

# Insurance implications of fracking

Chartered Insurance Institute Claims Faculty New Generation Group



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## The Chartered Insurance Institute (CII) Professionalism in practice

As the premier professional body for the insurance and financial planning professions, the CII promotes higher standards of integrity, technical competence and business capability.

With over 125,000 members in more than 150 countries, the CII is the world's largest professional body dedicated to these sectors.

Success in CII qualifications is universally recognised as evidence of knowledge and understanding. Membership of the CII signals a desire to develop broad professional capability and subscribe to the standards associated with professional status.

The CII works with businesses to develop bespoke, company-wide solutions that ensure competitive advantage by enhancing employees' technical and professional competence.

Individually, CII's members are able to drive their personal development and maintain their professional standing through an unrivalled range of learning services and by adhering to the CII's Code of Ethics.

Our Charter remit is to protect the public by guiding the profession. For more information on the CII please visit:

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### Contacting the CII

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### Disclaimer

The views expressed within this report are those of the authors and should not be interpreted as those of the Chartered Insurance Institute or their members. This report does not reflect the thoughts or opinions of Friends of the Earth or UK Onshore Oil and Gas.

### 3 Welcome to the Chartered Insurance Institute

By looking forwards to potential risks, the insurance profession can not only bolster its reputation for innovation but also ensure it is acting in the public interest by not only providing protection but encouraging prevention.

It is with this in mind that the CII Claims Faculty New Generation Group as part of the CII's annual talent development programme, have looked at the issue of fracking. In this report the group have reviewed the risks and associated perils that may arise from fracking activities and how any unforeseen incident/s could affect a variety of insurances; whether the insurance industry does provide appropriate cover; and if this could change in the future. They have focused their attention on risks related to explosion, earthquake, pollution, subsidence, riots and injury.

Whilst the report observes that existing insurance products appear to presently provide adequate cover for consumers and small businesses, and that no insurers have said that they will look to specifically exclude fracking, it also notes that at the same time there are also not any insurance policies that specifically cover it either.

The fact that this group of insurance professionals – the likely future leaders of the insurance claims profession – have identified this issue demonstrates that it is one that should not be ignored. It is only by tackling the real risks that customers face that the insurance profession can insure it is relevant in the future and that it is doing what it has done for centuries – which is support and facilitate the development of individuals and businesses by taking imaginative approaches to covering and preventing risk.

**Ant Gould**  
Director of Faculties  
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# 4 Foreword

## Benefit of opening up the country to fracking

Hydraulic fracturing is a recognised technique used the world over both onshore and offshore. There has been thorough research by the Royal Society and Royal Academy of Engineering, Public Health England and an independent panel for the Scottish Government. All state that in a properly regulated industry, which we have, the risks are minimal.

We are regulated by four separate bodies. That regulatory system makes us look at all the risks, the probability of them happening, what the physical pathway for that risk to travel could be and how we reduce the risk.

The concept of “risk” and “peril” brings with it a deep worry for consumers. Risk is something we all deal with everyday so I would welcome the opportunity of working with the insurance industry, ensuring our regulatory process is understood and that confidence can be passed on to consumers.

Each regulator has a role to play - the Mineral Planning Authority with respect to noise and transport; the Health and Safety Executive with respect to well integrity; the Environment Agency with respect to air, soil and water who issue up to 9 environmental permits connected to 17 European Directives; and finally, the Oil and Gas Authority who ensure that the operator has the right operational and financial capacity alongside approving the environmental risk assessment and fracturing plan.

Under our licences with the Oil and Gas Authority we must ensure that we are adequately insured for such things as loss of well control, third party liability and environmental liability. In the unlikely event of causing damage, harm or pollution to the environment, we can be required under regulation to remediate the effects and prevent further damage or pollution. This is the same approach that applies to other industries.

The benefits of developing the UK’s shale gas are of undeniable importance to our economy. 84% of our homes use gas for heating, 61% use gas for cooking, nearly 50% of electricity is produced from gas and over 500,000 people are employed in the industries which use gas as a raw material.

However, by 2035 imports are expected to rise to 80% of our consumption. This will have an environmental impact, as lifecycle greenhouse gas emissions from UK-produced shale are lower than LNG or via pipeline, as well as potentially costing the UK economy nearly £10 bn per year.

EY in their 2014 report stated that £33bn could be spent on the UK supply chain over the next 20 years, creating 64,500 jobs.

Home-grown gas will increase our energy security, safeguard jobs directly in the oil and gas and chemical industries as well as create important jobs for the future.

**Ken Cronin, UK Onshore Oil and Gas**

## Why fracking is not the answer to the UK’s energy problems

The American satirist HL Mencken wrote ‘for every problem there is a solution that is neat, simple – and wrong’. So it is with fracking as an answer to the UK’s energy problems. Why is this?

The first reason is climate change. Meeting the targets we have committed to under the Paris agreement means keeping most known global fossil fuel reserves in the ground. If we can’t burn what we already have, why look for more? UK ratification of the Paris agreement will count for little if the Government pushes ahead with fracking.

