refused. The reasons for objection relate primarily to the limitations of the ES and the application with regard

to compliance with the NPPF, LMWP and the British Standard, Biodiversity - Code of Practice for Planning and Development as follows:

- Contrary to NPPF regarding no net loss of biodiversity, no mitigation strategy and the proposal will contribute to a high carbon economy.
- Contrary to Policy DM2, the application only makes a small contribution to biodiversity and has no habitat creation and long term management of the site
- No signed disclosure regarding competence of individuals preparing the ES.
- Survey limitations are not provided for all surveys.
- No consideration of wildlife corridors, stepping stone habitats and/or any area identified by local partnerships/record centres for habitat restoration/creation.
- No reference to ecological networks for grassland, wetland and woodland.
- The application does not include Ecological Constraints and Opportunities Plan (ECOP) cross referenced to other constrains.
- No contribution to wider biodiversity enhancement to help rebuild habitat networks, improve ecological resilience and adapt to climate change and deliver Lancashire Climate Change Strategy 2009-2020, England's Biodiversity Strategy, local BAP and Nature Improvement Area targets.
- No landscape or ecological management plan submitted.
- A legal agreement is required to safeguard management arrangements to protect biodiversity during construction and to conserve and enhance biodiversity through long term management, surveillance and monitoring.
- All environmental consents have not been approved/ licenced.
- The CEMP does not set out all necessary practical measures to ensure biodiversity features are protected during construction and operational activity.
- No commitment for a final statement of losses and gains arising.
- The applicant should consider enhancing hedges, grassland, ponds, ditches, field drains and woodland and creating species rich grassland, broadleaved woodland and species rich hedgerows and ponds.

The Wildlife Trust also recommends that the application should accord with the Are We Fit to Frack Guidelines, 2014 by the National Trust, The Wildlife Trust and Wetlands and Wildfowl Trust regarding regulation of the shale gas industry.

Following clarification from applicant, LWT withdrew some initial objection points relating to non-vascular plants and lichen and fungi, wintering and breeding birds, roadside verges, biodiversity loss measures and biosecurity measures.

**The Campaign to Protect Rural England:** No objection subject to conditions requiring mitigation measures for landscape and visual amenity, light pollution, noise pollution, transport impacts, hours of operation, flood risk, water pollution, site abandonment, fracking, site survey methods utilising fibre optic technology, flowback fluid, flaring, liability, economic impact and greenhouse gases and the use of shale gas as a transitional energy source whilst energy demand is reduced and cleaner technologies are developed.

**Wildfowl & Wetlands Trust (WWT):** Objection on the basis that:

- Fracking poses a risk to wildlife.
- Significant weaknesses in the regulatory framework identified by Fit to Frack assessment of the regulatory framework.

- Regulatory framework does not safeguard against long term damage to nature and water quality at the local level leading to potentially significant financial costs for local communities.
- Fossil fuel contributing to climate change, a serious long term threat to the natural environment and to economic and social wellbeing.
- Is there evidence of no adverse impact on protected areas or protected species and that sites are not hydraulically linked to such areas.

**RSPB:** Objection on the basis that:

- Difficult to conclude that there will definitely not be an impact on the three SPAs through functionally linked land due to a lack of data. Wintering bird surveys are required.
- Hydraulic fracturing which could lead to long-term damage to nature at the local level, leading to significant financial costs for local communities and taxpayer as well as contributing to climate change, which is the most serious long-term threat to the natural environment.
- Significant weaknesses in the regulatory framework identified by Fit to Frack assessment of the regulatory framework.

**LCC Developer Support (Highways):** Considers that the increase in traffic, particularly HGV movements would be severe, there would be a material impact on existing road users, particularly vulnerable road users and overall highway safety of which the potential is considered severe and therefore I am unable to support this application.

**LCC Public Rights of Way:** No Recorded Public Rights of Way are affected.

**LCC Director of Public Health:** Has undertaken a Health Impact Assessment (HIA) on the two drill sites and identified that the key risks to health and wellbeing of the population from the two proposed sites are a lack of public trust and confidence in the regulatory process and the industry, stress and anxiety from uncertainty about the industry that could lead to poor mental wellbeing; potential noise related health effects due to continuous drilling for at least five months for the initial borehole on each site and for three months for each of the subsequent three boreholes per site (14 months of continuous drilling), and potential health risks due to the presence of mining wastes generated as part of the drilling and hydraulic fracturing process being retained on site if adequate off site treatment facilities are not found.

A number of key recommendations to inform the planning process include:

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.
2. Establish with the Applicant that liability and compensation arrangements are in place to cover any structural damages to properties that can be attributed to an unlikely event of induced seismicity.
3. Undertake an independent verification of the assessment of air quality, transport, waste management and induced seismicity prior to determining the planning applications.
4. Seek agreement with the Applicant to establish an independent

comprehensive baseline and on-going long term monitoring of environmental and health conditions prior to any activity on the sites.

5. The Director of Public Health should be informed of the results of the measurements and any breaches to the planning condition or environmental permit.
6. Consider the need to seek further clarification from the Applicant that the cumulative impacts of the operations from the flare, generators, vehicles and drilling will not exceed the national air quality objective thresholds, particularly for PM<sub>10</sub>, 24 hour mean levels.
7. As part of either the planning or permitting process, the Applicant should be required to submit regular data on the ambient air quality on site measuring all the common air pollutants relevant to the activity and report them regularly. PM<sub>10</sub> and PM<sub>2.5</sub> should be reported separately.
8. The Roseacre Wood site is within 55m of a National Grid gas transmission pipeline. Interconnections into national transmission pipelines are proposed at both sites. Advice should be sought and an assessment undertaken as to whether the nearby gas transmission pipelines are considered to be a major hazard.
9. Any extended flow testing provided for by any planning permissions should be aligned with the permits to be issued by the Environment Agency.
10. An assessment of light pollution as part of the site operations should be carried out, and if there are likely to be significant impacts associated with light pollution from the sites that cannot be mitigated or controlled, the Applicant should be requested to consider the opportunity to offer to fit blackout blinds to those homes most likely to be affected.
11. Further clarification or new information on the occurrence and magnitude of equipment likely to be contaminated with radioactive waste and how such waste would be managed on the site and disposed of should be sought.
12. Should planning permission be granted, it should be a pre requisite that no activity can start until the onsite and offsite waste treatment capacity is defined.
13. Further clarification should be sought that any specific risks due to using the MoD site for accessing the Roseacre Wood site have been addressed before any planning permission is granted.
14. A full assessment of the impacts of additional traffic associated with the proposals on road safety should be carried out and appropriate traffic management options considered to address the public concerns, particularly in respect of the Roseacre Wood site.
15. Should planning permission be granted, provision should be made with the Applicant to maintain road safety, particularly on the access routes to Roseacre Wood site and road safety and any related incidents on the access to both the sites should be monitored.
16. In the event planning permissions are granted, any breach of planning conditions should be reported to the Director of Public Health so that necessary steps can be taken in protecting and improving the health of local communities from issues arising due to the alleged or identified breaches of planning control.

Indicative framework for long term monitoring of environmental and health Conditions.

## 1. Context

It is understood that a range of data will be collected by the operator and reported to the regulatory authorities, particularly the EA. What this will constitute is not available to LCC's public health department until the environment permit, planning condition and environmental operating standards are agreed. This document is written with that gap in knowledge. Following the Applicant's surrender of the permit to the EA (who must be satisfied that environmental conditions are acceptable and will remain so before accepting the surrender), current practice suggests there will not be a requirement for long term monitoring of the environment in and around the restored sites of former wells. Establishing a shale gas monitoring unit in Lancashire as an independent source of reliable information will help with the understanding of any environment and health impacts and the communication of risks to the local communities. It will also support the development of future policy and practice of shale gas extraction.

## 2. Aim

To establish an independent, reliable, single source of local information on shale gas exploration in Lancashire.

### 2.1 Objectives

- To develop a framework to establish a baseline and ongoing monitoring of environmental and health conditions
- To support risk communication and reassurance to local communities on the safety and impacts of shale gas activities in Lancashire.
- The governance and management of the shale gas observatory should be determined in consultation with various stakeholders including the local communities, the industry, and the regulatory agencies.

## 3. The framework for data collection

It is expected that most of the data will be collected under the existing regulatory regime. Hence, the focus should be collating the data in one place with independent verification, analysis and communication of risks to the public in a transparent, reliable and proportionate manner.

Both qualitative and quantitative methods of data collections should be used. It is anticipated that the data collection will start prior to any activities beginning if the applications are approved. It will mainly focus on the geographical area affected by the two planning applications. This is currently understood to be approximately a 2 kilometres radius from the proposed location of the well pads.

The time period for long term monitoring should be at least 30 years post abandonment or until such time there is national guidance on long term monitoring. The suggested 30 year time period is based on the long term monitoring of landfill gas migration.

### 3.1 Data collection and analysis (an indicative list)

- Profiling of drill cuttings, fracturing fluids to identify substances hazardous to human health including NORM.
- Information on decontamination of equipment.
- Characterisation of the extent of fracture propagation and the permeability of layers above and beyond the faults

- Characterisation of combustion gases at the flare, particularly the levels of hydrocarbons, radon, methane, volatile organic compounds and any other substances deemed hazardous to human health
- Levels of fugitive emissions at well pads, on potential pathways and at receptor households.
- Ground water monitoring of methane.
- Measuring long term well integrity.
- Particulate Matter at source and confirmation of the modelling findings for receptors in the ES
- Levels of noise at source and receptors
- Information on any existing private water supplies that aren't covered by abstraction license within 2 km zone.
- Sampling of ground/food chain.
- Information on local climate within the 2 km zone to identify potential hotspots.
- Safety profile of transport routes and modelling to minimise road traffic accidents
- Safety profile of waste management sites.
- Household survey of human health and wellbeing, and sampling of
- environmental conditions within the 2km zone. The sampling to be based on modelling from source data.
- Survey of any other sensitive receptors in the vicinity of the two sites.
- Analysis of routinely collected data on health and health care utilisation.
- Analysis of occupational health surveillance data collected by the operator.

**LCC Emergency Planning:** No objection. The application does not impinge on any REPPiR site but is within the thermal hazard range of a major hazard gas pipeline.

**LCC Highway Services (Lighting):** No objection. The design generally complies with required standards with the exception of the predicted sky glow which marginally exceeds the permitted standard, but it is not considered that this would cause any issues to the surrounding area or to the highway and its users

#### **LCC Specialist Advisory Services:**

**Landscaping:** Focusing on a 2.0km radius from the centre of the application site, the elements of the development which have the most potential for creating significant landscape and visual impacts are drilling, hydraulic fracturing and flow testing operations which involve the use of a drilling rig (up to 53m high), fracturing rig, well services rig and flare stacks.

It is recommended that additional photomontages for viewpoints 3, 5 9 and 14 to a prescribed methodology are submitted as the submitted images to do reflect the true scale of the proposed development, with the rig appearing approximately 3x smaller than it will in reality.

The site falls within the County Council's Coastal Plain landscape character type and The Fylde landscape character area, which are characterised by rural farmland, hedgerows, shelter belts and field ponds, slightly undulating topography, long views across the landscape and a strong sense of openness. The application site has a strong rural farmland character which is enhanced by the intactness of key features such as hedgerows, shelter belts and field ponds. The gently undulating topography and the low levels of tree cover afford long views over the rural landscape and create

a strong sense of openness. There are some significant landscape detractors which affect the landscape character including electricity pylons, large barns, wind turbines and a plethora of communication masts which are a dominant feature in views to the east of the site. The application site clearly lies within an area where tall vertical structures have become a key feature of the local landscape character.

