

# The Fylde Explorer

## New exploration locations identified

We have taken a step forward in our efforts to unlock a new source of natural gas in Lancashire. We have announced the locations for two new potential exploration sites in the Fylde. The sites are located in the parishes of Treales, Roseacre and Wharles, and Westby-with-Plumpton. We intend to apply for planning permission to drill, hydraulically fracture and test the flow of gas from four wells on each of the two sites. Applications will also be made for two seismic arrays that will

be used to monitor the hydraulic fracturing process.

Cuadrilla's chief executive Francis Egan said: "We've been working hard to assess all our site options and have undertaken extensive technical and geological analysis. We believe that these new sites show real potential in terms of gathering the information we need to determine how much of the gas could be recovered.

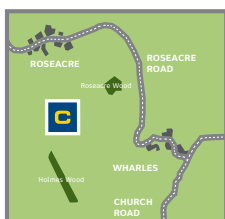
"As part of this work we have decided to focus our exploration efforts on just two sites at this time, which will allow us to reduce the impact while still gathering the important data that could unlock not only a new source of gas for our homes and businesses, but also significant investment and opportunities for local people and the economy."

A scoping report outlining our proposed approach to environmental assessments for each new site will shortly be submitted to Lancashire County Council.



●●●●● Geophysical Survey area

### Inside this issue:



**Pages 2**  
Our proposed new sites



**Pages 3**  
Views of the sites



**Page 4**  
Public information sessions



**Page 7**  
Protecting water



**Page 8**  
News

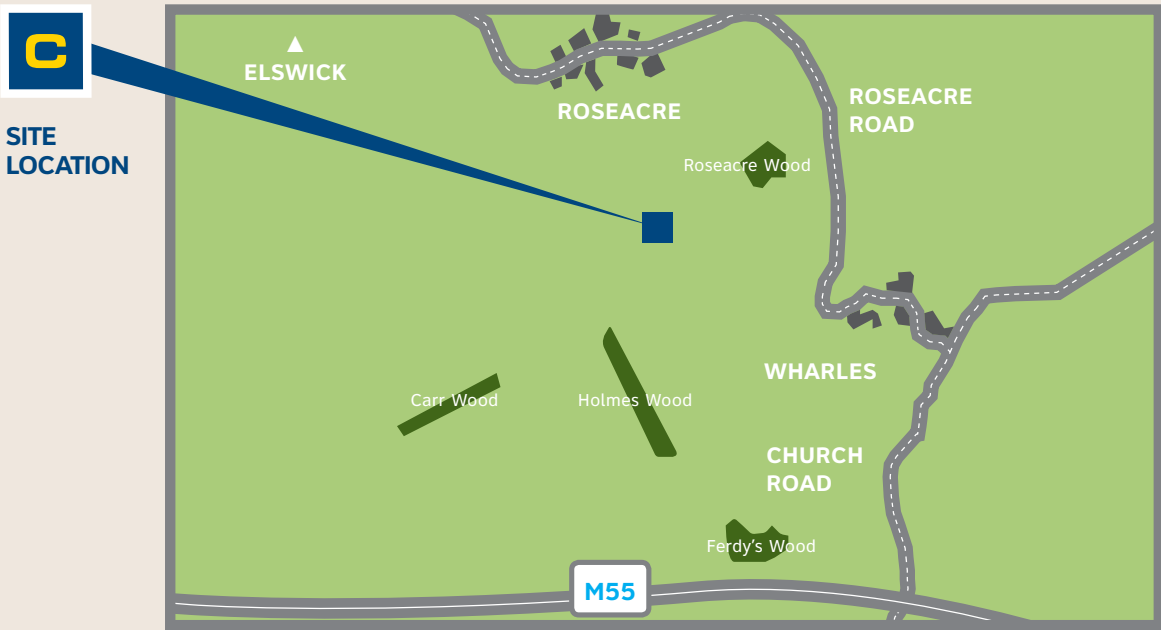
# Our proposed new sites

We have used a detailed site selection process to identify the new sites and have looked at a number of factors including the local environment, geology and distances from residential properties.

Both sites are located within the 100km² area where we carried out a detailed three-dimensional survey of the subsurface geology in 2012.