We are told that we need to frack to stop us being dependent on unpalatable regimes and unstable regions for our gas. But our main source of gas imports is Norway. We’re told that UK shale gas will be ‘our gas’. But we’re part of an interconnected European gas grid and if drilling companies can earn more by exporting the gas, they will. The best energy security solution is to use less gas so we don’t have to import so much. Boosting renewables and energy saving would save twice as much gas as we could produce from fracking in the UK.

The Government and industry claim that fracking will create tens of thousands of jobs. But the figures are overstated and often the jobs are short-term. The respected UK Energy Research Centre reports that investing in renewable energy and energy saving creates three times as many jobs for the same investment.

We are told that there will be no risks to health or the environment. But the emerging evidence from the US paints a different story. For example, analysis of health data from heavily-fracked Pennsylvania shows that living in areas with the most shale gas drilling is associated with 40% increase in risk of premature birth and a 30% increase in the chance of a high-risk pregnancy. No wonder that 20 leading UK health experts last year said the argument against fracking on public health grounds was overwhelming.

Government and industry claim UK regulation will be stronger. But there are major gaps in the regulation and regulators’ budgets are being cut. And regulation can only make fracking safer – it can’t make it safe. As the UN Environment Program wrote “Fracking may result in unavoidable environmental impacts even if [the gas] is extracted properly”.

Fracking has been banned or put on hold in France, Holland, Scotland, Wales, Bulgaria and New York State. And wherever fracking is proposed in the UK, it is strongly opposed by local communities.

The UK Government is increasingly isolated in its support for this risky industry. If it put the same political will behind renewables and energy saving, we would be much closer to finding a real solution to our energy problems.

**Tony Bosworth, Friends of the Earth**

# 5 Claims Faculty New Generation Group

The Chartered Insurance Institute is the leading professional body for insurance and financial services which aims to promote higher standards of integrity, technical competence and business capability across the industry.

The annual CII New Generation Group talent programme takes about 40 CII members representing insurance broking, claims, underwriting and the London Market and tasks them with challenging and improving current practices within their sector, and making a positive impact on the insurance profession as a whole. The year long programme is designed to develop leadership skills and complement and strengthen each member's professional development and market awareness and as part of the programme each faculty group is challenged to identify a project of their own choosing that they believe could help drive change in the insurance profession for the ultimate good of customers.

The Claims Faculty New Generation Group chose to examine the important issue of fracking within the UK and its implications for the insurance market. This report presents the results and conclusions of their endeavours as a group of future leaders. They do not necessarily represent the views of the wider CII.

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# 6 Executive Summary

## Aim

The aim of this report is to review the current UK insurance landscape in the event that large-scale hydraulic fracturing (or 'fracking') is rolled out across the UK. We have reviewed the potential risks and associated perils which may arise from fracking activities and how any unforeseen incident could affect a variety of insurances, whether the insurance industry does provide appropriate cover and if this could change in the future.

The process of fracking has been used in the UK for a long time, however, the scale and techniques to be used in the operation in the UK is changing. The government has indicated that fracking will be supported at national government level in the UK and this has raised questions from both an environmental and insurance perspective.

This report aims to assist with the discussion around the impact of fracking on the insurance market in the UK and makes several recommendations which we believe could benefit both the insurer and policyholder.

Throughout the report we have used the term 'peril'. It should be noted that peril is an insurance term used to describe a fortuitous event that is covered or excluded by a policy of insurance. For example, fire, flood and escape of water are all insurance perils. We also incorporate the term 'risk' which is used to describe the potential, the 'risk' of an event occurring; it is not a certainty, for example crossing the road could be considered a risk, but we also consider aspects that may mitigate or circumvent such a risk.

## Stakeholder interactions

This report looks at the key interactions between insurer and consumer as well as insurer and business. The primary focus is on the consumer angle as this is the most important in order to maintain the reputation of the insurance industry.

To understand these interactions we have spoken with insurers, lawyers, loss adjusters and corporations who work in the energy industry. We have tried to keep this report as balanced as possible however it should be noted that we are not intending this to be a pro- or anti-fracking paper. We are using the assumption that large scale fracking operations will go ahead in the UK and thereafter we are reviewing how this would have a follow on effect on key stakeholders and insurance companies.

## Recommendations

The current insurance products that are on the market – for both consumers and small businesses – would, based on our analysis and the present risk profile of fracking across the UK, appear to provide adequate protection. However, looking forward to a time when fracking across the UK is more prevalent, we believe there are a number of areas that require attention now, rather than later, by the insurance profession, the government and other parties.