A detailed assessment of the potential impacts and significance on the landscape and receptors, taking account of the development site and area landscape characteristics has been undertaken with the following summarised observations:

- Moderate to major significance on views from Roseacre Road, Old Orchard Farm and Public Rights of Way 5-13-FP3, 4 and 5 and on local landscape amenity
- Minor to moderate significance on views from Public Rights of Way 5-13-FP1 and 2
- Minor significance on views from Wharles and landscape fabric and cumulative effects with Preston New Road.
- Negligible to minor significance on views from Roseacre, Seaswick House, Roseacre Lane, Church Road and Moorside and on the Coastal Plain Landscape Character Type and Fylde Landscape Character Area.
- Negligible significance on the landscape value of the site and wider landscape.

The assessment of the proposal has also taken account of the effects of time, with regard to the duration of the landscape effects, and has also taken account of mitigation proposals which will reduce the impact of low level site structures.

The proposed development would have some temporary but reversible localised landscape and visual effects of moderate-major significance. However, these are not considered to significantly affect the overall character of the Coastal Plain Landscape Character Type or The Fylde Landscape Character Area. In addition, the likely effects of the development proposals on the landscape's value and fabric would not be significant and, there would be no significant cumulative effects. For these reasons, the overall temporary effects of the proposals are deemed to be acceptable in landscape terms.

The applicant's options for mitigating the most significant localised effects are limited due to the height of the drill well (potentially 53m), characteristics of the receiving landscape and the 3 year operations period which does not leave enough 'growing time' for planting to have any significant impact. So, whilst there is much about the proposals which could be deemed acceptable in landscape terms, especially in the context of the wider landscape, the applicant needs to address the likely significant localised effects to ensure that overall, this form of temporary industrial development is successfully assimilated into the rural landscape. The most appropriate way of achieving this would be through implementation of the additional mitigation measures outlined above.

It is concluded that significant localised landscape and visual effects are unavoidable although there is scope to further mitigate the likely effects by reducing the height of the drilling rig to a maximum of 35m; finish the drilling and fracturing rigs in a more suitable colour than red/white as proposed and to finish the various cabins and other temporary buildings in a more appropriate colour than blue as proposed.

**Ecology:** No objection. The development has the potential for impacts on biodiversity, including European protected species (great crested newts, bats) and their habitat, species protected by domestic legislation (nesting birds), wintering birds (qualifying features of European designated sites) and Habitats and Species of Principal Importance in England (Section 41 NERC Act 2006) (woodland, hedgerows, ponds, several protected species and additionally brown hare, common toad).

In order that the proposals constitute sustainable development for the purposes of the NPPF, mitigation and compensation for impacts on biodiversity will need to be secured as part of any planning approval.

The applicant was requested to submit results of eDNA surveys for great crested newts (water bodies 10, 11, 12) together with proposals that clearly demonstrate either avoidance of impacts on great crested newts and their habitat or that the proposals would be licensable. The applicant provided the results which confirmed the presence of great crested newts in water body 11 and that mitigation would be a combination of licenced and non-licenced avoidance measures. The applicant should identify parts of the proposals that would be managed using Reasonable Avoidance Measures and for those measures that require a licence further information should be submitted to demonstrate that licensing tests would be addressed.

It is recommended that planning conditions and/or Section 106 agreements address the following:

- Mitigation measures for wintering birds.
- Approved mitigation measures for great crested newts.
- Prior to the commencement of works on site, a Biodiversity Mitigation Strategy shall be submitted for approval in writing and subsequent implementation in full and maintenance thereafter. The scheme shall include, but not be limited to, details of measures for the avoidance/mitigation of impacts on protected and priority species (amphibians, bats, nesting and wintering birds, badgers, reptiles, water vole, brown hare) and their habitat during construction and operation of the development. The strategy should accord with Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and should include details of the establishment, aftercare and management of habitats to be retained and enhanced, or created, as part of these proposals.
- Habitat compensation proposals.

**Archaeology:** The Archaeology and Cultural Heritage chapter of the ES has been undertaken in line with the requirements of the County Archaeology Service (LCAS). LCAS agrees with the assessment that the site has a low potential to contain previously unknown archaeological finds or features.

The proposed mitigation measures are considered to be appropriate. LCAS recommend therefore that should the application be approved a condition is attached that development should not take place until the implementation of a programme of archaeological work is secured.

## **Representations (Appendix 2)**

The application, Environmental Statement and supporting documentation to the application have been advertised in the local press, site notices posted at various

points on and around the site and neighbouring properties considered to be most affected individually notified by letter. Further information submitted by the applicant was advertised in the press. Copies of all the documents were made available for inspection on the County Council's web site and hard copies were made available at the County Council's offices, the offices of Fylde Borough Council, Kirkham Library; St Anne's Library; Lytham Library; and Ansdell Library.

Representations have been received from a number of groups and individuals. The following is a list of the main issues raised; a summary of the representations is set out in Appendix 2.

**Friends of the Earth (FOE):** Object to the proposed development for the following summarised reasons:

FOE submitted a further objection to the proposal with regard to the precautionary principle and the Water Framework Directive; inconsistency within national and local planning policy, inconsistency with government policy; evidence of adverse environmental impacts and inadequate consideration of adverse socio-economic and public health impacts.

**Roseacre Awareness Group (RAG):** Object to the proposal with regard to need for the development, climate change impacts, unsuitability of a countryside location and adverse impacts regarding health, socio-economics, traffic, landscape, noise, air quality, water resource, waste management, ecological, safety and seismicity. A petition of 52 signatories objecting to the proposed development was also received from RAG.

**Objections:** Up to the end of December 2014 a total of 8924 representations objecting to the proposal had been received; 1242 of the objections were from within Fylde and this is 2% of the adult population (1.6% of total population) and 80 were from within a 2km radius of the site. 5495 of the representations were from received from outside Lancashire. Of these 822 were individual letters; 4212 were template objections submitted by Friends of the Earth; 3890 template objections, many of which were collected and submitted by 'Frack Free Lancashire'. Representations have continued to be received mostly in a variety of template forms, the final number of which will be reported when the application is presented for determination.

The reasons for objecting to the proposal are summarised in Appendix 2 under the following headings:

- Need for the Development
- Climate Change
- Energy Alternatives
- Environmental Impact
- Exploration or Production
- Regulation
- Safety
- Geology / Seismicity
- Air Pollution
- Noise Pollution
- Light Pollution
- Soil and Groundwater Contamination

- Waste Disposal
- Water Resource Sustainability
- Landscape Impact
- Ecology
- Economy
- Traffic
- Health and Wellbeing
- Community
- Property
- Damage and Compensation
- Abandonment
- Applicant / Application
- Government
- Lancashire County Council / Decision making

### **Support**

**The North and Western Chamber of Commerce:** support the proposals in view of the economic opportunities the industry would bring to Lancashire.

**The Chamber of Commerce East Lancashire:** support the proposals in view of the economic opportunities the industry would bring to Lancashire.

Up to the end of December 2014 a total of 173 representations supporting the proposal both in principle and in respect of the specific benefits that the proposal would generate in the locale had been received. Representations in support have continued to be received the final number of which will be reported when the application is presented for determination.

The reasons for supporting the proposal are summarised in Appendix 2 under the following headings:

- Energy Security – need, supply and pricing
- Economic Benefits
- Minimal Environmental Risks
- Robust Regulatory Framework

### **Advice**

Planning permission is sought for the construction and operation of a site for drilling up to four exploration wells, hydraulic fracturing of the wells, testing for hydrocarbons, abandonment of the wells and restoration, including provision of an access road and access onto the highway, security fencing, lighting and other uses ancillary to the exploration activities, including the construction of a pipeline and a connection to the gas grid network and associated infrastructure to land to the west of Roseacre Road, Roseacre. A supporting application for the installation of a monitoring array of 80 boreholes for seismic and water quality within the surrounding area has also been submitted (ref LCC/2014/0102).

The applications are supported by a Planning Statement (PS), Supporting Documents, an Environmental Statement (ES) and a Non Technical Summary (NTS). The PS

includes a Sustainability Appraisal and the Supporting Documents include a Flood Risk Assessment, Utilities Statement and a Statement of Community Involvement. Further information was submitted in response to consultee responses and comments made by other bodies, groups and individuals.

Section 38 (6) of the Planning and Compulsory Purchase Act 2004 requires planning applications to be determined in accordance with the Development Plan, unless material considerations indicate otherwise. In considering the issues that arise from the proposed development, it is necessary to take into consideration the relevant policies of the Development Plan and the planning history of the site and all other material planning considerations. Government policy is a material consideration that should be given appropriate weight in the decision making process.

Government policy supports the exploration, testing (appraisal) and production of economic onshore hydrocarbon reserves. This application relates to the first two phases; exploration and testing (appraisal). The site would then be restored unless the appraisal stage indicated that exploitation would be viable. If that were to be the case, further planning permission for an exploitation phase would be required.

### **Policy**

#### General Government Policy on Energy resources

One of the primary roles of National Government is to manage and regulate the supply of energy resources to ensure that the UK has access to secure, clean affordable energy supplies whilst also aiming to meet international obligations on climate change including reduction in green house gas emissions. A number of pieces of legislation and policy statements have been made by recent Governments in relation to energy including the following:

In 2007 the Government published a White Paper on energy (Energy – Meeting the Challenge) which set out the Government's domestic and international strategy for responding to the two main challenges of meeting targets for cutting green house gases to meet climate change objectives and to ensure the availability of secure, clean and affordable energy as imports replace declining North Sea production. The White Paper sought to respond to these challenges in a way that was consistent with energy policy goals including cutting CO<sup>2</sup> emissions, maintaining reliability of energy supplies, promoting competitive markets and ensuring that every home is adequately and affordably heated,

The Climate Change Act Of 2008 also makes it a duty of the Secretary of State to ensure that levels of the main green house gases in 2050 emitted by UK households, industry, transport and the energy generation sector are at least 80% lower than 1990 levels.

In 2009, the Government published 'The UK Low Carbon Transition Plan' which is a national strategy for climate and energy including how energy generation will be gradually transformed to a system based on renewables in order to meet climate change objectives including those obligations in the Climate Change Act. The document identifies that there will be a continuing need for energy generation from fossil fuel sources including gas as part of this transformation provided that such generation is associated with carbon capture technologies in order to meet climate change objectives.

More recently (2011), the Government has also published a National Policy Statement for Energy against which proposals for energy infrastructure brought forward under the 2008 Planning Act will be assessed. Although, this application is for exploration for hydrocarbons and not for nationally significant energy infrastructure, there are a number of themes within the policy document that are relevant with regards to the present Government's views on the likely future need for gas as a fuel for energy generation. These general themes are as follows:-

- The need to meet legally binding targets to cut green house emissions by at least 80% by 2050 compared to 1990 levels which will require major changes in the way that energy is generated and used by individuals, industry and the public sector.
- The Government considers that it is critical that the UK continues to have secure and reliable supplies of energy resources to be achieved by ensuring the existence of reliable supply chains (for example fuel for power stations) to meet demand as it arises.
- A diverse mix of technologies and fuels including the need to source fuels from a wide range of locations.
- The need to address issues raised by increased imports of oil and gas as North Sea reserves decline in an environment where energy demand is rising and supply is increasingly politicised.
- The requirement to make substantial and timely investment in new infrastructure over the next two decades including in new fossil fuel generating capacity during the transition to a low carbon economy.

In December 2012, the Government also published a Gas Generation Strategy. The report noted that a third of UK energy demand is met by gas and that as coal use declines for use in power generation, gas will have an important role to play in filling the gap alongside renewable and nuclear generation thereby helping to reduce carbon emissions. The Government's forecast is that gas use in 2030 will be at similar levels to 2012 and that gas will still be needed for many years into the future.

The Strategy noted that the strong role of gas in energy generation has been supported by a secure supply of fuel and that the global outlook for gas supply is good which has been recently enhanced by developments in unconventional gas extraction. The Strategy notes that an important component of Government energy security policy is to ensure that the UK is not over dependant on any individual fuel source and that over reliance on gas, or any single energy resource, could put the UK at more risk if there were any disruption to supply. Such risks are likely to become greater for gas as the UK become dependent upon imports as domestic production declines. The strategy notes the developments in unconventional (shale) gas in the US, highlights the favourable geology in some parts of the UK and provides a commitment to provide various policy and fiscal incentives to encourage exploration for shale gas in the UK as a possible means to provide additional security of supply for gas.

