

**DON'T FRACK  
WITH OUR  
FUTURE**



For more information visit our website:  
[www.frackfreeryedale.org](http://www.frackfreeryedale.org)

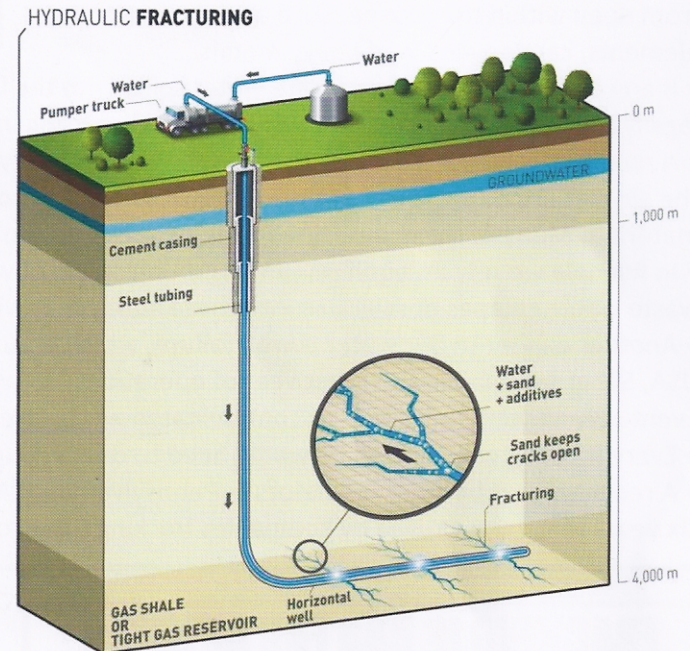
# HOW WOULD FRACKING AFFECT YOUR LAND?

Over the next few months, farmers and landowners in Ryedale might be approached by representatives of energy companies, such as Third Energy or Moorland Energy, asking for permission to come onto your land and establish fracking well-sites. On the face of it, this might appear to be an extremely attractive financial proposition, as energy companies are offering sizeable amounts of money to access private land so they can drill down to the Bowland shale rock that lies below Ryedale's beautiful and fertile fields.

**But don't be fooled – once you allow them access to your land, life will never be the same again.**

## WHAT IS FRACKING?

- Fracking is short for 'hydraulic fracturing', which is a drilling process designed to release gas or oil from layers of rock that lie thousands of feet underground.
- In Yorkshire and Lancashire, fracking companies are very interested in a layer gas-bearing rock called Bowland Shale, which lies about 9,000 ft below the surface.
- Firstly, a well is drilled vertically to the desired depth, then turns ninety degrees and continues horizontally for up to two miles into the shale rock, which contains the trapped methane gas.
- A mixture of water, sand, and a cocktail of toxic chemicals is then pumped into the well at very high pressure in order to create cracks in the shale, allowing the gas to escape.
- The gas is then drawn back up the well to the surface, where it is processed and shipped to market.
- Large quantities of contaminated waste water also return to the surface after fracking is completed.



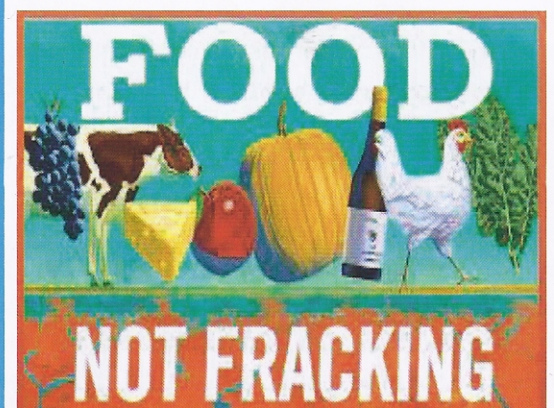
## HOW WOULD FRACKING AFFECT YOU?