If wide scale fracking production operations do start to go ahead in the UK and particularly if there is an increased frequency of claims arising from fracking operations, we would recommend:

1. The insurance industry to be open and transparent about any risks that fracking causes. This will require ongoing monitoring of any emerging risks or issues that fracking may pose and the adequacy of policy response, by the insurance industry.
2. The insurance industry, energy industry and government to work closer together and to be able to easily communicate with each other on any issues that may occur. This could be to ensure that legislation and regulations are sufficient to reduce the likelihood of potential risks occurring and if they are not they should consider where they can be improved. For example whether further legislation is required in order to place a stricter liability on fracking operators to ensure a reduction in the likelihood, and potential impact of property damage or injury.
3. Insurers should ensure that they are ready for any potential claims and that they fully understand how their policies will respond. This also means having the appropriate knowledge, resources and mechanisms to investigate and handle any such claims.

The recommendations can be read in full at the end of this report.

# 7 Context

## What does fracking involve?

Hydraulic Fracturing, commonly known as 'fracking', is part of what is known as a completion technique used for extracting oil or natural gas from shale rocks. Fracking is a technique that has been used commercially for 65 years, although the techniques that are being proposed in the UK involving high pressure and horizontal drilling have only been around for around 15 years. Estimates from the British Geological Survey suggest that there could be as much as 1,300 trillion cubic feet of shale gas lying under 11 counties in central and northern England. A realistic extractable proportion of this would equate to 50 years of gas supply for the UK and has led to proposals for large-scale fracking operations to be approved on the UK mainland.

## How does the process work, in brief?

The types of onshore practices that are expected in the UK involve a well passing through topsoil, ground water and bedrock to a depth of 1 to 2 miles (1.6 to 3.2 kilometres). When the well has reached the required depth to reach the deep layer of shale rock, where natural gas exists, the well curves about 90 degrees and drilling begins horizontally along that rock layer. Horizontal drilling can extend more than 1 mile (1.6km) from the vertical well bore. The first 300-400m of casing is triple layered to protect the aquifer layer and the well is pressure tested to ensure no leakage.

After the initial vertical bore and subsequent wells have been secured, liquid is pumped into the well at high pressure. This causes the shale rock to fracture and the sand to flow into fractures to prop them open. The liquid that is pumped down into the well is called 'fracking fluid' or 'slickwater'. It is composed of approximately 98.5% water, 1% sand (used as a proppant to keep fractures open) and 0.5% chemical additives.

Once the shale rock is fractured and propped open, the trapped reservoirs of shale gas are released and pumped back up to the surface along with 5-10 million gallons of 'flowback liquid'. The recovered shale gas is likely to be provided straight to the national grid or contained ready for transportation. However, the 'flowback liquid' contains water and possibly a number of contaminants released from deep underground which include; naturally occurring radioactive material, heavy metals, hydrocarbons and other toxins. As a result, the returned waters from the hydraulic fracturing process are sent for treatment at a wastewater treatment facility as they may be highly saline and contaminated by naturally occurring toxins and radioactive material. Under strict permission, the environment agency will allow temporary storage in twin skinned tanks inside a secondary bund over an impermeable membrane.

## Fracking in Practice

The Oil and Gas Authority (OGA) is the strategic body that oversees exploration and extraction of shale gas and coal bed methane in the UK. It sits within The Department for Business, Energy and Industrial Strategy (BEIS) and works closely with other parts of government with an interest or responsibility in this area. OGA licenses each drilling and development activity. No exploration or production activity can start without this licence. OGA is also responsible for managing any earthquake risks as well as granting permission to companies to undertake hydraulic fracturing.

The Health and Safety Executive (HSE) regulates the health and safety risks to people. In particular they are responsible for ensuring the appropriate design and construction of a well casing for any oil and gas boreholes. HSE requirements for ensuring well integrity also contribute to mitigating environmental risks.

In addition, permission is needed from the local Minerals Planning Authority. This is usually, but not always, the county or unitary local authority. They will also be responsible for any other planning permissions needed for proposed oil and gas sites.

The Environment Agency (EA) have produced a [joint working statement](#) with the Health and Safety Executive which sets out how they will work together to ensure a joined up approach and that there is appropriate monitoring and inspection of operations.

There is a regulatory roadmap on [GOV.UK](#) to explain the roles of the different organisations and the permissions and permits required.

“Given the complex nature of fracking, and the number parties involved, there is the potential for a risk event to arise at any stage in the fracking process from a multitude of perils.”

## 8 Context continued

The Infrastructure Act 2015 introduces a new requirement on oil and gas operators to obtain a hydraulic fracturing consent from OGA if they propose to undertake high volume hydraulic fracturing. High volume hydraulic fracturing is defined in the Act as using more than 1,000 m<sup>3</sup> of fluid at each stage or more than 10,000 m<sup>3</sup> in total. The Act also requires all high volume hydraulic fracturing to take place at a depth of more than 1000m from the surface.

Operators must meet 11 conditions to obtain a hydraulic fracturing consent. This is in addition to all the other existing permissions required, for example the environmental permits and planning permission.

Four conditions overlap with the EA's regulatory functions. These are 12 months baseline monitoring of methane in groundwater; monitoring of methane emissions to air; no hydraulic fracturing in Source Protection Zone 1 and chemicals to be approved by the environmental regulator.