To summarise, Government energy policy is therefore that there will be a continuing need for gas particularly for energy generation and that gas will have an important role to play in terms of providing security of supply and enabling a transition to low carbon means of generation. The Government has identified the security issues that may arise from increasing amounts of gas having to be imported from outside the UK and therefore has sought to encourage the exploration of domestic shale gas resources in

order to establish the degree to which they could enhance diversity and security of supply.

### National Planning Policy

National Planning Policy Framework (NPPF): The NPPF provides a broad framework for dealing with planning applications for mineral development including for energy resources.

The NPPF states that *'minerals are essential to support sustainable economic growth and our quality of life. It is therefore important that there is a sufficient supply of material to provide the infrastructure, buildings, energy and goods that the country needs.'* The NPPF therefore requires that in determining planning applications, that great weight is given to the benefits of mineral extraction, including to the economy but that proposals should also be considered against a range of criteria including impacts on human health, impacts of noise at nearby properties and effects on the natural and historic environment.

When determining planning applications for on shore oil and gas development, including unconventional hydrocarbons, the NPPF also requires mineral planning authorities to clearly distinguish between the three phases of development (exploration, appraisal and production). The current application is for an exploration site and therefore the application should be considered on that basis.

There are a number of other sections of the NPPF that are relevant to this application in terms of general planning issues including:-

Paragraphs 11-14	Requirement for Sustainable Development
Paragraph 17	Core Planning Principles
Paragraphs 56-66	Requirement for Good Design
Paragraphs 87-90	Inappropriate Development in the Green Belt
Paragraph 100	Flood Risk
Paragraph 103	Requirement for Flood Risk Sequential Test
Paragraph 109	Conserving and Enhancing the Natural Environment
Paragraph 118-125	Conserve and Enhance Biodiversity

### National Planning Policy Guidance (NPPG)

The National Planning Practice Guidance includes policy on hydrocarbon extraction including onshore oil and gas. The guidance is intended to be read alongside the NPPF and other planning guidance. The guidance is intended to cover unconventional hydrocarbons (such as shale gas). The guidance states that unconventional hydrocarbons are emerging as a form of energy supply and that there is a pressing need undertake exploratory drilling to assess whether or not there are sufficient recoverable reserves to allow full scale production on an economically viable scale. The guidance also includes information on the phases of hydrocarbon exploration, the planning application process and the issues raised by such developments including those that are specific to unconventional gas reserves.

In summary, National Planning Policy and Guidance in relation to this application is that proposals which meet the definition of sustainable development and which comply with the policies of the development plan should be approved without delay. In

determining individual applications, the economic benefits of mineral extraction are important considerations but must be balanced against local environmental impacts. In terms of unconventional gas proposals, the Government wishes to understand the likely contribution that such resources might make to gas supply. As with any hydrocarbon resources, the information gathered by techniques such as seismic surveys has limitations and exploration wells must be drilled to allow an accurate assessment of the size and recoverability of the resource. The Government wishes to encourage the drilling of such exploration wells where they are environmentally acceptable as a means to more accurately establish the size of UK shale gas resources including the contribution they may make towards energy self sufficiency.

### Local Development Plan Policy

The Development Plan for the site is made up of the Joint Lancashire Minerals and Waste Development Framework Core Strategy (LMWDF), the Joint Lancashire Minerals and Waste Local Plan – Site Allocation and Development Management Policies – Part One (LMWLP) and the Fylde Borough Local Plan.

### Joint Lancashire Minerals and Waste Development Framework Core Strategy Development Plan documents (LMWDF)

Policy CS1 - Safeguarding Lancashire's Mineral Resources – this policy requires that minerals will only be extracted where they meet a proven need for materials with those particular specifications.

Policy CS5 - Achieving Sustainable Minerals Production – the policy outlines a number of criteria against which proposals will be considered to ensure that natural resources (water, air, soil and biodiversity), the historic and visual importance of landscapes, flooding and the amenity, health and well being of the population are protected from harm and appropriately enhanced.

### Joint Lancashire Minerals and Waste Local Plan – Site Allocation and Development Management Policies – Part One (LMWLP)

Policy NPPF 1 - Presumption in favour of sustainable development = the policy reiterates the position in the NPPF that planning applications which accord with the policies in the local plan will be approved without delay and that where there are no relevant policies, the County Council will grant planning permission unless material considerations, including policy in the NPPF, indicate otherwise.

Policy DM2 - Development Management – the policy states that proposals 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.

The policy also states that proposals will be supported where it can be demonstrated to the satisfaction of the mineral planning authority that the proposals, where appropriate, will make a positive contribution towards the local and wider economy, historic environment, biodiversity and landscape character, residential amenity, reduction in carbon emissions and reduction in length and number of journey's made.

The County Council is also preparing a 'Supplementary Planning Document' (SPD) on oil and gas exploration, production and distribution. The purpose of the SPD is to provide interpretation of how the existing policies in the Minerals and Waste Core Strategy and Local Plan are intended to operate, to give guidance on the application process and to provide information on some of the characteristics of the hydrocarbon industry. The draft was published for consultation on 5<sup>th</sup> January 2015.

### Fylde Borough Local Plan

The Fylde Borough Local Plan contains a number of policies for the general control of development in the Fylde area and was adopted in 2005. The Borough Council are producing a replacement Local Plan. However this is at an early stage of preparation and therefore carries limited weight at present. Due to the age of the existing local plan, it may be that some policies of the existing local plan carry limited weight, particularly where they are not consistent with the NPPF. However the policies referred to in the report are considered to still retain weight and are consistent with the NPPF.

At a strategic level, the site is defined as a countryside area in the Local Plan and is therefore subject to Policy SP2. Policy SP2 states that development in such areas will not be permitted except where proposals are essentially required for the purposes of agriculture, horticulture or forestry or other use appropriate to a rural area. An exploration site for hydrocarbons is an industrial development which does not fall within the above categories.

However, minerals can only be worked where they are found. Although the Bowland Shale occurs beneath most of the Fylde area and therefore there may some flexibility as to where an exploration site can be located, much of the area outside the existing settlements within Fylde Borough is designated as countryside. Due to the need to retain a separation between exploration sites and settlements, exploration in countryside locations is therefore almost inevitable. For these reasons, the development is considered acceptable in terms of Policy SP2.

There are also a number of other local plan policies dealing with environmental impacts which will be discussed in other sections of this report. These policies are:-

Policy EP11	Building Design and Landscape Character
Policy EP12	Conservation of Trees and Woodland
Policy EP23	Pollution of Surface Water
Policy EP24	Pollution of Ground Water
Policy EP26	Air Pollution
Policy EP27	Noise Pollution
Policy EP28	Light Pollution

### **Assessment**

The application and supporting information has been assessed against the national guidance, the national policies and those relevant policies of the local development plan under the following sections relative to those set out in the ES. In view of the nature and complexity of some of the issues raised, where appropriate these have been set out in supporting appendices including the nature of the proposal relative to the subject matter, the proposed mitigation if required, a summary of representations

received and an assessment of such. A summary of the issues with reference to the respective appendices are reported as follows.

### **Scheme alternatives**

Schedule 4, Part 1 (2) of the EIA Regulations requires the ES to provide “*an outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for the choice made, taking into account the environmental effects*”.

Unlike other types of mineral development where there are very narrowly defined locations for development, exploration sites could potentially be located at a variety of sites within the applicant's exploration licence area. The applicant has undertaken a systematic process to select the preferred sites for this stage of exploration.

The purpose of the exploration proposals is to establish the potential commercial shale gas reserves in Lancashire and provide a clearer understanding of the total amount of gas in place and the volume of commercially recoverable gas. The exploration of gas is supported by the Government and particularly DECCs UK Gas Generation Strategy in respect of shale gas.

The applicant is proposing 4 wells at each of the proposed sites (Roseacre Wood and Preston New Road) which would enable different strata to be targeted from one site. The sites have been selected based on geological, environmental, community, land ownership and other technical factors in a staged manner.

The first stage involved a detailed understanding of the geological conditions following the 3D geophysical survey that was carried out. This identified areas of relatively shallow flat laying shale which directed the choice of site to avoid hydraulically fracturing near regional faults and which together with the employment of a 'traffic lights system' of monitoring would reduce the risk of inducing a felt seismic event.

The second stage involved the identification of Tier 1 environmental constraints, namely:

- Existing and proposed European and national designations (for example Special Protection.
- Areas, Sites of Special Scientific Interest).
- Nationally designated heritage assets including: listed buildings, Scheduled Monuments.
- Registered Parks and Gardens, Registered Battlefields and World Heritage Sites.
- Groundwater Source Protection Zone 1.
- Flood Risk – avoiding flood risk zone 3b.

The second stage involved the identification of Tier 2 environmental constraints, namely:

Connections:

- Highway routes and access - A review of the existing road network and access arrangements was undertaken to identify locations where it would be suitable to use an existing access or create a new access to an exploration site.

- Utilities - Areas were identified where there is potential to connect to existing utilities networks (principally potable water supply and gas).

#### Environmental Constraints:

- Cultural heritage - All heritage assets identified via the historic environmental record were mapped and reviewed.
- Landscape character - Landscape character areas were mapped and considered in regard to the location of exploration well sites and the County's Landscape Strategy.
- Visual impact - A broad zone was used to establish the area in which the exploration well sites may be visible.
- Protected species - Data was collected from site walkovers, surveys and existing ecological records were reviewed.
- Non-designated sites/valuable habitat - Non-designated sites and valuable habitats were defined and reviewed for each site.
- Agricultural land quality - Information on agricultural land classifications (i.e. 1, 2, 3a and 3b) was reviewed.
- Proximity to housing and other sensitive uses - Residential properties and other sensitive uses were considered and the distance from these uses was taken into account.
- Light pollution - The potential for light pollution was considered for each zone taking into account the topography of the site, existing barriers and sensitive receptors.
- Noise - A more detailed consideration of noise was undertaken for each zone, taking into account existing noise levels, potential noise barriers and distance from residential properties and sensitive receptors.
- Air quality - The potential for air quality impacts was considered taking into account air quality management designations and sensitive receptors.
- Water resources, flood risk and drainage - Proximity to watercourses, wetlands and ponds, and the potential for future development of groundwater resources was considered. Flood risk issues and drainage requirements were also considered.

#### Planning Constraints

- Local planning policy - The Development Plan allocations and planning designations were identified.

#### Land Ownership Issues

- Potential to secure a lease from the landowner - The likelihood of using the land for the purpose of an exploratory well was determined based on discussions between Cuadrilla and the land owners.

The existing sites that are within the control of the applicant and for which planning permission has previously been granted at Grange Hill, Preese Hall, Annas Road and Becconsall were also considered. These were dismissed due to them not having the most suitable geological characteristics (Grange Road), abandonment (Preese Hall, Annas Road) or not falling within the 3D geophysical survey (Becconsall).

The assessment of all the above constraints has led to the proposed site being chosen.

Inevitably, notwithstanding the site may be considered to be the preferred site by the applicant it would still generate potential impacts, most particularly on the nearest residential properties. It has been suggested that a site could have been located in a more industrial location particularly with the opportunity to directionally drill at depth and which would not have generated the same type of impacts. However, such locations may not be as attractive in terms of targeting the geological horizons and if the impacts of the proposed development can be found or made acceptable then it could be argued that the preferred site could be found acceptable.

The application must of course be considered on its merits and the following is an assessment of the need for the development and the potential impacts and proposed mitigation.