- **Your most important asset – your land – could be at risk of permanent damage from chemical or saline spills.** If contamination should take place, your land will be worthless, and so will all the food that you work so hard to produce.
- **You and your family may be subjected to fumes and dust that could affect your health.** Toxic substances released from gas wells can affect the endocrine, respiratory, immune and nervous systems. Many of these are carcinogenic and can also affect your livestock.
- **You will have to put up with constant noise and light pollution.** Fracking wells work 24/7 and are flood-lit at night, while more than 1,000 truck movements are needed to service a single well.
- **Your water supply would be at risk of contamination.** Many fracking wells fail over time, leaking contaminated water into the aquifers – layers of underground water-bearing rock – that provide clean water for your family, livestock and crops (see over).
- **Your crops may fail due to air and soil pollution.** Fracking creates increased ozone levels in the air, stunting crop growth (see over).
- **The health of your animals might be at risk.** There is growing evidence of links between fracking and animal diseases (see over).
- **It may be hard to sell your produce.** Customers may be reluctant to buy your food if they know that it comes from a fracking area.
- **The value of your property may fall.** Property prices in other parts of the UK where fracking is planned have fallen by up to 70%.
- **You may not get compensation if something goes wrong.** The Country Landowners Association (CLA) says that "there seems to be little protection for landowners should problems occur."

## YOUR LAND IS YOUR LIVELIHOOD

If you do allow fracking on your land, your family's lifestyle will be adversely affected for decades. The experience of the majority of landowners who have dealt with shale gas companies has been overwhelmingly negative, and greatly outweighs any one-off financial payments that they received.

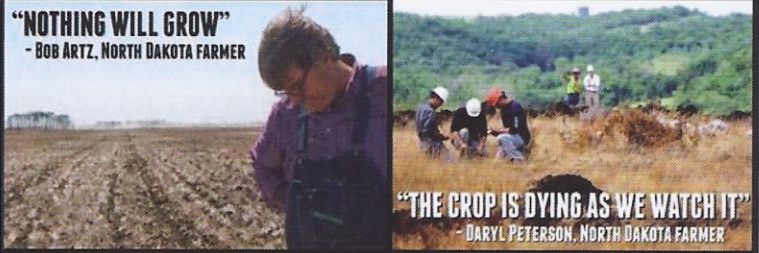
Visit [www.frackfreeryedale.org](http://www.frackfreeryedale.org) for first-hand accounts of the impacts of fracking from farmers and landowners in other countries, as well as key news reports about the effect of fracking on farming communities from around the world.



## FRACKING IS BAD FOR WATER

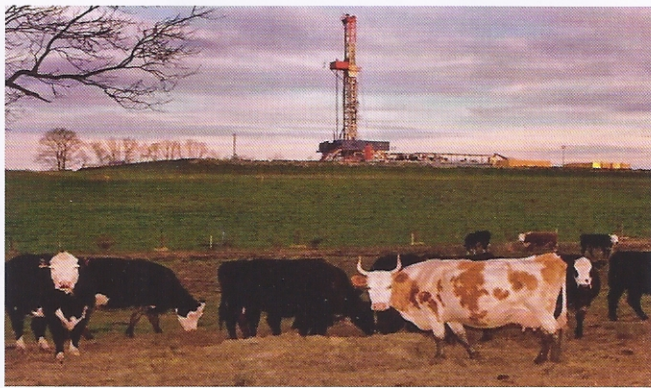
- Each fracking well requires between **two and five million gallons** of locally sourced fresh water.
- Fracking wells also produce **millions of gallons of waste water**, which needs to be disposed of.
- The waste water is either quarantined in enormous man-made **storage ponds** adjacent to each well site or re-injected back into underground layers of rock.
- This water is contaminated by **toxic chemicals** used in the fracking process and **additional contaminants** from deep within the ground, such as radioactive elements, carcinogens and heavy metals.
- If any of this contaminated waste water spills onto the land, it will become **infertile**. Fracking companies are not legally obliged to reveal which chemicals they are using in the fracking process.
- A recent **official US report** on the fracking industry (July 2014) identified at least **59 chemicals** in the waste water or the air that are **dangerous to human health or the environment**, including arsenic, benzene, lead and radioactive materials. Many of these are known **carcinogens** and can affect your **livestock** too.
- In Ryedale we rely on **aquifers** (underground layers of water-bearing rock) for our **clean drinking water**. If any of the waste water escapes or migrates into these aquifers, it will **contaminate the local water supply**.
- Another danger to our water is **well failure**, which occurs when the concrete well-casing cracks or ruptures. In the USA, 5% of wells fail in their first year of operation, 25% will leak within five years, and 50% leak within fifteen years. Eventually all wells fail, allowing contaminated water to escape into the water supply.
- Every fracking well in Ryedale would need to drill through an aquifer before it reaches the Bowland Shale.
- A recent report by state regulators in Pennsylvania, USA, listed **243** cases of contaminated drinking water in the last **six years** that were caused by companies fracking for oil or gas. Do we want the same thing to happen here?