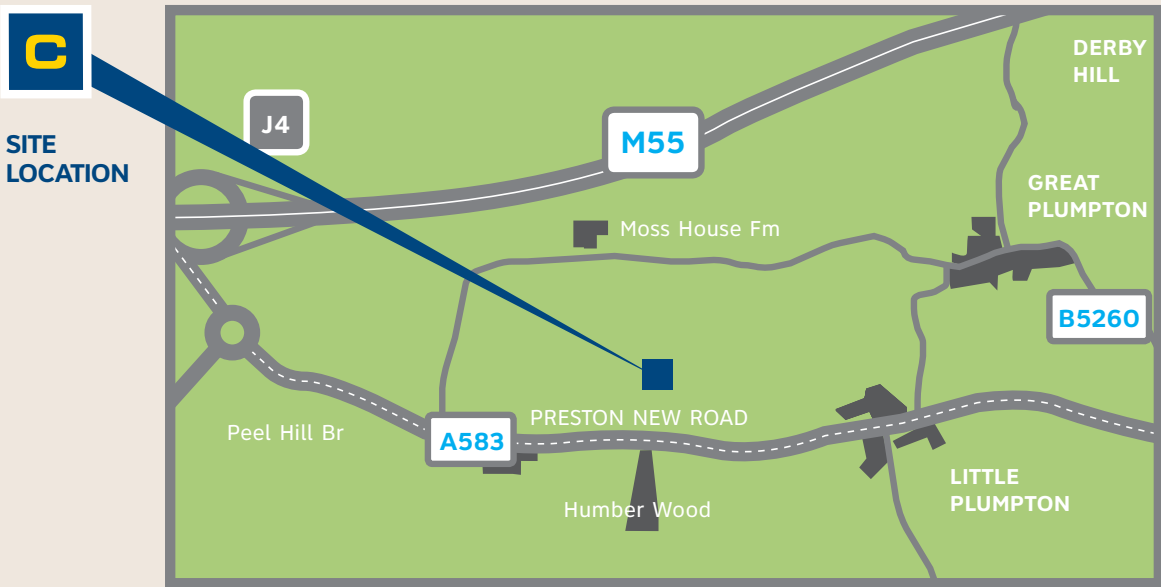
## Roseacre Wood

The proposed site near Roseacre Wood is located within the parish of Treales, Roseacre and Wharles, to the south of the village of Roseacre.



## Preston New Road

The proposed site at Preston New Road is located within the parish of Westby-with-Plumpton, near the A583, Preston New Road.



# Meet the explorers

Our team have played leading roles in the drilling and fracturing of many gas and oil wells around the world. In this issue, Cuadrilla's Engineering Manager, Chris Hird, explains a little more about the work that went into identifying the new sites:



"In 2012 we carried out a geophysical survey of a 100km² area of the Fylde, which gave us a detailed 3D picture of the layers of rock beneath the surface.

"The process can be likened to a submarine's use of sonar to generate an image of what it cannot otherwise see, and is an incredibly valuable tool in terms of determining the best places for us to drill.

"Once we had this data for underground, we were able to narrow down our areas of search into more specific areas above ground. At this stage, our team of technical experts started their assessments and walk-over studies to collect information on a range of topics from roads and vehicle access to local environmental constraints such as wildlife and visual impact.

"The next step for the team is to talk to local people about our proposals so there will be a number of opportunities for residents and community representatives to meet with us and find out more."

## Views of the sites

One of the most common questions we're asked is what an exploration site would look like so we've created some computer generated images (CGI) of the new sites to give you a better feel for what to expect.

Although it would only be on site for a matter of a few months, the drilling rig would be the tallest piece of equipment on site. The CGIs have therefore been produced to show the site from a number of local viewpoints, both with and without the rig in place. To explore these images in more detail, please take a look at our website.



CGI image of a rig at Roseacre Wood



CGI image of a rig at Preston New Road

**FACT:** The first well to be drilled would be a vertical well that could be over two miles deep (3,500m) - equivalent to 22 Blackpool Towers standing on top of one another.

### How big are these sites going to be?

At just over two hectares, our proposed exploration sites are each about the size of two football pitches. The sites will be carefully screened to minimise the visual impact.

### Will these sites be taken forward into production?

It's still very early days so we're concentrating our efforts on these sites as temporary installations at this time. It will only be after all our exploration activities have been undertaken that we will be able to confirm whether a site is suitable to move to the next stage of production. We would need to apply for further planning permission before going into production.

### Will there be lots of traffic on our roads?

Traffic movements will be assessed in detail as part of the Transport Assessment and Environmental Impact Assessment work which will be prepared on a site by site basis. We will undertake baseline surveys to quantify the current traffic flows, this will allow any potential areas of concern to be identified, assessed and mitigated as appropriate. All assessments will be carried out in accordance with local and national guidance and in consultation with Lancashire County Council, the local highway authority.