The Infrastructure Act 2015 prohibits drilling for shale gas in 'protected areas' at the surface and hydraulic fracturing at depths shallower than 1200m. The Protected Areas Regulations 2015 further define these areas as:

1. Protected groundwater source areas:
2. SPZ1
3. Other protected areas:
4. a National Park;
5. the Broads;
6. an area of outstanding natural beauty; or
7. a World Heritage site

Given the complex nature of fracking, there is the potential for a risk event to arise at any stage in the fracking process from a multitude of perils (which we will review in detail later in the report). The significance of these events could range from minor to catastrophic. These potential risk events could not only impact the aforementioned entities involved in the exploration and production, but also local communities and the general public.

We would like to make clear that the potential risks associated with fracking activities, such as fire, explosion or earthquake are not new to the insurance industry or energy sector. However all of those risks can be caused by fracking activities and it is the grouping of these risks under the banner of "fracking" that is new and in need of further discussion.

## 9 Context continued

### Why the bad reputation?

There have been anti-fracking lobbies in every country that has started or attempted to start fracking activities. Some countries such as France have even gone so far as banning on-shore fracking altogether.



The anti-fracking movement has emerged primarily from environmental organisations backed up by academic research and there is a lot of fear from residents close to a site that their land, air and especially water supply could get polluted. Other protest groups are against the idea of fracking as this is another way of exploiting a natural resource which will lead to the emission of greenhouse gases, and for this reason alone the gas is better off in the ground instead of being used in a way which would contribute towards climate change.

Like any protest group, celebrities have flocked to demonstrations, for example when Cuadrilla were drilling conventional test wells in Balcombe, Sussex, the Member of Parliament for Brighton Pavilion, Caroline Lucas MP was arrested.

There have however been a number of expert reports that have stated the risks associated with fracking are minimal. These include reports by the Royal Society of Engineering, Public Health England & the Chartered Institute of Water and Environmental Management.

# 10 Context continued

## The case for change

In the past the insurance industry has not always been quick to respond to emerging risks in the UK and it is therefore important from a reputational perspective, and also considering the Financial Conduct Authority's objective to enhance consumer trust in the industry, to take proactive steps in the issue of fracking.

As such, this paper has explored the key potential risk areas faced by insurers and the public including explosion, earthquake, pollution, subsidence, riots and injury. Whilst it is generally agreed that the risks presented are minimal and that existing insurance policies would currently cover the majority of risks, there are areas that are identified that require industry consideration. Such areas would include variations between personal and commercial cover, subrogation timescales and how the industry would respond in terms of future cover if a large event such as an explosion were to occur as a result of the fracking process.

This paper has responded to these areas and discusses the potential options available to the industry such as strict liability, specific perils, specific exclusions and 'Frack Re'. As long as the perceived risk associated with Fracking is low, the insurance industry is unlikely to want to invest heavily upfront. However, it is prudent to bear in mind public perception and emotion in this subject, especially for those who will be living in a fracking location. As such, it is important that we proactively discuss and consider our path forward as an industry now and this report is designed and intended to stimulate such debate.

## Frequency and severity

The US has been fracking on a large scale for the past 15 years, however the UK appears to be the sixth country, at time of publication, in the world which could follow the US and embrace this technology on a large scale and exploit the natural gas resources beneath the country.

Fracking was suspended in the UK between June 2011 and December 2012 after minor earth tremors were detected in the Blackpool area. However a report into the incidents concluded that the risk of earthquakes was minimal. Despite this, following the incident new legislation and regulations have been developed. Infrastructure Act 2015, Protected Areas regulations. The Oil and Gas Authority (OGA) was formed and they will regulate seismic activity. Companies must produce a hydraulic fracturing plan as part of the 11 conditions of the infrastructure Act and also the environmental permit