### **Need for the Development**

The Government has made it clear that there is a need to reduce carbon emissions and to ensure energy security and that while renewable energy must form an increasing part of the national energy picture, oil and gas remain key elements of the energy system for years to come. The Government is committed to maximising indigenous resources, subject to safety and environmental considerations. It is considered that in principle the proposal accords with the approach set in national guidance by investing in energy infrastructure to establish whether indigenous oil and gas reserves are available and worth exploiting.

The NPPF, for the purposes of oil and gas exploration notes that '*Minerals are essential to support sustainable economic growth and our quality of life*' and that '*...minerals are a finite natural resource, and can only be worked where they are found...*' (NPPF paragraph 142). Paragraph 144 requires that in determining planning applications local planning authorities '*give great weight to the benefits of mineral extraction, including to the economy*', though this must be balanced against the weight given to environmental impacts of a development.

Paragraph 124 PPG: Minerals advises that nationally, energy should come from a variety of sources, including oil and gas, and mineral planning authorities should take account of government policy including that relating to oil and gas.

Paragraph 147 of the NPPF states that minerals planning authorities should '*when planning for on-shore oil and gas development ... address constraints on production and processing within areas that are licensed for oil and gas exploration or production.*' This makes it clear that any consideration of constraints should be limited to sites which are covered by a Petroleum Exploration and Development Licence (PEDL). As operators can only explore within the area they hold a PEDL for, it is considered reasonable to limit consideration of alternative sites to a single PEDL area, particularly as a key constraint for oil/gas exploration would be holding the PEDL licence.

At the local level, there are no specific policies relating to oil and gas. Policy CS1 of the Joint Lancashire Minerals and Waste Development Framework Core Strategy Development Plan documents (LMWDF) seeks to safeguard Lancashire's mineral resources and requires that minerals are only extracted where they meet a proven need for materials with

those particular specifications. Policy CS5 - Achieving Sustainable Minerals Production outlines a number of criteria against which proposals will be considered to ensure that natural resources (water, air, soil and biodiversity), the historic and visual importance of landscapes, flooding and the amenity, health and well being of the population are protected from harm and appropriately enhanced.

Policy NPPF 1 of the Joint Lancashire Minerals and Waste Local Plan – Site Allocation and Development Management Policies – Part One (LMWLP) reiterates the position in the NPPF that planning applications which accord with the policies in the local plan will be approved without delay and that where there are no relevant policies, the County Council will grant planning permission unless material considerations, including policy in the NPPF, indicate otherwise. Policy DM2 states that proposals 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.

The application site is within PEDL 165 and EXL 269 licence boundaries. The area covered by the PEDL encompasses the major settlements of Preston, Fleetwood, Blackpool, Lytham, Leyland, Chorley and Southport between which the area is generally rural with scattered, small settlements and, therefore, any oil/gas site tapping into this reserve is likely to be within the countryside.

It is considered that in principle the proposal accords with the approach set in local policy that mineral 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. The following is an assessment of whether the applicant has demonstrated such.

### **Air Quality (Appendix 3)**

The project will generate some emissions to air. But providing the operational practices are adhered to and regulated by the Environment Agency, the emissions would not cause unacceptable impacts.

Having undertaken a detailed assessment, the Agency is satisfied that the emissions from the flare would be insignificant at locations closest to the site. In terms of public health impact of the flare emissions, the Agency's audit checks, modelling and sensitivity analysis confirms there will be no exceedance of standards established for human protection.

Based on the information contained within the application, Public Health England has no significant concerns in relation to the potential emissions from the site adversely impacting the health of the local population, providing the applicant takes all appropriate measures to prevent or control pollution, in accordance with the relevant sector technical guidance or industry best practice.

Comprehensive monitoring of the practices and the site, overseen and regulated by the Environment Agency, will ensure that risks are managed effectively.

### **Archaeology and Cultural Heritage (Appendix 4)**

As part of the EIA an assessment has been undertaken of the effects of the project on the archaeology of the area, the above or below ground remains left by previous

generations including pre history, Roman, early medieval, medieval, post medieval and later. The assessment concludes there would be significant effects on archaeology and cultural heritage assets resulting from the construction, operation and decommissioning of the proposed exploration compound, the construction of the associated access route and the installation of the seismic monitoring array.

To mitigate the impact of the development works the most appropriate way to implement a scheme of investigation would be to carry a strip, map and record exercise during the excavation of the topsoil if the monitoring archaeologist identifies any features requiring further investigation

Subject to the imposition of a condition requiring the implementation of a programme of archaeological work is secured prior to commencement of development it is considered the development would not have an unacceptable impact on archaeology, would not have an unacceptable cumulative impact in conjunction with the proposed Roseacre Wood site and would comply with policy EP21 of the Fylde Local Plan.

### **Greenhouse Gas Emissions (Appendix 5)**

The project will generate some greenhouse gas emissions. But providing the operational practices are adhered to and regulated by the Environment Agency, the emissions would not cause unacceptable impacts.

The Environment Agency draft permit requires that during drilling of the exploratory boreholes, fugitive emissions of natural gas are to be prevented by increasing the hydrostatic pressure of fluids so as to prevent gas release. The well will also be equipped with physical control equipment which enables the borehole to be shut at the surface to prevent escape of gas emissions. Gas monitoring equipment will be in constant use at the surface. The draft permit does not allow the venting of natural gas unless it is necessary for safety reasons. Comprehensive monitoring of the practices and the site, overseen and regulated by the Environment Agency, will ensure that any risks are managed effectively.

The major source of greenhouse gas emissions from the proposal is however CO<sub>2</sub> from the combustion of natural gas in the flare. The operator has justified the use of a flare rather than using the gas on site by demonstrating to the Environment Agency that the costs of using the gas would be disproportionate for the 90 day periods. It is also not reasonably practicable to connect the flow of extracted natural gas to the gas grid during the initial flow tests. This is because the flow rates are unknown and the quality of the gas produced may not be compatible with gas grid requirements without further processing. In addition, in order to establish whether there is sufficient flow of gas to move to extended flow testing, there needs to be an uninterrupted flow. Using the gas to meet energy requirements on site would necessitate interrupting the gas flow, preventing the collection of the required data for analysis.

Total CO<sub>2</sub> emissions in Lancashire (as set out in the Lancashire Climate Change Strategy, 2009) were estimated at 12.7 million tonnes. Maximum emissions from the project over its 5.5 years are estimated at 124,369 tonnes carbon dioxide equivalent (tCO<sub>2</sub>e). This averages to 22,613 tCO<sub>2</sub>e per year, which is 0.18% of the county's annual emissions as set out in the Strategy. The project's emissions are just over 3% of the Borough's annual emissions. The emissions are short term.

## **Community and Socioeconomics (Appendix 6)**

The applicant has undertaken an assessment of the community and socio-economic effects of the proposal. The assessment identifies that the proposal would have a number of community and socio-economic effects consisting of:

- Temporary loss of local amenity value through site activities, traffic and influx of population area.
- Employment generation, with direct employment for initial exploration wells predominantly drawn from beyond the local area, but with indirect and induced effects from local spending and the influx of population on Site (local supporting industry, hotels and subsistence for example);
- Increased spending in the agriculture sector from increased landowner income;
- Opportunity costs from loss of agricultural land;
- Community disturbance from any protest activities, or Site works.
- Effects of increased local spending from the community benefit payment from the applicant via the Community Foundation for Lancashire to local communities (although the applicant acknowledges that such payments are not a material consideration in deciding whether to grant planning permission and are not presented as such, but are of the view that they would be a positive effect flowing from the development).

An assessment of the potential community and socio-economic impacts has been carried out. The proposal is for a temporary project but it has the potential to have impacts that may impact on community, social and economic factors particularly relating to the temporary loss of local amenity value through site activities, traffic and influx of population area; community disturbance from any protest activities; impacts on tourism and agricultural production; many of these potential impacts (and more) are referred to in representations opposing the proposal. However, there would also be opportunities for employment generation, with direct employment for initial exploration wells predominantly drawn from beyond the local area, but with indirect and induced effects from local spending and the influx of population on site such as local supporting industry, hotels and subsistence; increased spending in the agriculture sector from increased landowner income although these are difficult to quantify; and whilst it is not a material consideration for planning purposes, the opportunity for community benefit payments.

Subject to the adherence to regulatory requirements it is considered that the community and socio economic impacts could be kept to a minimum. In the event there were to be disturbance leading to damage, the applicant has committed to investigating complaints and has demonstrated insurance would be in place if damage is proven to be attributable to their operations. It is not possible to quantify what impacts a proposal of this nature would have on either property values or the market, but these are not material planning considerations.

Stay Lancashire has publically countered the view that the site would adversely affect tourism and is of the view that the hospitality industry would benefit. There are no statistics that support either view.

In terms of community cohesion, recent experience has shown that drill sites can attract public attention and a degree of protest and environmental extremist activities

may also occur. The Lancashire Constabulary have been consulted on the proposals and have not objected. It is right to assume that public order would be maintained by the police although there would inevitably be costs associated with such as has been evidenced by other sites elsewhere in the country.

It is concluded that whilst there would be some localised impact on residents in the community at the nearest properties, the project would not have a significant effect on wider communities or socio-economic factors, particularly in groups with protected characteristics. There would not be an impact on agricultural land or practices and there would be some economic benefits during the exploration stage to the local economy. It is therefore considered that the proposal would not have an unacceptable impact on communities or socio-economic impacts and that to the contrary there would be some community and socio economic benefits. On balance therefore, it is concluded that the proposal would not be in conflict with the policies of the NPPF or the development plan policies.

### **Ecology (Appendix 7)**

The applicant has undertaken an assessment of the ecology of the area and identified the potential impacts and proposed mitigation where necessary. The ecological receptors, of nature conservation value, identified within the zone of influence of the main site as part of a Phase 1 Habitat Survey included; hedgerows, bats, breeding birds, nesting birds wintering birds, brown hare and great crested newts. The following were identified as having the potential to be significant at the local scale:

- Loss of habitat.
- Disturbance due to the loss of bat foraging habitat from the activities and equipment present at the well pad.
- Loss terrestrial habitat for great crested newts and potential direct effects on them.
- Disturbance and loss of habitat from brown hare.
- Potential disturbance and displacement of migratory species of birds in the vicinity of the array points.

A range of mitigation measures and compensation measures would be adopted to ensure that the Project would not result in a significant effect on ecological features. These measures include the following:

- Replace hedgerow, trees and habitats,
- Measures to reduce the magnitude of lighting impacts on feeding bats
- Locate seismometer array points away from land unused by overwintering birds.
- Clearance of vegetation to occur outside of bird breeding season or after confirmation that there are no breeding birds using the vegetation.
- Implement noise attenuation measures to minimise disturbance to sensitive species of wildlife.

It is accepted that imposition of conditions and a legal agreement controlling the implementation of the proposed mitigation measures would ensure that there would be no unacceptable impact upon biodiversity as a result of the proposal. However, the information requested with regard to protected species to demonstrate that the licensing tests would be addressed has not been submitted and therefore the

application could not be granted until information is provided that confirms the measures to address the protection of great crested newts.

### **Hydrogeology and Ground Gas (Appendix 8)**

The applicant has undertaken an assessment of the potential impacts relevant to hydrogeology and ground gas. The assessment looks at the potential effects of the project as part of the well pad activities and materials in transit, the well construction and integrity and features created by the hydraulic fracturing on the quality of the water environment, both ground water and surface water and the possible creation of subsurface pathways to sensitive features that could result in pollution.

The geology beneath the site is described and the interpretation by the applicant has been assessed by the EA. The geology is such that the Manchester Marls forms a seal between the ground surface and shale rock within which is trapped the natural gas. The Manchester Marls act as an impermeable barrier and prevent the movement of water and gas up towards the surface of the ground from deeper layers of rock. The Sherwood Sandstone aquifer, a porous rock containing water lies above the Manchester Marls. The EA has confirmed the poor quality of the aquifer because of its salinity and it is therefore not used for drinking water.