### What is happening at your other sites?

We will not be taking forward our Anna's Road and Preese Hall sites and will be restoring the sites to their former use in the coming months. We intend to retain the Grange Hill site for potential seismic monitoring purposes and expect to restore the Becconsall site following a programme of testing next year.

# Public information events

Late last year we held two public information days to update local residents on the planning process, Environmental Impact Assessment (EIA) and other technical work we are undertaking in the Fylde. We talked with local residents in Elswick and Westby about our previous work and our future plans.

The events were attended by the public, local councillors and representatives from the Environment Agency and the Office of Unconventional Gas and Oil (OUGO), alongside technical experts from both Cuadrilla and Arup.

Des Correia, one of Arup’s directors, said: “We were pleased to see a good turnout from local residents and community representatives who raised a variety of questions around well design, water, transport, geology and the wider environment. Each of these topics will be addressed as part of our EIA work so we’re now in the process of

analysing all of the issues that were raised to inform the approach we’ll be taking to the design and technical work for each of the proposed sites.”

We are fully committed to further engagement on our proposals so that you are kept up-to-date on all of our work. Our next events will be drop-in sessions where you can find out more about the locations that we have identified and how you can be involved in the work to be undertaken in preparing planning applications for the sites.



## Using your feedback

We’ve started to analyse the feedback from the information sessions, going through the forms that people submitted and considering all points raised. Arup will submit a scoping report to Lancashire County Council that explains exactly how environmental concerns will be assessed. The table below gives examples of where questions would be addressed in the Environmental Statement (ES) submitted with the planning application.

Question	ES chapter
How many vehicles will we see?	Traffic and transportation
What will be in your fracturing fluid?	Hydrogeology and ground conditions
Will wildlife be affected?	Ecology; Hydrogeology and ground conditions
What happens if there's a drought?	Water resources and flood risk

# The planning process explained

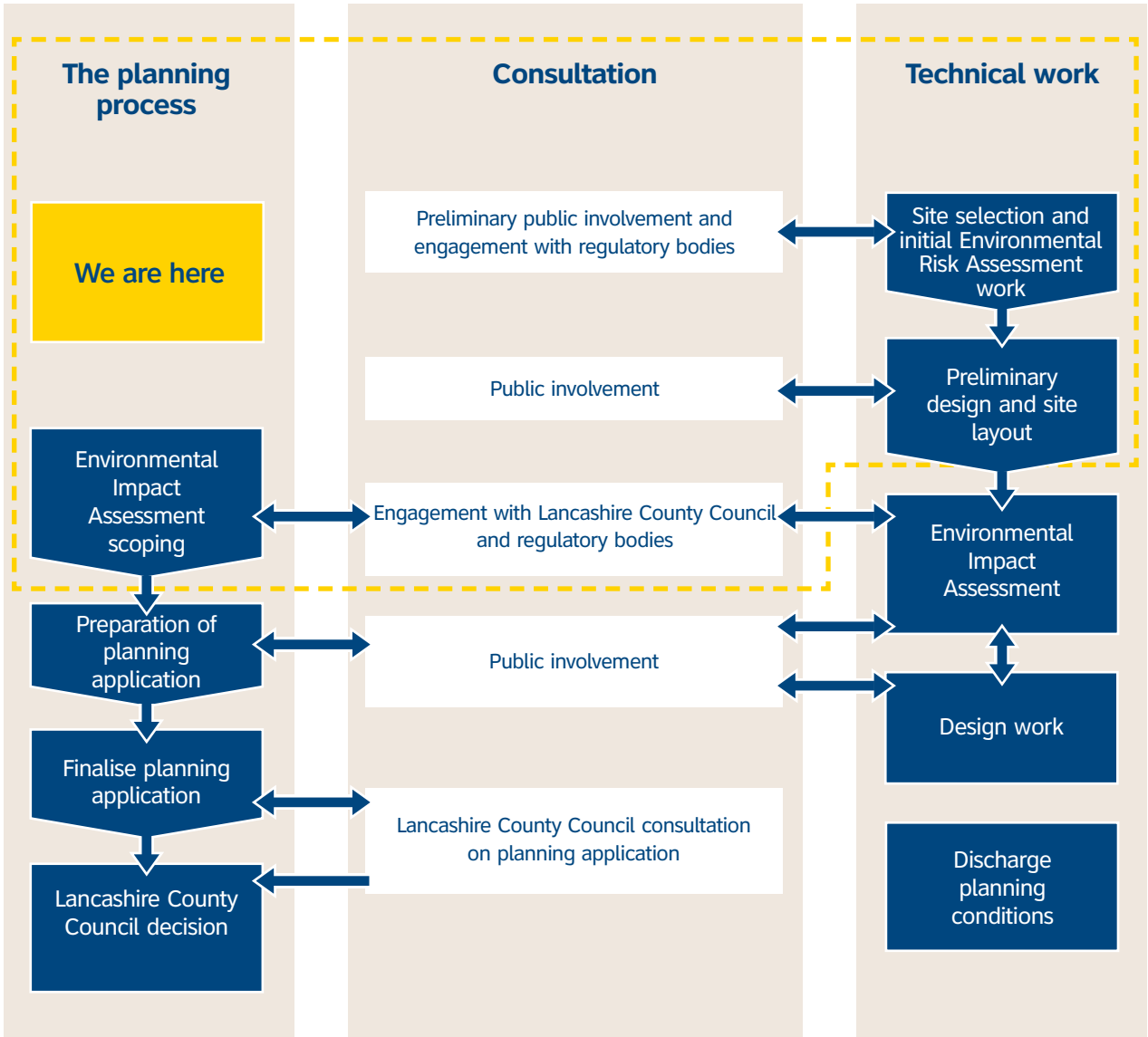
The preparation of a planning application accompanied by an Environmental Statement includes many opportunities to involve the public, the decision maker (Lancashire County Council), and regulatory bodies, such as the Environment Agency.