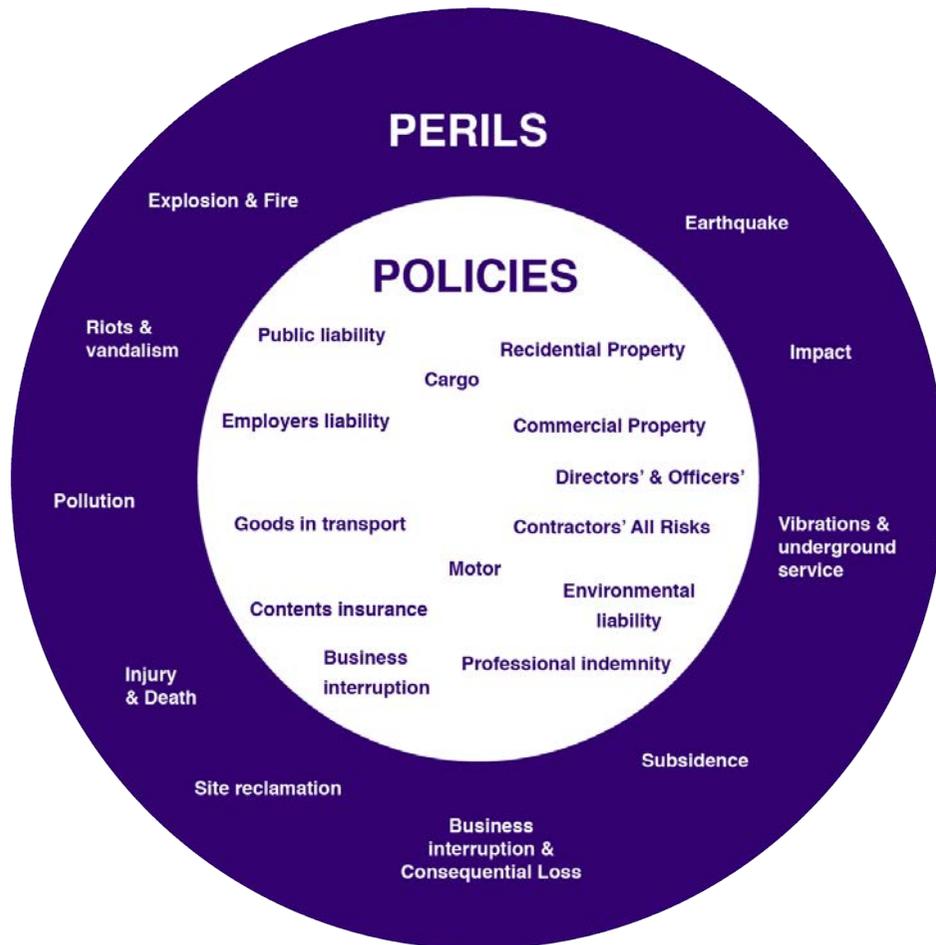
A detailed briefing paper was published by the Government on 12 January 2016 setting out the current position and whilst this would not be a "game changer" on the scale that it has been in the US, it could significantly transform the gas market in the UK and reduce reliance on foreign suppliers.

“The US has been fracking on a large scale for the past 15 years, however the UK appears to be the sixth country in the world which could embrace this technology on a large scale and exploit the natural gas resources beneath the country.”

# 11 Insurance landscape

There are many potential risks associated with fracking and multiple different policies which could respond to various situations. The Risk Matrix Doughnut below is a graphical representation of the various perils which could arise and the policies that are most likely to be impacted. These perils are all discussed in more detail in this section.

It should be noted that as part of the licensing procedure all operators are required to be insured for loss of well control, third party liability and environmental liability, which the operator is responsible for purchasing.



# 12 Insurance landscape continued

## Earthquake

### Assumptions

In the event that onshore oil and gas operations resulted in an earthquake it is likely that most home and commercial property insurance policies would cover the property damage as a result of the earthquake. Most standard property insurance policies available in the market will provide cover for earthquake, or provide an optional extension.

The fracking operator would have a liability policy in place that would provide cover for any claims made against the operator should they be held liable for causing the earthquake. For the fracking operator's insurance to pay out for these claims it would be subject to the usual liability tests, i.e. it would have to be proven that they are liable for the damage caused, normally in negligence but other forms of liability could apply. Claims against the fracking operator could be brought directly by the individual who has suffered a loss or it could be a subrogated claim made by the insurer who has initially paid out.

# 13 Insurance landscape continued

## Concerns

### Will fracking cause earthquakes in the UK?

Before any fracking can take place operators (as part of the permit application) need to conduct and submit a detailed hydrogeological risk assessment. In this they must identify natural faults and fissures to ensure fracturing does not intersect with these. The frack plan which must also be submitted and approved before any fracking would outline how operators will monitor fracture growth and report the extent of fractures, and seismic activity (using seismic arrays) to the EA and OGA.

Operators will monitor background seismicity before operations commence to establish a baseline. Monitoring must then continue during and post fracturing. Fracking has already been known to cause earthquakes in the UK on a small scale. The earthquakes in Preese Hall near Blackpool in 2011 measured magnitude 2.3 and 1.5 on the Richter scale. It should be noted that earthquakes of this size are not normally felt at the surface. To put this into perspective a bus driving past a house could feel the same as up to a magnitude 3 earthquake on the Richter scale. Whether an earthquake could be triggered that is large enough to damage property is presently disputed. The Department for Energy & Climate Change (DECC), as the department was then known, suspended all hydraulic fracturing operations whilst investigating the cause.

The investigations found that the tremors were most likely caused when the fracking fluids flowed into a geological fault, which is a crack running through one or more layers of underground rocks.