## FARMING IN A FRACKING GAS-FIELD



## AGING WELLS, LEAKING TANKS, LEAKING PIPES & SURFACE SPILLS

## FRACKING IS BAD FOR ANIMALS



Professor Robert Oswald, an expert on molecular medicine at Cornell University and the co-author of the first study into links between fracking and sickness in farm animals, said that his findings of deaths and deformities in American livestock are **so alarming that Britain should halt growth of the practice while further research is conducted**. He compiled a list of 24 incidents across six US states where livestock on farms adjacent to drilling sites died or suffered illness, including reproductive and neurological problems, following exposure to fracking chemicals.

**In his opinion, fracking for gas and oil in the British countryside poses such a significant risk to livestock that a moratorium should be imposed on the industry until its impact on food safety can be assessed.** (Independent on Sunday 17/09/13)

## FRACKING IS BAD FOR CROPS

As well as the danger from waste water spills and leaks, the emissions from drilling pads, truck traffic, compressors and other equipment related to the drilling process can give rise to "gas field haze", which contains very high levels of ozone. This results in weaker, stunted plants, inferior crop quality and **greatly decreased yields of up to 30%**.

The **National Farmers' Union (NFU)** are concerned that "the DECC has not identified the need for monitoring of the impact on agriculture, and long-term responsibilities (for compensation, restoration and aftercare of sites) may be reassigned, **possibly defaulting to the landowner.**"

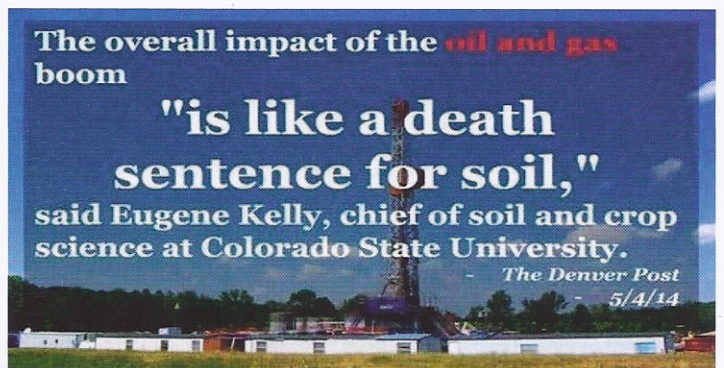
The **CLA** say that the recent consultation on fracking was "**focused solely on the needs of the shale industry** and fails to provide a balanced approach to the provision of access. It is **appalling** that these fundamental issues are seemingly not being addressed."