A planning application for the exploration of shale gas will be based on extensive and detailed technical work, including an Environmental Impact Assessment (EIA). This work is undertaken by independent specialists with an environmental background, geologists and engineers.

We believe that it is important to share the findings from our work at key stages in the planning process, to get your feedback and to find

ways to incorporate any suggestions on how to improve the design of our sites and incorporate mitigation measures. The diagram below shows the stages where you can be involved in this process.

In addition to the planning permission there are a number of other permits and regulatory approvals which are required for our operations. This includes meeting a number of regulatory requirements set by the Department of Energy and Climate Change (DECC), the Environment Agency (EA) and the Health and Safety Executive (HSE) before exploration or production operations commence. These bodies have powers to impose conditions, halt operations, or require amendments if they are not satisfied with our proposals or operations.





# Cuadrilla in the community

## Young Engineers 2014 Millfield School visit

In November, Cuadrilla's Chief Executive, Francis Egan, paid a visit to last year's Young Engineers' competition winners, Millfield Science and Performing Arts school. The competition has a £10,000 top prize and focuses on science, technology, engineering and maths (STEM) skills.



Francis visits Millfield School

The school has spent some of the prize money on a range of equipment including a glass fusion printer, a weather station and an underwater camera.

Francis said: "It was fantastic to see how Millfield have used the prize money from last year, and positive to see that the students had taken an active interest in developing their STEM skills and their own Science Club. We hope to build on the success of the Young Engineers' competition again this year."

For further information about the Young Engineers' competition, proudly sponsored by Cuadrilla and Centrica Energy, and to find out how to get involved, please get in touch.

## Fylde Rugby Club

An afternoon of top-class sports action was enjoyed by our team as we proudly sponsored the Fylde Rugby Club National League Division One match against Richmond on 30<sup>th</sup> November.

The exciting game was won by Fylde, 36-24. Matt Lambert, Cuadrilla's Director of Government and Public Affairs, presented Fylde's hat-trick try scorer Oli Brennand with the man of the match award.



Cuadrilla at the Fylde rugby game

## Community benefit

We're delighted to confirm that we will be running a new pilot for community benefits at our new exploration site. The pilot will be independently run by the Community Foundation for Lancashire, which is part of the network of UK Community Foundations, a leading independent charity that brings together regional foundations dedicated to strengthening local communities, creating opportunities and tackling issues of disadvantage and exclusion.

The pilot is part of the scheme announced by the industry's representative body, the United Kingdom Onshore Operators Group,

working in partnership with the UK Community Foundations.

Each site where we hydraulically fracture will have £100,000 made available per well head for the benefit of the local community. The Community Foundation for Lancashire will be responsible for coordinating a consultation into how local residents and community groups would like to see that funding distributed for public benefit and will administer the scheme to ensure a transparent process that delivers benefit to the community.

# Protecting water

Last year, we worked with independent researchers at BritainThinks to understand more about how people feel about gas exploration in Lancashire. One of the issues that was raised as being of greatest concern was the question of how we would protect water supplies.