US operations have been associated with larger earthquakes, registering up to magnitude 4 and 5 on the Richter Scale. This has occurred where large quantities of waste water have been re-injected into the rock formations where the water didn't originally come from. The Environment Agency (EA) confirmed in their August 2016 Onshore Oil and Gas Sector Guidance that the re-injection of waste flowback fluids from fracking will not be permitted in England and consider there are other viable and alternative treatment and disposal options available at this time. In addition the operators must produce a hydraulic fracturing plan which must include a monitoring and reporting system for seismic activity as well as safety levels at which fracking must be suspended. The plan must be agreed with the EA and OGA before fracking can commence. The Government have advised that any earthquake that could be triggered by fracturing should be no more than a magnitude 3 due to the nature and strength of UK rocks. Earthquakes of this magnitude occur 3 to 4 times a year in the UK. In 2012 the DECC (The Oil and Gas Authority has now taken over these responsibilities) introduced measures to control seismic risks which includes a traffic light system that means if a tremor of 0.5 or above is triggered, fracking activities must stop immediately. However it is questionable whether tremors of 0.5 on the Richter Scale are so small that they may not be measurable and therefore will not be detected.

### Will the earthquakes cause property damage?

If the UK did experience an earthquake to the extent that the US have (4 and 5 on the Richter Scale) then this could potentially cause property damage to surrounding houses and businesses. In the US a lot of the fracking operations are in more remote areas whereas the UK proposed sites are near communities. However; as has been advised by the UK government, due to the regulatory controls put in place and continuous monitoring it is unlikely that this will occur, but if it did there is a concern that nearby properties could be affected.

### Will insurers review the cover they provide?

If further earthquakes did occur from fracking operations and this resulted in a surge of property damage claims, this could cause insurers to review the cover they offer. There are concerns that people in areas close to fracking sites may not be offered earthquake cover or may see higher excesses for earthquake applied to their policy. Insurers could also look to change how they define 'earthquake'. Currently it is unusual for a policy to provide a definition of earthquake, but should the risk of fracking induced earthquakes become more common then it can't be ruled out that insurers may introduce a definition which excludes manmade earthquakes and only covers natural ones; it should be noted that this would also impact other earthquakes which could be deemed to be manmade i.e. vibration damage caused by construction works and other commercial ventures. Currently however there is no indication that insurers would refuse or restrict cover for anyone near a fracking site and given the measures that are in place to avoid incidences occurring and the perceived low risk of fracking it is unlikely that any incidents would be severe or frequent enough for insurers to want to take such action.

“The investigations found that the tremors were most likely caused when the fracking fluids flowed into a geological fault, which is a crack running through one or more layers of underground rocks.”

# 14 Insurance landscape continued

## Will these claims be difficult to prove and investigate?

Another concern for policyholders and insurers will be the potential difficulties in proving and investigating these types of claims. Following a tremor it is not uncommon for a person to carry out a close inspection to their property to see if any damage has been caused. The issue that can arise is a person may find cracks or damage to their property that they were unaware of and assume it was caused by the tremor when it may be that the cracks have been there for a long time and just gone unnoticed. The policyholder will put a claim in for the damage in good faith believing that they have a genuine earthquake claim, but investigations by the insurer may find that it was due to an unrelated cause, such as a lack of maintenance or thermal movement. This issue is not just unique to earthquake but can be a problem for insurers when investigating any type of property damage claims.

A similar concern is when a property is not in a good state of repair. Issues as to whether the damage has been caused by the earthquake or whether it is down to poor maintenance will be a problem for insurers when deciding on whether the claim is covered. Other policy exclusions may also come into play such as maintenance and wear and tear exclusions.

## Recovery

If fracking operations cause an earthquake then it would be expected that the operator would be held liable for this and a claim could be made against the operator for any damage that has been caused. Insurers paying out for earthquake claims as a result of fracking would most likely look to pursue a subrogated recovery from the operator. Likewise uninsured claimants or claimants not wanting to use their insurance policy would potentially claim directly against the operator.

This may not be so simple in practice because the claimant would have to prove that the fracking operator is liable, however as stated above, in order to conduct fracking activities the operator will need a plan approved by the Secretary of State which includes a monitoring system for seismic activity and therefore seismic events in the local area will be actively recorded and monitored. Issues may arise when trying to prove that the earthquake occurred as a result of fracking and it would have to be proven that the operator has done something wrong i.e. been negligent. Further problems may arise as the claimant would also have to prove that the damage caused to their property was as a result of the earthquake, i.e. not due to any other cause such as poor maintenance. Investigating causation may be difficult for claimants and insurers especially if the operator does not admit liability. Detailed investigations and expert evidence may be needed and this could be costly. This however is not unique to fracking and can be common for all types of liability claims. If an incident did occur all monitoring that has been carried out would have to be provided to the regulator and also made public.