The assessment sets out how the well pads and the wells have been designed to prevent leaks or spills from entering the wider environment (the soil, groundwater, surface water or the atmosphere) and cause pollution. The well design is assessed by the HSE and the EA in accordance with their respective regulatory requirements and industry guidance. The EA also assesses the proposed drilling fluid and the fracture fluid and requires it to be non-hazardous.

Prior to and during works, groundwater water and surface water would be monitored. The monitoring would be agreed with the EA. The EA would require baseline monitoring of groundwater, air quality and surface water for approval before the start of operations.

When the works are finished, the wells would be plugged and abandoned in accordance with the regulatory requirements of the HSE and the EA and industry guidance. The plugging and abandonment of the well including the monitoring of the ground water quality and gas concentrations are matters for the HSE, the EA and the DECC.

The assessment concludes that the probability of source pathway receptor linkage associated with the contaminant release during well pad construction and access is low; that the contaminant release due to defects in the pad membrane is low; that the contaminant release due to overflow discharge from the well pad drainage systems low; that liquid spray off due to high pressure equipment failure is low; that the spill of contents of vehicles in transit on the public highway is low; that the loss of well integrity due to poor well construction is very low; that the loss of well integrity caused by hydraulic fracturing is very low; that the loss of well integrity is very low.

As mentioned, the Manchester Marls forms a seal between the ground surface and shale that traps the natural gas within the rock. The Manchester Marls act as a barrier and prevent the movement of water and gas up towards the surface of the ground from deeper layers of rock. The Sherwood Sandstone is a porous rock and contains

water. It is considered by the Environment Agency to be a poor quality aquifer because of its salinity and is therefore not used for drinking water.

The well pads and the wells have been designed in accordance with the HSE and EA regulatory requirements and industry guidance. The Environment Agency also assesses the proposed drilling fluid and the fracture fluid requires it to be non-hazardous. Prior to and during works, groundwater water and surface water will be monitored. The monitoring will be agreed with the EA. The EA will require baseline monitoring of groundwater, air quality and surface water for approval before the start of operations. When the works are finished, they will be decommissioned in accordance with the regulatory requirements of the EA and the HSE and industry guidance. The plugging and abandonment of the well including the monitoring of the ground water quality and gas concentrations are matters for the HSE and the DECC.

An assessment of subsurface geology by the EA has considered the potential for retained pollutants in the shale rock to migrate upwards into contact with any groundwater bearing formations. This outcome has been assessed as very low and with no plausible pathway. A groundwater activity permit is required from the EA because of the theoretical possibility that fluid and gas could migrate from the target formation into the Millstone Grit. The EA has assessed the possibility of fluid migration as very low. This is because of the absence of a pressure gradient driving the fluid once the fracturing pressure is turned off. Moreover, close monitoring of fractures (using the micro seismic array and in accordance with the Fracture Plan that must be approved by DECC and the Agency) will prevent any fractures moving into the Millstone Grit from the target formation, thus preventing the movement of fluid.

There are possible impacts associated with the well pad construction and activities. The site construction involves laying an impermeable membrane over the whole compound area to prevent accidental slippage and rainwater from entering the underlying soils, groundwater and nearby water courses. The platform is bounded by a ditch, for the purpose of pollution control. Only clean surface water will drain into a water course (outside drilling, hydraulic fracturing and initial flow test stages) and the Environment Agency has advised that the arrangements are acceptable subject to conditions.

There are potential impacts associated with the well design and construction and proposal to manage these impacts. It is proposed that the well would be drilled, constructed and tested in accordance with regulatory requirements and industry standards. The well design would comprise a two barrier cement sealed design. Details of the well design would be reviewed by the Independent Well Examiner. Additionally, the Environment Agency considers the proposed well construction would form a barrier to prevent the escape of fluids. The EA is satisfied that well integrity is assured through compliance with the well examination regime and regulation by the Health and Safety Executive, and further through conformance to Oil & Gas UK and UK Onshore Operators' Group good practice guidelines for well design and construction. Hydraulic fracturing plans and a seismic monitoring programme would be submitted to DECC and the EA for approval prior to hydraulic fracturing operation commencing; operation of a traffic light system for monitoring of induced seismicity is also designed to mitigate the risk from induced seismicity, including any potential for damage to well integrity. The potential for fractures that are propagated by hydraulic fracturing to extend beyond the target formation has been assessed to be very low

and the growth of fractures resulting from each fracturing stage would be assessed with the aid of the seismic monitoring array.

The EA has assessed the proposed fracture fluid as non-hazardous. It is also satisfied that the chemical similarity between the fluid and the water in the Millstone Grit is sufficiently high that any indirect discharge would be insignificant. Finally, the EA believes that if any fluid reaches the Millstone Grit it would not move far from the point of entry because of the confined nature of the rock. If needed low toxicity oil based muds would only be used below the Manchester Marl formations and with the approval of the EA.

Prior to and during works, groundwater water and surface water would be monitored (see application LCC/2014/0102). The monitoring would be agreed with the EA. The draft permit includes pre-operational requirements to provide baseline monitoring of groundwater, air quality and surface water for approval before the start of operations. The draft permit also includes a requirement to provide for a monitoring plan for at least 4 weeks prior to gas flaring. The EA has specified monitoring of groundwater and surface water in the draft permit and this would be carried out until the permit is surrendered.

When the works are finished, they would be decommissioned in accordance with the regulatory requirements of the EA and the HSE and industry guidance. The plugging and abandonment of the well including the monitoring of the ground water quality and gas concentrations are matters for the HSE, the DECC and the EA and their respective regulatory regimes. In particular, the plugging and abandonment of the borehole is regulated by the HSE under the Offshore Installations and Wells (Design and Construction etc.) Regulations 1996. These Regulations contain provisions relating to well integrity and abandonment as well as the selection of materials. The Regulations apply to all wells drilled under landward licences, the key objectives of which are to prevent the escape of fluids from the well which might result in pollution of freshwater or ground contamination. Under the Regulations, well abandonment techniques must prevent the transfer of fluids created by pressure gradients between different zones. Such transfer is achieved by means of the original borehole casing and the cementing and plugging operations that are undertaken as part of well abandonment.

Paragraph 122 of the NPPF requires that planning authorities should not seek to control processes or emissions where these are subject to approval under separate pollution control regimes and that LPA's should assume that these regimes will operate effectively. Nonetheless, paragraph 112 of PPG Minerals, notes that before granting permission the local planning authority should be satisfied that the issues dealt with under other regimes can be adequately addressed by taking advice from the relevant regulatory body. The County Council has consulted with the EA and HSE, neither of which has objected.

The EA is minded to grant the applicant the necessary environmental permits needed to carry out their proposed operations. The draft permits set out the conditions needed to protect groundwater, surface water and air quality. If permits are issued, the applicant will have to comply with the proposed conditions that are designed to ensure that operations do not cause harm to people or the environment. The EA has assessed the proposed activities that could involve the discharge of pollutants into groundwater (a 'groundwater activity') and the nature of these pollutants. The EA is satisfied, subject to conditions, that there is minimal risk of direct discharge of pollutants into

groundwater. The EA is also satisfied that the indirect entry of non-hazardous pollutants will be limited so as not to cause pollution.

Hydrogeological issues and the protection of surface and ground water have been assessed by the applicant and the risks associated with such were considered to be low or very low.

Advice provided to the County Council from the University of Glasgow states the scenarios of pollution of shallow groundwater and surface waters due to fracking operations, as suggested in some representations, are not credible. They also say the suggestion the proposal is unsafe because there are faults in the vicinity is unfounded.

The EA and HSE have been consulted and have advised on the regulatory regimes that would be employed to manage the risks and that they are satisfied that that such risks could be managed in a way that would not cause any unacceptable impact. It is considered that the site can be contained and surface waters managed in a way as to prevent pollution to adjoin land or nearby watercourses.

The County Council should assume that these regimes will operate effectively and can be satisfied that the issues dealt with under other regimes can be adequately addressed. Boreholes for ground water monitoring are the subject of planning application LCC/2014/0102. Subject to conditions controlling the management of surface water it is considered that the proposal could be acceptably controlled by other regulatory regimes and would not have any unacceptable impacts on hydrology or ground or surface water and would comply with national guidance and policies and the policies of the development plan.

### **Seismicity (Appendix 9)**

A full assessment of the likely effects of induced seismicity associated with the proposed hydraulic fracturing operations including the likely effects on surface deflections (subsidence) from gas extraction has been carried out. It recognises seismic events could occur as a result of stress changes on a plane of weakness (a fault) caused by the growth of engineered fractures and the transmission of fluid pressure into a critically stressed fault. The assessment has been carefully considered against the findings of the Royal Society, in light of national guidance and with regard to specialist advice that has been sought from DECC and the County Council's own appointed seismologists and in view of the views and recommendations of the Director of Public Health. The views expressed by groups and individuals have also been carefully considered. The full assessment of such is set out in Appendix 9.

The Royal Society concludes that health, safety and environmental risks associated with hydraulic fracturing as a means to extract shale gas can be managed effectively in the UK as long as operational best practices are implemented and enforced through regulation. DECC will control fracking in a way, through a traffic light system that prevents fracturing generating more than 0.5M<sub>L</sub> which means induced seismicity will not be felt at all, or only by a few under especially favourable conditions. Whilst perceived fears are understandable, they cannot be supported by independent review and guidance. It is safe to assume that BGS or other appropriate bodies will carry out national surveys to characterise stresses and identify faults in UK shales and operators will carry out site-specific surveys to characterise and identify local stresses

and faults. It is proposed that seismicity will be monitored before, during and after hydraulic fracturing (see application LCC/2014/0097). Monitoring has already been carried out in the Beconsall area. A traffic light monitoring systems would be implemented and data fed back to well injection operations so that action can be taken to mitigate any induced seismicity and which would be overseen by DECC and whom the county council can be satisfied will operate within its own regulatory framework.

With regard to possible subsidence DECC has reported [Review and Recommendations for Induced Seismic Mitigation (April 2012)] that there are no documented cases of fracturing operations causing subsidence or tremors large enough to cause damage at the surface and that unlike coal mining, shale gas production does not remove large quantities of rock from underground, which can cause subsidence. The report notes that subsidence can happen when rock is compressed and collapses in on itself, but that shale rock is not easily compressed, so subsidence is unlikely and that rock samples would be tested before any commercial production is approved. The conclusions of the applicant and the previous conclusions of DECC are accepted. It is considered that the proposed exploration and appraisal of shale gas would not lead to any subsidence at surface and should there be an opportunity for any further stage of exploration that could lead to commercial exploitation, that would require the benefit of planning permission and would be the subject of greater scrutiny by DECC.

With regard to the representations received it is not likely that seismic activity would lead to injury to humans or wildlife or destabilise the geology in a way that would generate earthquakes that would place the Heysham power station or the proposed underground gas storage project at Preesall at risk. The County Councils has not seen any verified evidence of damage to property as a consequence of the seismic events at Preese Hall or that the surface strata was undermined in any way or present a risk of subsidence to moss land or nearby properties. There is no evidence to support that fact induced seismicity would led to pollution of surface or ground water or that the process could be safely carried out. A 3D survey has been carried out to give a clear understanding of the geological conditions and faulting in the area and the sites, depth and direction of drilling and horizons proposed to be fracked have been chosen and designed in a way to minimise seismic movement and which, if undertaken in accordance with a traffic light system would prevent the migration of fluids. There are no mine workings in the Fylde.

Whilst the concerns are understandable it is concluded that they cannot be supported and that the County Council can assume and be satisfied that the development would be carried out to meet the requirements of DECC.

## **Land Use (Appendix 10)**

As part of the EIA an assessment has been undertaken of the impacts of the proposal on the land use. The agricultural land affected (2.6ha) has been assessed as good or moderate in terms of its agricultural land quality. A soil survey has been carried out and data on farming practices collated. The site forms part of a 275ha farm holding of which 2.6 is proposed to be used for the development – approximately 0.9%. The land is grassland grazed by milking cattle, produces hay crops for sale, dairy replacements and beef are reared and used for winter grazing by sheep. Approximately 0.02ha is classed as good quality (Class 3a) with approximately 2.58ha moderate quality (Class 3b).