The overall impact of the **oil and gas boom**

**"is like a death sentence for soil,"**

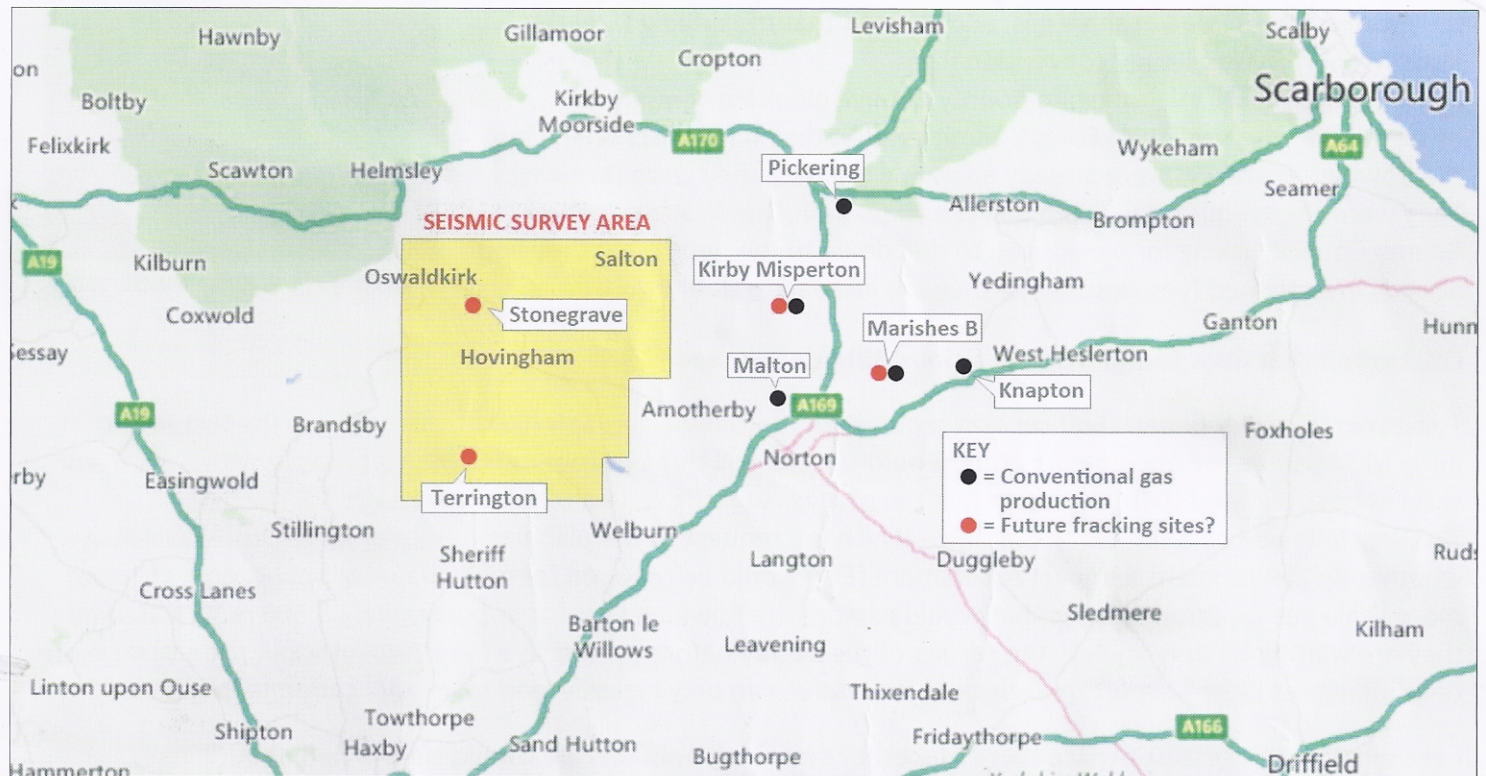
said Eugene Kelly, chief of soil and crop science at Colorado State University.

The Denver Post  
5/4/14



# GAS EXPLORATION IN RYEDALE – FRACKING BY STEALTH?

**Conventional gas** has been produced in Ryedale about 20 years, and there are currently well-sites at Pickering, Kirby Misperton, Malton and Marishes. The gas that is produced at these wells is then transported to Knapton Generating Station via underground pipelines. However, gas production in North Yorkshire may be about to change forever. If **fracking** comes to Ryedale, life in this beautiful part of the world will never be the same again.