If a person suffers damage to their property from a fracking induced earthquake then they will have a choice of either attempting to pursue a claim directly against the fracking operator or submitting a claim to their own insurer. The benefit of submitting the claim to their own insurer will mean that they will be provided with a service from their own insurer, which can involve the use of specialist suppliers and an efficient settlement of the claim. One of the other major benefits is that most home insurance policies and a large number of commercial property policies are on a 'reinstatement basis', which provides new for old cover. The problem with making the claim on their own policy is that it will affect the claims history and therefore it could affect their premium on renewal. An excess would also apply. They may therefore decide to pursue the claim directly with the fracking operator. As noted above the issue is proving that the operator is liable for the damage. In cases where the operator disputes liability the claimant may have to seek legal advice and appoint a legal representative, which could be costly. If the fracking operator accepts liability then they will financially compensate the claimant for losses incurred. The issue with this is they will not normally receive any sort of service from the operator as they are a third party, and the operator is only required to settle the claim on an 'indemnity' basis not new for old like most home and commercial property insurance policies.

# 15 Insurance landscape continued

## Explosion and fire

### Assumptions

In this section we have looked at the potential risks associated from the perils of explosion and fire resulting from fracking activities. It should be noted that the perils of fire and explosion are common risks that can occur due to a number of causes and are not unique risks to fracking activities.

If any damage was to occur on the fracking site resulting from a fire or explosion caused by fracking activities this would be the responsibility of the operator's insurance.

Any resulting damage caused by an explosion or fire to third party property e.g. homes and offices in the near vicinity, then a standard policy that covers those assets would normally provide cover for fire and explosion. For example a standard home buildings policy normally provides fire and explosion cover.

Therefore it is our assumption that a home or commercial insurance policy would not exclude damage caused by an explosion or fire emanating from fracking activities given that those perils are not a new risk.

### What is the potential damage?

Property on the drilling site, offices, the drilling rig, lorries and other nearby property i.e. homes or businesses

# 16 Insurance landscape continued

## What cover would respond

1. Any damage resulting from a fire caused by drilling activities would be the responsibility of the operator's insurance.
2. Any damage caused to third party property i.e. homes and offices etc. would be the responsibility of the insurances in place to cover those assets in the first instance.

Our assumption is that none of the policies covering third party property would include a 'fracking exclusion', or any other exclusion, which could lead to an insurer repudiating a claim. Essentially the risks of property damage resulting from an explosion or fire are covered by the insurances in place.

The fracking operator would have a liability policy in place that would provide cover for any claims made against the operator should they be held liable for causing the explosion or fire. As mentioned under Earthquake, for the fracking operator's insurance to pay out for these claims it would be subject to the usual liability tests and the claim could be brought directly by the individual who has suffered a loss or it could be a subrogated claim made by the insurer who has initially paid out.

## Concerns

The controls in place at a fracking site should ensure that the risks of an explosion or fire occurring are minimal.

Our concern would be the way any claims are handled by insurers which could cause a delay in indemnifying homeowners. For example, as "fracking" is an emerging risk insurers may be slow at responding to a claim as they do not want to give a position on fracking claims which could prejudice their position in the future. However if the property affected has cover for fire and explosion in place this is unlikely to cause an issue.

It could be debated as to whether there is a risk of insurers excluding damage from fracking activities in the future, however given the unlikelihood of large scale claims and the perceived low risk of fracking, at this time, this is unlikely.

“Fracking is a controversial subject in the UK and has seen strong opposition from the public and anti-fracking groups. If operators are given the go ahead to start fracking operations then there is the risk that protesters could gather at fracking sites and it could not be completely ruled out that this could cause a riot to break out.

# 17 Insurance landscape continued

## Riots & Vandalism

Fracking is a controversial subject in the UK and has seen strong opposition from the public and anti-fracking groups. If operators are given the go ahead to start fracking operations then there is the risk that protesters could gather at fracking sites and, although opponents to fracking are committed to peaceful protest, it could not be completely ruled out that this could cause a riot to break out. There is also the potential that fracking sites could be vandalised by protestors.

This risk however is not unique to fracking, most forms of onshore energy have had protest movements and so have more regular activities such as proposals for rail and road construction, large house building plans and many other major infrastructure projects. Should a riot occur then it is not just the fracking site that is at risk of being damaged, nearby communities may also suffer damage. If riots break out ultimately the police are held accountable and compensate victims for property damage under the Riot Damages Act, which is soon to be replaced by the Riot Compensation Act. This Act does not apply in Northern Ireland. Most property insurance policies provide cover for riot; however some will also exclude damage caused in Northern Ireland.

# 18 Insurance landscape continued

## Pollution

Following our research and investigations into the method of fracking in the UK it appears that the likelihood of pollution occurring is small pursuant to the stringent measures in place in issuing licenses to operators. As a minimum operators will need a groundwater activity permit and a mining waste permit.

A hydrogeological risk assessment must be conducted to identify any faults/ fissures which could act as pathways to groundwater or surface water. Operators must only frack within the target formation that is defined in the permit. They must ensure fractures do not intersect with natural faults/ fissures and they must report the extent of the fractures to us. This is required by the frack plan and also by the mining waste directive.

Chemicals and maximum concentrations must be disclosed at the application stage. The permit will specify the chemicals allowed to be used and the maximum limits.