The assessment concludes the impact on the loss of agricultural land is not significant.

An assessment of the ES has been carried out and it is concluded that the impact of the proposal in terms of land use planning would not be significant. The loss of agricultural land would be for a temporary period and provided that appropriate mitigation measures are imposed with regard to soil compaction and conditions controlling the storage of soils and the reinstatement of the land, the proposal would be acceptable. The proposal would not be contrary to the policies of the NPPF or the policies of the development plan.

## **Landscape and Visual Amenity (Appendix 11)**

The applicant has undertaken an assessment of the landscape and visual amenity of the site and area within a 5km radius. As part of the EIA an assessment has been undertaken of the impacts of the proposal on the landscape and visual effects. It concludes there would be no significant landscape effects although there would be very localised direct change due to the development temporarily altering a very small proportion of the local character area during construction of the well pad but no effect during other phases. The visual findings conclude there would be significant adverse visual effects arising during the drilling, hydraulic fracturing and flow testing phases. Eleven of the principal viewpoints would experience significant adverse visual effects. Nine of these are public rights of way receptors, one with a recreational viewpoint along with two residential receptors (a group of five residences have been assessed as one receptor at Stanley Farm since all would experience the same effect. No significant adverse visual effects were judged to occur on any receptor more than 900m from the site during any phase of the project.

Mitigation measures are proposed in the form of 4m bunds around the well pad, landscaping around the well pad to help filter views, allowing hedgerows to grow taller, minimisation of light spill, gap filling in existing hedgerows.

The ES concludes there would be no cumulative effects from other developments proposed or committed that would have a significant impact on visual amenity. The land is of good to moderate agricultural quality and it is concluded that there would be no significant effects on farming practices.

An assessment of the ES has been carried out and advice provided by the County Council specialist advisor on landscape. The assessment finds that given the undulating and open nature of the landscape, the development would have some significant landscape impacts but only for a limited period and in the main restricted to

locations near to the site, in particular properties at Old Orchard Farm and Stanley Farm. The development would not affect any conservation areas, listed buildings or protected trees. It would not require the removal of any significant existing landscape features and therefore any landscape change would not be of a permanent nature. The development is therefore considered acceptable in terms of landscape impacts in the long term. However, it is considered that any planning permission should be subject to conditions relating to the colour of the drilling rigs and other equipment, the design and location of the perimeter landscaping mounds, the colour and design of fencing, lighting design and control and details of the restoration and aftercare of the site to include the replanting of any hedgerows that are removed and restoration.

It is therefore concluded that in the short term the proposal would generate significant localised landscape and visual impacts and which would be unavoidable due to the nature and duration of the proposal. However, whilst the duration is over an extended period of time, it would still be temporary. Mitigation measures are proposed and there is scope to further mitigate the likely effects by reducing the height of the drilling rig to a maximum of 35m; finish the drilling and fracturing rigs in a more suitable colour than red/white as proposed and to finish the various cabins and other temporary buildings in a more appropriate colour than blue as proposed. Subject to such conditions it is considered that the proposal would not be contrary to Policy D2 of the Lancashire Minerals and Waste Local Plan and whilst it could be seen as contrary to Policy EP11 of the Fylde Local Plan, the proposed development, due to its nature for a temporary period it could not be designed in a way to meet the requirements of this policy.

### **Lighting (Appendix 12)**

As part of the EIA an assessment has been undertaken of the effects of the potential night time light obstruction from the project in view of the site being in a rural location away from built up areas and where there is little existing night time lighting. The assessment has used national policy and light obstruction guidance including the Institute of Lighting Professionals (ILP) Guidance Note for the Reduction of Obtrusive Light. An assessment of the impacts has been carried out against the policies of the NPPF, the policies of the development plan and with regard to the views of the county councils specialist lighting advisor, the Director of Public Health and in view of representations received (Appendix 2).

The County Council's lighting advisor has raised no objection to the proposals and has advised that the lighting design generally complies with the required standards, with the exception of predicted sky glow, which marginally exceeds permitted standards. He does not anticipate any issues to the surrounding area, highway or users on grounds of safety.

The Director of Public Health has recommended that an assessment of light pollution as part of the site operations should be carried out, and if there are likely to be significant impacts associated with light pollution from the sites that cannot be mitigated or controlled, the applicant should be requested to consider the opportunity to offer to fit blackout blinds to those homes most likely to be affected.

In terms of landscape impact, lighting has properly been assessed; it concludes there would be some light pollution at night. This would be for a temporary period but would be significant particularly when seen from the nearest residential properties. Notwithstanding it would be for an extended period of time, with the mitigation

measures proposed, and which could be controlled by condition, on balance, it is considered that lighting could be made acceptable and that the impacts associated with such would not be so great to affect amenity on a permanent basis or lead to unacceptable effects on nature conservation to constitute a sustainable reason for refusal. It would not be appropriate to require blackout blinds to be fit to those properties most likely to be affected. Subject to the mitigation measures proposed, and which could be controlled by condition, it is considered on balance that the proposed lighting for a temporary period would be acceptable for the purposes of the NPPF Policy DM2 of the LMWLP and Policy EP28 of the Fylde Local Plan.

### **Noise (Appendix 13)**

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) LAeq 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) LAeq 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.

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 closest residential properties to the site are located at Roseacre village to the north of the site and at Old Orchard Farm which is approximately 280m to the south. Roseacre Farm is to the north of the site with further residential properties beyond.

Background noise levels at Old Orchard Farm have been recorded as low as 26.7dB LA90 at night (LCC's own measurements) and 39.4 dB LA90 during the day (applicant's measurements). Noise from operations is predicted to raise background noise levels by approximately 13.3 dB at night and 14.6 dB by day.

Background noise levels at Roseacre Farm have been recorded as low as 28 dB LA90 at night (LCC's own measurements) and 33 dB LA90 during the day (applicant's measurements).

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 have since been proposed by the applicant (and were consulted upon) and the applicant has 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 slightly lower than those set out in the ES. Furthermore, it is concluded that it is unlikely there are any significant tonal or impulsive aspects to the noise from the drilling rig or from the hydraulic fracturing phase of the project.

The difference between existing low background noise levels and predicted noise levels is of concern. Fundamentally, *PPG- Minerals* 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) LAeq,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. 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.

It is therefore concluded that 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.

### **Resources and Waste (Appendix 14)**

The applicant has undertaken an assessment of the management of waste, including inert, non-hazardous and hazardous waste, and including waste water. The wastes described would be solid, liquid and gas and both oil and gas are defined as minerals. The waste produced would be:

- Non-hazardous and inert waste.
- The accumulation of injected hydraulic fracturing fluid which would remain in the underground target formation and has become waste.
- Above ground hazardous including the temporary deposit and accumulation of hazardous waste in storage containers as the wells are successively drilled. The hazardous waste would include flow back water and drill cuttings coated with residual Low Toxicity Oil Based Muds ("LTOBM").

- The incineration by flaring of hazardous waste, namely natural gas above 10 tonnes per day, as an activity listed in schedule 1 of the Environmental Permitting (England and Wales) Regulations 2010.

The management of waste is set out in a proposed waste management plan and subject to environmental permits that would be regulated by the EA and needed by the applicant to carry out their proposed operations. The permits would set out the conditions needed to manage waste and naturally occurring radioactive material (NORM). If permits are issued, Cuadrilla would have to comply with the proposed conditions that are designed to ensure that operations do not cause harm to people or the environment.

The assessment concludes that all types of waste would not result in a significant effect; that there is sufficient capacity to treat flow back fluid even though at peak times it could use up to 68% of identified treatment capacity but which would have a significant effect. Consequently re use of flow back fluid is proposed to reduce this effect. Fracturing at the site would be staggered with Roseacre Wood to avoid increasing weekly waste water production rates to minimise cumulative effects. In the event on site storage and treatment capacity is exceeded, operations would be suspended.

General measures would be employed to reduce the quantity of waste generated, increase the re-use, recycling and recovery of materials and improve waste management.

An assessment of the proposals has been carried out. With regard to inert, non-hazardous and hazardous waste associated with the construction, drilling, hydraulic fracturing, initial and extended flow testing and decommissioning it is considered that subject to compliance with the necessary permits issued by the EA the quantities generated would not result in a significant effect.

The treatment of the quantity of waste water generated by the project would result in a significant effect and so mitigation to reduce this effect is proposed to include recycling of flow back water and staggering of operations. In particular there would be a requirement, wherever possible, to re-use the flow back fluid once the gas has been separated. This would reduce the amount of waste which needs to be disposed at an offsite facility. About 10-40% of the injected fluid is predicted to return to the surface.

The applicant proposes to leave some fracture fluid deep underground. The EA is of the view that leaving some of the retained fluid in situ is the 'Best Available Technique'.

The EA has assessed the components of the fluid to be used in fracking process and is satisfied that it is non-hazardous. They are also satisfied that the fluid that would be retained underground would be non-hazardous and that over time the retained fluid would become indistinguishable from the water already present in the target formation.

Naturally occurring radioactive material (NORM) is present in many geological formations including oil and gas bearing strata such as shale formations. The flow-back fluid that returns to the surface following hydraulic fracturing as well as the sediments and scales in gas or water process vessels, is likely to contain sufficient NORM that it will be classed as radioactive waste. The level of radioactivity is considered to be extremely low. The EA has assessed the impact and proposals for NORM disposal and is satisfied that the applicant has demonstrated that it can have

suitable arrangements in place with licenced waste disposal companies for its treatment.

Drill cuttings can be contaminated with hazardous waste. All hazardous waste must be stored in solid steel containers which are subject to inspections. The EA has advised it is satisfied with the proposed arrangements.

With regard to the representations received, it is considered that waste can be acceptably contained and that there are available facilities with capacity to accommodate the waste to which safe purpose designed transport would deliver it. The permitting process would restrict the available storage on site and the continued production of such in the event off site facilities were unavailable. The site can be contained in a way to prevent discharge or over spill off site and provide secure storage facilities. The permitting process would apply the necessary controls on waste quality standards. There would be no risk of migration of fracking fluids that could result in cross contamination of water resources and leaving fluids in the ground would not result in contamination in their own right. The waste is not toxic and would not be stored close to residential properties or schools and the site would be secure preventing unauthorised access.

Paragraph 122 of the NPPF requires that planning authorities should not seek to control processes or emissions where these are subject to approval under separate pollution control regimes and that LPAs should assume that these regimes will operate effectively. Nonetheless, paragraph 112 of PPG Minerals, notes that before granting permission the local planning authority should be satisfied that the issues dealt with under other regimes can be adequately addressed by taking advice from the relevant regulatory body'. The County Council has consulted with the EA and which has not objected.

The EA says it is 'minded to grant' the environmental permits needed to carry out the proposed operations. The draft permits set out the conditions needed to manage waste and NORM. If permits are issued, the applicant would have to follow the proposed conditions that are designed to ensure that operations do not cause harm to people or the environment.

The EA is satisfied that the draft permit and associated conditions will require that extractive wastes are managed in a way that minimises harm to human health and the impact on the environment. The operator has demonstrated this through a waste management plan that accompanies the permit application. The EA is satisfied that the proposals are in line with the waste hierarchy.

It is considered that the proposal could be acceptably controlled by other regulatory regimes and would not have any unacceptable impacts and would comply with national guidance and policies and the policies of the development plan.

### **Transport (Appendix 15)**

The applicant has undertaken an assessment of the potential effect of the proposal on the transport networks serving the site and surrounding area. The potential effects from transport and traffic have been assessed as driver and pedestrian delay, pedestrian amenity, severance, accidents and safety, dust and dirt. The assessment concludes that the proposed increase in traffic would only be over a number of peak

periods and only for a few days at a time. Consequently the applicant's assessment concludes that even during peak periods, such an increase would not lead to a significant transport effect. To reduce the impact of transport a number of traffic plan measures are proposed including traffic routing, site management to minimise impact on highway users, driver training, pre and post monitoring surveys, employing complaint procedures.