## So what evidence do you have that fracking is coming to Ryedale?

A **3D seismic survey** was carried out in Ryedale last summer by a company called **TESLA**, who were conducting the survey on behalf of a company called **Third Energy**. The survey began at the beginning of June and lasted about two months. The survey was carried out in the countryside around the villages of **Stonegrave, Terrington, Brawby, Nunnington, Swinton, Hovingham, Slingsby and Coulton**, and included a large proportion of the Castle Howard Estate. The seismic survey area is shown in **yellow** on the map above.

The aim of the survey was to map the underlying rock strata in detail. It has already been established that Ryedale sits upon a large band of **Bowland shale**, which stretches all the way across the north of England. According to TESLA's covering letter in the application, the survey was "aimed at defining the deep geological structural configuration" of the area, which would include the shale rock that lies about 3,500m below the surface. The gas reserves trapped in the Bowland shale can only be exploited by **fracking**.

## Third Energy say that they're only looking for conventional gas in Ryedale. Aren't you being a bit alarmist?

We accept that Third Energy are also interested in producing more conventional gas in Ryedale, and we expect them to continue doing so. However, Third Energy have a **government licence** to search for shale gas and we would be very surprised if they are not interested in fracking as well.

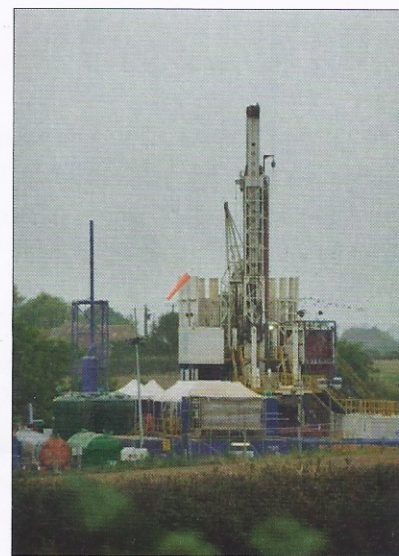
Third Energy are financed by **Barclays Natural Resource Investments**, which is part of **Barclays Bank**. Interestingly, Third Energy's chief financial officer, David Robottom, is also chairman of the **UK Onshore Operators Group (UKOOG)**, a representative body for the UK onshore oil and gas industry that actively promotes fracking and other related unconventional gas technologies.

However, what really makes us doubt Third Energy's claims that they are not interested in fracking shale gas under Ryedale is what's been going on at their conventional gas well-site at **Kirby Misperton**.



## OK, so what's been happening at Kirby Misperton?

A **planning application** was submitted in October 2012 to drill two new wells adjacent to their existing conventional site at Kirby Misperton. However, while the first well (which was drilled earlier this year) targeted conventional gas at a depth of about 4,000 ft, the second well – referred to as **Kirby Misperton Deep** – drilled down much deeper than originally specified on the original planning application. When asked about this, Third Energy said that they weren't interested in shale gas, and claimed that the drilling target at Kirby Misperton was simply conventional gas. However, when a North Yorkshire County Council **planning compliance officer** visited the site, Third Energy admitted that they had in fact drilled into the Bowland shale and were already analysing the data they were receiving. They were then required to submit a **revised planning application** to the County Council, asking for permission to drill down to the depth that they had already investigated (yes, apparently they are allowed to do that).



Drilling rig at Kirby Misperton

## OK, I admit that does sound a bit suspicious. What happened next?

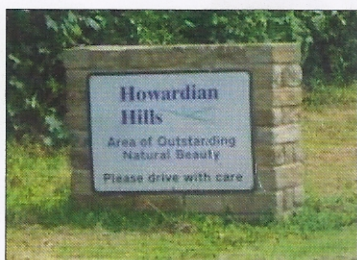
Third Energy's chief financial officer was reported in the **Daily Telegraph** (30/11/2013) that if the test results at Kirby Misperton were encouraging, they would seek to drill three or four more **shale gas exploratory wells** "as soon as possible" and that fracking to test the gas flows was "one of a number of options".