Cuadrilla's Health, Safety and Environment Director, Leon Jennings, explains: "We're committed to managing potential environmental impacts at every stage of our operations and will be working hard to ensure that we conserve water resources and protect the subsurface groundwater.

"We have two clear priorities. The first is to protect the land and water around our sites at the surface level. To do this we place an impermeable membrane across the entire well site, which prevents any spills at surface from leaching into the ground. The membrane holds all site surface water, including rainfall. The water during operations runs into a pre-prepared channel that is fully contained prior to testing and disposal.



Site drainage trench and impermeable membrane



Well design with multiple layers of steel and cement

"The next priority is related to our activities below the ground, namely the drilling and hydraulic fracturing processes.

"The key here is how we design the wells. We follow industry best-practice on our well design, which includes multiple layers of steel and cement that are specifically engineered to protect groundwater from any fluids and gas as they flow through the well. The closer the well is to the surface where there is the potential for an aquifer to be, the more layers of casing you will find.

"It's also important to know that the mixture we would use in the hydraulic fracturing process has been assessed as non-hazardous to groundwater by our regulator, the Environment Agency (EA), and would be published by both parties as and when the time comes."

In addition to the EA, our operations are regulated by the Department of Energy and Climate Change (DECC), the Health and Safety Executive (HSE) and Lancashire County Council. The EA and HSE will make site visits during all stages of operations on both an announced and unannounced basis.

**FACT:** Our wells will have at least three layers of steel casing at depths where the aquifer is found. These casings are cement-sealed and extend hundreds of feet below the aquifer.

## News

### Independent poll shows support

Polling in December, by the BBC for the North West shows that significantly more people support local shale gas operations than oppose them. This research reinforces the conclusions of the opinion research we have commissioned on the Fylde Coast and West Lancashire where we are operating. We are pleased to see evidence of so much support, but will continue to answer any questions people have as we seek to unlock Lancashire's energy potential.

### Working with the water industry

In November, Water UK, the body that represents the water industry, and the United Kingdom Onshore Operators Group (UKOOG), the representative body for the onshore oil and gas industry, announced they will be working together to minimise the impact of shale gas development on water resources in the UK. The bodies signed a Memorandum of Understanding which will ensure members, including Cuadrilla, will work towards this goal.

### Community Liaison Groups

**We're looking for representatives to sit on our new Community Liaison Groups, which will be established to provide a forum for local residents, community groups and elected representatives to meet with our team on a regular basis.**

One liaison group will be set up for each of the proposed new exploration sites to provide a link between Cuadrilla's project team and the local community, and allow members to raise issues with us and obtain feedback as our proposals progress. If you would like to put yourself forward for your local group or nominate someone, please send us an email and mark it 'Community Liaison'.

Please note that applications will only be accepted from residents living within the parishes of Elswick, Treales, Roseacre and Wharles and Westby-with-Plumpton.

### Councils to keep all business rates

**The Government has announced that local authorities will receive all the business rates collected from shale gas schemes.**

We welcome the announcement on business rates which will allow local areas to retain more of the tax revenue which could be generated by the industry under a potential production stage. Shale gas has the potential to make a major contribution to the UK's tax revenues, as well as create tens of thousands of jobs and reduce our need for expensive imported gas. In the UK, we're still in the early stages and have some way to go before production is underway.

In the short-term, the industry needs to drill some exploratory wells, so we understand more clearly how much shale gas can be extracted.

### Your opportunity to contribute

We've been working hard to identify sites that we think are most suitable for exploration at this stage but we know there's no one better than local residents in terms of knowing the local area.

With this in mind, we've created online Community Maps, which have been designed to give local residents the chance to contribute any thoughts about the sites and make suggestions about possible areas for improvement. All residents living within the 3D seismic area will have received a PIN, which can be used to log into the system. From here, residents can categorise comments and pin them to the location on the maps.

If you do not have a PIN or are unable to get online, you can contact one of our dedicated community advisors on our Freephone information line 0800 170 1115, weekdays from 9.00am to 5.30pm, for more information and to leave your feedback.

If you have any problems with using the maps please contact [communitymap@arup.com](mailto:communitymap@arup.com)

### Stay in touch

Cuadrilla Resources  
Cuadrilla House  
Stowe Court  
Stowe Street  
Lichfield  
Staffordshire  
WS13 6AQ

Freephone Community information line  
Monday – Friday, 9am – 5.30pm

**0800 170 1115**

Email: [enquiries@cuadrillaresources.com](mailto:enquiries@cuadrillaresources.com)  
[www.cuadrillaresources.com](http://www.cuadrillaresources.com)

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