The Roseacre Site is served by a network of minor and unclassified roads. The applicant has examined a number of different options to access the site and has concluded that the proposed route utilising the MoD land is the most suitable, the other options being rejected due to issues such as the numbers of residential properties, narrow roads, accident history and presence of schools and general unsuitability for HGV traffic.

In order to ease traffic movements on Dagger Lane, five passing places are proposed to provide localised widening to between 5.5 and 6.5m thereby allowing two HGV's to pass. In all cases the widening can be achieved using highway verge and it would not be necessary to remove roadside hedgerow.

The peak traffic flows would occur as a result of combined traffic associated with activities at more than one well. The total traffic numbers in the ES are based on such conditions. The peak traffic generated would be around 50 two way HGV movements per day which would occur for around one week on eight occasions over the life of the project.

LCC Developer Support (Highways) objected to the proposal as initially submitted in view of the increase in traffic, particularly HGV movements that would be severe resulting in a material impact on existing road users, particularly vulnerable road users and overall highway safety of which the potential impact is considered severe. This conclusion is reflective of the objections expressed by Fylde Borough Council, parish councils, opposition groups and individuals.

As a consequence of concerns (including the MoD) regarding the proposed traffic management plan the applicant chose to submit an alternative proposal for HGV access to the site and further information to demonstrate the suitability of such. The alternative is to use a one-way route to and from the site for HGVs utilising the access as proposed (including the MOD land for those time periods proposed) for directing vehicles out of the site but bringing vehicles in via Woodplumpton and Broughton from the A6 the applicant's view is that this would significantly reduce the probability of two HGVs meeting on sections of the highway with a constrained width. It would also halve any increase in exploration site related HGV traffic flows along the proposed route.

The applicant is of the view that the departure of HGVs from the site could be more easily controlled and co-ordinated by site management than the corresponding arrivals. It is therefore proposed to use the permitted route described in the draft amended TMP as a one-way route for outbound HGVs from the site.

The County Council's overall assessment concludes that notwithstanding the temporary nature of the proposed works and the mitigation and management measures proposed, the proposal as submitted would be severe in view of the increase in traffic (particularly HGV movements) during restricted maximum daily flows and maximum hourly flows. Notwithstanding the applicant's commitment to a

maximum of 50 HGVs per day, these would still be at a level that would give rise to a significant cause for concern when location and routing to access the site along the route proposed (including with passing spaces) would still result in conflict. This would compromise the surrounding network and environment used by existing familiar and unfamiliar users.

There would also be a material impact on existing road users, particularly vulnerable road users and overall highway safety of which the potential is also considered to be severe, a view reflective of those in opposition.

There is an extensive network of PROW on the local network in the vicinity of the site and on the proposed inbound and outbound access routes. Movement of vulnerable road users on this part of the network can be expected to be higher in the summer months. There is limited footway provision on this local network.

The very narrow nature of the lanes on the routes in the local vicinity of the site would suggest that there will be a material impact on vulnerable road users (both familiar and unfamiliar) as a result of the additional traffic and in particular the impact due to a significant increase in the numbers of HGV movements expected

With consideration for all the information that has been presented to date in support of the application it is considered that the impact of the increase in traffic, particularly HGV movements would be severe. There would be a material impact on existing road users, particularly vulnerable road users and overall highway safety of which the potential is considered severe and therefore unable to support this application. The alternative has not been advertised as further information but it is anticipated that further representations objecting to such a change would be received. Irrespective an assessment of the revised TMP has been carried out by LCC Highways and it is concluded that the increase in traffic, particularly HGV movements would be severe, there would be a material impact on existing road users, particularly vulnerable road users and overall highway safety of which the potential is considered severe.

It is further concluded by LCC Highways that for **all** the information that has been presented to date by the applicant in support of the application that the impact of the increase in traffic, particularly HGV movements would be severe which would result in a material impact on existing road users, particularly vulnerable road users and overall highway safety of which the potential is considered severe. Consequently it is considered that the application cannot be supported.

In these circumstances, it is considered that the development would give rise to unacceptable impacts on existing road users that would be contrary to Policy DM2 of the Lancashire Minerals and Waste Local Plan.

### **Water Resource (Appendix 16)**

The applicant has undertaken an assessment of the impact of the proposal on water supplies and surface water runoff or drainage and the consequent impact on flood risk. The construction of the well pad would include the installation of an impermeable plastic membrane to be laid to prevent infiltration from the well pad through the underlying soils and water bodies. Ditches would be constructed around the perimeter of the well pad to collect storm water. The void space in the granular fill, ditches and the 50mm "air freeboard" would provide a storage volume to attenuate drainage flows

from the site. During drilling and hydraulic fracturing operations a valve would prevent storm water from leaving the site. During these periods storm water would be removed by tanker to a licenced wastewater treatment works. At other times when the water quality in the ditch system meets the requirements of EA the site would drain freely to the local field drain immediately to the east of the site.

The water requirements for the Project would be provided by a pipe connection to an adjacent United Utilities (UU) water main. UU have confirmed that this supply would not affect their current customers (including residential properties). The use of mains water negates the need to transport water to the site by tanker to reduce transport impacts. Estimated daily water use during hydraulic fracturing activities has been reduced from 765<sup>3</sup>m per day to 600<sup>3</sup>m per day by reducing the proposed number of hydraulic fracturing stages and reusing flow back water to make up part of the fracturing fluid for the subsequent fracturing stages. Flowback fluid would be subject to physical treatment using ultra violet disinfection to control bacterial growth. If possible collected storm water would also be used to make up part of the fracturing fluid volume.

The assessment concludes that subject to such measures the proposed development would not have a significant effect on surface water runoff, drainage or water supplies.

An assessment of the potential impacts of the proposal on water supplies and surface water runoff or drainage and the consequent impact on flood risk has been carried out with reference to the views of the EA and UU and with regard to representations received. It is concluded that the proposal would have no adverse effect on potable water supply and would not be an unacceptable use of potable water. Flow back water would be reused resulting in lower quantities of potable water being required. Water will be supplied direct to the site thereby reducing the number of HGVs travelling to and from the site. The site would be contained and managed to ensure the protection of surface and ground water and nearby water courses. The site is in a Flood Zone 1 which is defined as having a low probability of flooding. The EA has reviewed the Flood Risk Assessment submitted with the application and is satisfied that the development would not be at risk of flooding or increased flood risk off-site. The development is therefore considered to comply with the national guidance and policies and the policies of the development plan.

### **Public Health (Appendix 17)**

The County Council's 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 Roseacre Wood (planning application numbers LCC/2014/0101 and 0102) and Preston New Road (planning application numbers LCC/2014/0096 and 0097). 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 recommendations to specifically inform the determination of this application (together with the Preston New Road applications).

Given the advice is specific to this application, an assessment has been undertaken in relation to each of the 16 recommendations in Appendix J of the HIA. All of the recommendations in Appendix J have been addressed as part of this determination.

Recommendation 1 states: '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'.

The predicted night time noise levels at the nearest properties (Orchard Hall Farm) are at the national night time standard of 42dB. The elevation of 13.3dB above background levels at night time at the nearest property, for such a sustained period, would be perceived as noticeable and disruptive. It is likely this would have significant adverse effects on the health and quality of life of the nearby residents

Recommendation 4 states: 'Seek agreement with the Applicant to establish an independent comprehensive baseline and on-going long term monitoring of environmental and health conditions prior to any activity on the sites'.

The applicant has questioned the appropriateness of providing for such long term monitoring through the planning system, and has cited national guidance and case law as justification for this position. Nevertheless, while there is a question around the appropriateness of using a planning condition or section 106 agreement to provide for such monitoring, the County Council would have pursued a Unilateral Undertaking with the applicant to provide for such in the event of a recommendation to grant permission.

Many representations received by the County Council refer to research conducted in North America and overseas that indicate shale gas extraction is linked to adverse health impacts.

While much research exists, and is growing in volume each year, it is difficult to gain an objective view of the veracity of the research. Anti-fracking campaigners frequently point to studies that indicate increased health risks (eg elevated risks of cancer or birth defects) as a result of shale gas activity in North America. Conversely, pro-fracking campaigners point to numerous methodological flaws in the research. It is also difficult to translate the findings of research from North America into the UK environment. Operating and regulatory practices are very different.

In June 2014, Public Health England (PHE) published a review into the potential health impacts of shale gas extraction. The review drew on significant scientific evidence in peer reviewed or published reports up to January 2014. Much of the research cited in representations to the County Council was reviewed by PHE.

PHE say there have been very few epidemiological studies or health risk assessments published in the peer reviewed literature. Epidemiology is the branch of medical science that investigates all the factors that determine the presence or absence of diseases and disorders. It aims to assess the cause of a disease, and seeks to look beyond associations which might be a result of chance, bias or confounding effects.

PHE highlight significant methodological flaws in the research that has been cited to the County Council.

Moreover, one study frequently cited by objectors (McKenzie, 2014) has been publically criticised by the Chief Medical Officer and Executive Director of the Colorado Department of Public Health and Environment in the USA as follows "*we disagree with many of the specific associations with the occurrence of birth defects noted within the study. Therefore, a reader of the study could easily be misled to become overly concerned.*"

PHE state that direct application of the North American research to the UK situation is impossible because of the wide differences between the two countries. It is clear from experience in the US that emissions vary widely depending on the phase of development, operational practices, the geology, local topography and meteorology, and the types of activities and equipment on-site. PHE state that such variability makes direct application to the UK situation impossible. There are also different regulatory practices in the UK.

At present there is limited environmental and health surveillance data within the published literature in relation to existing shale gas extraction operations. There have been very few epidemiological studies (as opposed to statistical associations) and those that have been carried out generally lack robust exposure assessments according to PHE.

## **Representations**

The development has generated a significant number of representations the majority of which object to the proposal although there are a smaller number offering support for the proposal. The reasons for objecting are summarised in Appendix 2.

Up to the end of December 2014 a total of 8924 representations objecting to the proposal had been received; 1242 of the objections were from within Fylde and this is 2% of the adult population (1.6% of total population) and 80 were from within a 2km radius of the site. 5495 of the representations were from received from outside Lancashire. Many of the representations object to the principle of exploring for and placing future reliance on the use of hydrocarbons as a means of providing an energy resource and that investment and consequent employment opportunities would be better directed into renewable and more sustainable energy resources. There is further objection to the proposed methodology for the exploration of shale gas and the unacceptable impacts associated with such along with the localised impacts of the proposed development itself on the area, environment and communities. More representations both opposing and in support of the proposal have been received since this report has been finalised and an updated figure will be reported to the Committee at the meeting.

Some of the objections maintain that planning permission should not be granted in view of the alleged poor track record of the applicant when carrying out operations at other sites within its control.

The issues raised in representations have been addressed relative to the 'topic' areas that they have been summarised into and which are many. There is an assumption that the number of representations received assist in demonstrating the level of

opposition and consequently the proposal should be refused. However, it is the issues raised rather than the number of representations received and it is considered that these have properly been addressed a part of the assessment of the application.

With regard to the applicant's previous operations and compliance with planning permissions, a planning application goes with the land rather than with the applicant and it is right to assume that the applicant would comply with conditions attached to any planning permission.

### **Overview of cumulative and in combination effects**

The applicant has undertaken an assessment of the cumulative effects associated with the individual elements of the technical topic areas covered in the ES along with an assessment of the cumulative effects of the proposed development at Preston New Road. They have also undertaken a review of current adopted land use plans and emerging local plans to identify and significant planned new development proposals in the vicinity of the site or along the key access routes to the site. The review has confirmed that there are no large development proposals for development in the vicinity of the site or nearby settlements so consequently there is limited scope for cumulative effects with other developments. There are other development proposals within 10km of the site although it is concluded that they are not likely to alter the scale of the effects of the proposal or create any new or additional effects. The applicant's current proposals at Grange Hill to pressure test an existing well are minor and should planning permission be granted, they would not contribute to any effect.