This was followed by a **screening opinion** – which is a request to the planning authority aimed at establishing whether an Environmental Impact Assessment (EIA) would be required for a full planning application – for two more shale gas exploratory wells that would explore the Bowland shale at approximately 3,500 m. We assume they are waiting till they analyse the results of the survey before putting in a full planning application to do more **test drillings** at Kirby Misperton – which, if successful, can only logically lead to an application to begin **fracking**.

## I see what you're getting at. Are there any other screening opinions we should be worried about?

Yes, indeed there are. There's one for **Marishes B**, where conventional gas is currently produced. This screening opinion is proposing to drill two more boreholes to extract more conventional gas at a depth of 1,400-1,700m. However, the application also goes on to say that "Drilling will also target the deeper tight carboniferous and **Bowland shale** at approximately **3500m** for exploratory purposes. Production will be subject to a separate application if exploratory drilling provides **positive results**." By 'production' they can only mean fracking.

## Hmm, I see why you call it 'fracking by stealth'. How many more of these do you know of?



We also know that screening opinions were submitted last year for exploration boreholes near **Stonegrave** and **Terrington**, both within the **Howardian Hills** Area of Outstanding Natural Beauty (AONB). Both of these applications would be for two boreholes. In the documentation for both applications, the depth of the first well is stated (5,199ft in Stonegrave, 2,000m in Terrington), which is consistent with drilling for conventional gas deposits. However, the depth of the second borehole is not stated and is "**still under review**".

## But aren't National Parks and AONBs protected from fracking by law?

No, they aren't. Although the Government announced on 28<sup>th</sup> July that fracking will only be allowed in National Parks and Areas of Outstanding Natural Beauty in "**exceptional circumstances**", they have yet to define what these circumstances might be.

The announcement also stated that fracking would still be allowed in these areas if they were deemed to be "**in the national interest**" – again with no clarification on how this would be defined. Given that the Government's view is that all fracking in the UK is in the national interest, this feels like no protection at all. What is clear, therefore, is that fracking *can* still take place in these 'protected' areas. **You have been warned ...**



# EBBERSTON MOOR SOUTH PLANNING APPLICATION – HOW TO OBJECT

## What's the planning application about?

Third Energy UK Gas Limited and Moorland Energy Ltd have applied for:

- natural gas production and water re-injection at the existing borehole at Ebberston Moor South
- the construction and drilling of a second borehole for water production and re-injection
- the construction of a 13.9 km long underground pipeline to the Knapton Generating Station
- installation of a new gas reception module at the Generating Station

## Is this an application to start fracking?

No, it isn't. The companies say in their covering letter that "the proposed development does not involve drilling into shales", and we acknowledge that they are not currently asking for permission to frack. The application is for conventional gas production, and they are planning to extract 571 million m<sup>3</sup> of gas over a 25-year period. This gas would be extracted from a layer of rock known as the Kirkham Abbey Formation (or KAF), which is where most of the conventional gas in Ryedale comes from.

## So if this is conventional gas production, why should we be worried?

The main cause for concern is the re-injection wells. Third Energy are asking for permission to drill a new borehole to re-inject the waste – or produced – water, which comes up with the liquid gas, back in to the layer of rock that lies above the KAF, called the Sherwood Sandstone Aquifer. The company wants to re-inject up to 10.4 million cubic metres of radioactive water back into the Sherwood Sandstone layer over a 15-year period, or 1,900 m<sup>3</sup> a day. This is equivalent to 4,160 Olympic-sized swimming pools.

## OK, that doesn't sound good. What else are you worried about?

Well, it's a National Park, for a start. Shouldn't they be protected from development? There are also concerns about the effect on wildlife, particularly during the 3-month drilling phase, where the drills will be going 24/7. The site is very near Dalby Forest and next to the Moors to Sea Cycle Network. There are also concerns about the pipeline damaging the archaeological heritage of the area.

## So how can I object to this?

Please write two letters, one to the North York Moors National Park Authority and one to the North Yorkshire County Council. (The application has been registered with both authorities as the work would occur in both areas of jurisdiction). Here are the addresses:

Director of Planning  
Planning Department  
North York Moors National Park Authority  
The Old Vicarage  
Bondgate  
Helmsley YO62 5BP  
Reference: **NYM/2014/0587/EIA**

Chief Planning Officer  
Planning Services  
North Yorkshire County Council  
County Hall  
Northallerton  
DL7 8AH  
Reference: **NY/2014/0275/ENV**

Please quote the Planning Application reference number in **red** in your letter.

The closing date for objections is **24<sup>th</sup> October 2014**.

For ideas of what you can say in your objection, please **turn over**.

You can also go to our website and download customisable letters, which you can then print out and post.  
[www.frackfreeryedale.org/ebberston-moor-south-how-to-object](http://www.frackfreeryedale.org/ebberston-moor-south-how-to-object)

## What you can say in your objection

Please begin your letter with a short paragraph saying that you would like to object to Third Energy's application in the North York Moors National Park. If you are writing as an individual, please don't say that you're responding on behalf of Frack Free Ryedale, as we will be putting in our own objection separately. If you are responding on behalf of an organisation (Parish Council, local business, etc.) then please state this in the first paragraph too. You can also mention that you are a frequent visitor of the North York Moors National Park.

In the main body of your objection, please make some of the following points:

- the proposed re-injection wells pass through aquifers that supply local drinking water. If and when the well casings fail, radioactive waste water could pass into the water supply.
- Ebberston South is located within various protection zones of the Corallian Limestone aquifer, and Yorkshire Water have already stated that the re-injection wells might 'directly affect their asset'.
- There is no proposed treatment process for the waste water before it is re-injected into the ground, which again does not constitute the best available environmental option.
- Studies in the USA indicate that waste water re-injection is a major cause of seismic activity, and is thought to be responsible for an exponential increase of earthquakes in Oklahoma.
- The National Park should not be used as a testing ground for potentially dangerous new procedures if there is any chance these might cause water pollution or earthquakes in the area.
- Third Energy cannot be 100% certain that waste water won't travel into nearby aquifers over time, particularly after such a huge amount of water has been injected into the Sherwood Sandstone.
- The company's argument that 'the natural geology controls risk' is unproven. Third Energy's consultants, Barton Willimore, state that 'drilling in the Ebberston area is more difficult than in many other areas due to faulting and associated extensively fractured rocks'.
- The company argues that the re-injected waste water can't migrate laterally due to 'significant geological faulting', while at the same time claiming that re-injected waste water can't migrate upwards due to a layer of impermeable rock. These two positions are clearly contradictory.
- The Environment Agency have failed to conduct any independent analysis of the geology or water composition in the area, and are simply relying on data presented to them by the applicant.
- Waste water re-injection into an existing aquifer is untested on the UK mainland. Given the untested nature of this technology, the precautionary principle should be applied and no waste water re-injection wells should be allowed in a National Park.
- Allowing a re-injection well in such a sensitive area could set a precedent for further re-injection wells in the park, which may be used to dispose of toxic waste water from fracking in the future.

## You can also include some of these points about other aspects of the application

- The drilling of the proposed wells will continue for 24 hours a day, 7 days a week for three months, This will create constant noise and light pollution and have a very damaging effect on wildlife, in particular birds, bats, badgers and other nocturnal creatures, which may be in contravention of the Wildlife and Countryside Act 1981.
- These works are in close proximity to Dalby Forest, one of the main tourist attractions in the National Park. The increase in traffic, noise and general disruption, particularly during the construction phase of the project, will have a damaging effect on tourism in the area.
- The application also requires moving a public footpath, which is part of the popular Moors to Sea Cycle Network, again adversely affecting tourism in the area.
- The pipeline is to be built in the same area as an archaeologically important earthwork remains of the prehistoric period, and these have not yet been adequately researched or documented.
- The pipeline to Knapton crosses the River Derwent, which contains otters and water voles, both of which are protected species.

**Please finish your objection with a short sentence asking them to reject the application. Then sign the letters and pop them in the post! Don't forget, you need to make your objections by 24<sup>th</sup> October.**