The conclusion drawn is that there would be no cumulative effects associated with the two sites operating in tandem and that the separation distance is sufficient such that:

- Air quality, heritage, hydrogeological, seismic, water resources noise, visual and general disturbance impacts will not result in a cumulative effect. Likewise, the sites themselves are also separated enough from other development sites that these potential cumulative effects can be avoided.
- There is sufficient separation between the two sites so that their operations will not have a combined effect on the same settlements. Vehicles would use a different junction from the M55 and different local roads to access the Preston New Road site compared to those accessing the Roseacre Wood site.
- The different activities that would be carried out at the two sites would be synchronised so that, for example, when hydraulic fracturing is occurring at one site a different activity, such as drilling, is occurring at the other site. This would further reduce the risk of any cumulative effects from occurring.
- The rate and quantity of flowback fluid generated from both this site and Preston New Road could be managed using the mitigation measures proposed.

Some of the impacts from the Project result in effects on more than one of the EIA topics including:

- Air quality impacts on human beings and ecological receptors (nationally and internationally designated sites);
- Visual impacts on the setting of heritage sites and assets (e.g. Listed Buildings and Registered Parks and Gardens);
- Noise impacts on residential and ecological receptors; and
- Lighting impacts on residential and ecological receptors.

Due to the distance between the Sites, the dispersed nature of residential properties, topography and landscape features no in-combination effects are predicted.

The applicant concludes that the EIA process has identified the foreseeable impacts arising from the Project, and assessed whether or not they are likely to result in significant effects. Where significant effects have been predicted measures to avoid or mitigate these effects, so that where possible they are no longer significant, have been identified. Additional mitigation measures to further reduce the magnitude of potential impacts have also been identified within the assessment. As a consequence of taking these measures the applicant considers that the only residual significant effects (following the identification of mitigation measures) are the:

- Temporary visual effects from the use of the taller pieces of equipment (e.g. the drilling rig and workover rig used during hydraulic fracturing);
- Temporary sky glow and building luminance effects from night time exploration activities; and
- The short term use of the available waste treatment capacity, for flowback fluid, within 100 miles the proposed sites.

It is considered that there would be no unacceptable cumulative effects associated with the development of the Roseacre Wood site or with the proposed Preston New Road site.

## **Conclusion**

In principle the proposed development for exploration and appraisal for shale gas accords with national guidance and policy to investigate the possibility to provide an alternative energy source.

Whilst it is recognised that a number of groups and individuals oppose the continued reliance on hydrocarbons as a primary energy resource and more particularly the principle and nature of shale gas exploration and appraisal in view of the potential harm and irreversible damage and ground contamination it could potentially cause, it is considered that these concerns cannot be supported and they would not constitute a sustainable reason for refusing the proposal.

An assessment of the proposal has been carried out and it is considered that whilst the development could have some impacts on air quality; archaeology and cultural heritage; greenhouse gas emissions; community and socio-economics; ecology; hydrogeology and ground gas; induced seismicity (including subsidence); land use; landscape and visual amenity; lighting; resources and waste; water resources or public health (excluding noise); such impacts would be low or could be mitigated and controlled by condition.

However, in the location proposed, over a two year development phase, the proposal would generate localised disturbance most particularly to the nearest residential property at Old Orchard Farm and which would be mostly associated with noise as part of the drilling and fracking operations.

Noise associated with fracking would result in a significant increase over background noise levels (14.6dB) for between 30 and 40 days within four two month periods albeit for a three hour period each day.

There would also be noise associated with drilling operation on a 24/7 basis for an initial period of 5 months and then over three further three month periods that would create most noise disturbance. The applicant has advised that the predicted levels of night time noise would be reduced to the national guideline maximum limit and which they have confirmed would be the best reduction that can be achieved without onerous burdens.

However, notwithstanding that the national guideline maximum limit (averaged over one hour) may be able to be achieved this would still lead to a significant increase in noise levels according to LCC's measurements (13.3 dB at Old Orchard Farm) over and above existing background noise levels during the night; together with increases in noise during the day above background according to the applicant's measurements (14.6dB at Old Orchard Farm) as a result of fracking.

Considerable concern has been expressed to such increases by residents, parish councils, interest groups, the Borough Council and the County Council's Director of Public Health. It is considered that such increase over background levels at night for such periods over an extended period of 24 months would have a significant adverse effect on the health and quality of life and lead to an unacceptable loss of residential amenity to those residents at the nearest residential property at Old Orchard Farm and potentially other nearby properties contrary to the national guidance and development plan policies.

Notwithstanding this conclusion, it is important to recognise that the planning application must be considered on its merits and in accordance with planning law. It is also important to accept that notwithstanding the criticism directed at the regulatory processes within which developments of this nature would be carried out there are other regulatory regimes (DECC, the HSE and the EA) that the County Council as planning authority must assume would operate in ways to control the developments within their remit and that the County Council must be satisfied that they would do such. In this case DECC, the HSE and the EA have advised that the development could only be carried out within their regulatory regimes and subject to their controls would be acceptable. In this respect the County Council can assume and be satisfied that this would be the case.

A planning authority's reliance on other (non planning) regulatory bodies to provide the appropriate controls and conditions in relation to their statutory responsibilities was recently addressed in case law (December 2014) relating to a drilling site in West Sussex {R [on the application of Frack Free Balcombe Residents Association] v West Sussex County Council [2014] EWHC 4108 (Admin)}. Paragraph 102 of the judgment is particularly relevant to this issue:

*“the existence of the statutory regimes applied by the HSE, the EA and the DECC shows that there are other mechanisms for dealing with the very proper concerns which the Claimant's members have about the effects on the environment. The Claimant and its members' concerns are in truth not with the planning committee's approach of relying on the other statutory regimes, but rather with the statutory bodies whose assessments and application of standards they disagree with. That does not provide a ground of legal challenge to the decision of the planning committee.”*

In light of this judgment as well as NPPF guidance (para 122) it is not necessary or appropriate to impose planning conditions or require an applicant to enter into a S.106 legal agreement with respect to matters, such as longer term monitoring, that are clearly within, and properly, the remit of other regulatory regimes and bodies.

It is therefore concluded that the principle of exploration and appraisal for shale gas would be acceptable and that in the proposed location impacts on air quality; archaeology and cultural heritage; greenhouse gas emissions; community and socio economics; ecology; hydrogeology and ground gas; induced seismicity and subsidence; land use; landscape and visual amenity; lighting; resources and waste; water resources or public health (except for noise) would be low or could be mitigated and controlled by condition to make them acceptable.

However, it is considered that the proposed development in this location would lead to a significant increase in night time background noise levels and consequently it is likely that this would have significant adverse effects on the health and quality of life and lead to an unacceptable loss of residential amenity to those residents at Old Orchard Farm and potentially beyond. Such effects and loss would be contrary to the National Planning Policy Guidance on noise, Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan – Site Allocation and Development Management Policies – Part One (LMWLP) and Policy EP27 of the Fylde Borough Local Plan. Consequently and for this reason it is considered that on balance the proposal would be unacceptable and should be refused.

Further, the site is located in a very rural location served by a highway network of unclassified roads. Notwithstanding the proposed amendments to the TMP and the proposed amended routing to create a one way system, an assessment concludes that the increase in traffic, particularly HGV movements, would be severe, there would be a material impact on existing road users, particularly vulnerable road users and overall highway safety of which the potential is considered severe.

It is concluded that for **all** the information that has been presented to date by the applicant in support of the application that the impact of the increase in traffic, particularly HGV movements would be severe and which would result in a material impact on existing road users, particularly vulnerable road users and overall highway safety of which the potential is considered severe. Consequently it is considered that the application cannot be supported.

In these circumstances, it is considered that the development would give rise to unacceptable impacts on existing road users that would be contrary to Policy DM2 of the Lancashire Minerals and Waste Local Plan.

### **Equality Impact Assessment (Appendix 18)**

As part of the decision-making process, under the Equality Act, public bodies must have due regard to the need to eliminate unlawful discrimination, harassment, victimisation and any other conduct prohibited by the Act; advance equality of opportunity between people who share a protected characteristic and people who do not share it; and foster good relations between people who share a protected characteristic and people who do not share it.

An Equality Impact Report is required in relation to this development to show how consideration of equality issues has influenced the decision-making process. This concluded that the development would not adversely affect those with 'protected characteristics'.

An assessment has been undertaken for the purposes of judging that the county council has met its own requirements under the duty. The assessment has concluded that impact of the proposal can be mitigated so that they will not have a significant impact on groups with protected characteristics.

## **Human Rights**

The proposal raises issues relating to the protection of amenity and property under Article 1 of the 1<sup>st</sup> Protocol of the Human Rights Act 1998.

The Human Rights Act requires the County Council to take into account the rights of the public under the European Convention on Human Rights and prevents the Council from acting in a manner which is incompatible with those rights. Article 8 of the Convention provides that there shall be respect for an individual's private life and home save for that interference which is in accordance with the law and necessary in a democratic society in the interests of (inter alia) public safety and the economic wellbeing of the country. Article 1 of protocol 1 provides that an individual's peaceful enjoyment of their property shall not be interfered with save as is necessary in the public interest.

For an interference with these rights to be justifiable the interference (and the means employed) needs to be proportionate to the aims sought to be realised. The main body of this report identifies the extent to which there is any identifiable interference with these rights. The planning considerations identified are also relevant in deciding whether any interference is proportionate. Case law indicates that certain development does interfere with an individual's rights under Human Rights legislation. This application has been considered in the light of statute and case law and the interference would be considered to be disproportionate if the proposal was to proceed because of certain impacts.

The County Council has a duty to secure the proposed location and design of exploration and appraisal activities to protect the amenities of residents in the area as set out in the policies of the development plan. The proposal would conflict with certain policies of the development plan designed to achieve these aims and the interference in the rights of the applicant is therefore considered to be justified in order to protect the amenities of the residents to the nearest residential properties. It is considered that the public interest can only be safeguarded by the refusal of permission and that the refusal of the application would not be disproportionate in that the proposed increase in night time background noise levels would have significant adverse effects on the health and quality of life and lead to an unacceptable loss of residential amenity to those residents at the nearest residential property at Old Orchard Farm and the increase in traffic, particularly HGV movements, would result in an unacceptable impact on existing road users, particularly vulnerable road users and a reduction in overall highway that would be severe.

Article 6 is the determination of an individual's civil rights and obligations. Article 6 provides that in the determination of these rights, an individual is entitled to a fair and public hearing within a reasonable time by an independent and impartial tribunal.

Article 6 has been subject to a great deal of case law. It has been decided that for planning matters the decision making process as a whole, which includes the right of review by the High Court, complied with Article 6.

### **Recommendation**

That after first taking into consideration the environmental information and further information, as defined in the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 submitted in connection with the application, planning permission be refused for the following reasons:

1. 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.
2. The proposed development would be contrary to Policy DM2 of the Joint Lancashire Minerals and Waste Local Plan – Site Allocation and Development Management Policies in that it would generate an increase in traffic, particularly HGV movements, that would result in an unacceptable impact on the rural highway network and on existing road users, particularly vulnerable road users and a reduction in overall highway safety that would be severe.

### **Local Government (Access to Information) Act 1985**

#### **List of Background Papers**

<b>Paper</b>	<b>Date</b>	<b>Contact/Directorate/Ext</b>
LCC/2014/0101	16/06/2014	Stuart Perigo/Environment/531948
LCC/2014/0102	16/06/2014	
LCC/2014/0096	02/06/2014	
LCC/2014/0097	02/06/2014	

#### **Reason for Inclusion in Part II, if appropriate**

N/A