Any additives to be used in the fracking solution used will have to be approved by the EA and disclosed publicly, however environmental groups have debated at lengths as to whether these substances are completely non-hazardous.

The EA will not permit the use of 'hazardous substances' [as described in Schedule 22 of the Environmental Permitting Regulations 2010] for any activity, including hydraulic fracturing where they would or might enter groundwater and cause pollution.

The environment agencies of UK and Ireland (JAGDAG, Joint Agency Groundwater Directive Advisory Group) work together to peer review chemicals assessments before the EA submit proposals to public consultation. You can find out more on which substances have been assessed on the [JAGDAG website](#)

Should pollution occur this could cause resultant damage, not just to the fracking site itself, but also to surrounding areas, such as buildings, farm land, gardens, water sources and potentially livestock, affecting local home owners and businesses. Any such environmental impact will be closely monitored as described previously in this report and potential impacts are reviewed as part of the assessment process before any works are conducted on site, therefore it would be envisaged that any changes, detriments or adverse pollution conditions would be detected quickly.

The Well Operator will have Operators Extra Expense cover, which will come into force if the well becomes out of control, and this will cover the cost of getting the well back under control, making the well safe and cleaning up pollution, as a result of what has come out of the well. Separate bespoke cover is available for losses caused at a time when the well is not deemed to be out of control.

Should an incident occur, that is not as the result of an out of control well, then costs of this may be picked up under the Operators Public Liability section, if they were found legally liable (negligent) for the incident.

Cover for property insurance (household, landlords or business premises) varies from policy to policy, with some policies providing limited cover for a 'sudden and unforeseen' event and others excluding all damage as a result of pollution, where cover is provided this often has varying limitation and exclusions.

A farmer can take out cover for both land and livestock; however they will encounter similar exclusions and limitations as per a standard household insurance policy, with varying limitations/exclusions for pollution and illness or death of livestock.

It is anticipated that the EA will look to clean up a large pollution incident initially and then recover from the responsible party i.e. polluter pays. Similarly should contamination occur to the water supply the water company will be responsible for the clean-up in the first instance and will then look to seek recovery, if possible. However it should be noted that environmental groups assert that groundwater contamination could take years to clear up, and the EA maintains that due to the robust regulations such an incident should be prevented.

Some concerns are that should insurers pick up the costs of pollution in the first instance then a recovery could be difficult to pursue against the well operator, this is taking into account the company structures used by the operators. For example if a special purpose vehicle or subsidiary company is the one found to be liable, there could be difficulties in obtaining reimbursement from a solvent parent company, potentially resulting in lengthy recovery processes or these being abandoned entirely.

“Should pollution occur this could cause resultant damage, not just to the fracking site itself, but also to surrounding areas, such as buildings, farm land, gardens, water sources and potentially livestock, affecting local home owners and businesses.”

# 19 Insurance landscape continued

## Vibrations & Underground Services

It is conceivable that due to fracking activities and the increase of heavy vehicles to facilitate such operations that properties could be damaged by vibrations. This is a realistic factor and is subject of British Standards BS 7385-2:1993 which investigated the potential. This risk is regulated by the EA and the Mineral Planning Authority, and isn't unique to fracking or a new risk, it can occur in many different industries that use heavy vehicles to transport goods.

The damage would likely be seen in the weakest sections of the building such as minor plaster cracking near windows and doors or areas vulnerable to regular sub terrain vibrations such as clay drainage systems. Although damage is likely to be non-severe it has the potential to be wide spread and ongoing. For business & home owners the loss could initially be loss of aesthetics or backing up drainage. Failure to abate any defects could cause further damage to the property and could lead to potential loss of property values or in rarer circumstances structural situations such as subsidence.

The potential for damage to occur would depend on a number of factors including; soil geology, vibration energy, duration and frequency of events, building construction, foundation type, age and condition.

This risk would affect home and business owners who may suffer damages as well as public bodies such as local authorities and water authorities who may see damages to property under their stewardship or find themselves liable for failure to control such damages.

When considering a typical home insurance policy it would be unlikely to offer cover for property damage caused by vibrations. It is not considered a covered event as it would be damage occurring over numerous years, and gradually operating causes are generally expressly excluded. Damage caused to underground services is likely to be accepted under the drainage section of the policy. In situations where vibrations have caused damage to the drainage system which, in turn, caused an episode of subsidence it is expected that this would be covered under the home insurance policy.

Due to the likely inconsistent nature of the vibrations caused by road traffic it is not expected there would be subrogation potential against the haulage companies. There could be potential subrogation rights against public bodies who hold strict liabilities on underground services, if these damage services in turn lead to structural damages.

### Impact

One of the potential risks we have identified is the possibility of impact damage, for example, if a hauliers vehicle was to crash either at the well site or on a public road (i.e. traveling to or from a well site).

Potential damage would be the same as any other motor type accident however this could be on a larger scale. The vehicles could be carrying harmful materials which would lead to leakage and resultant pollution.

Damage could be caused to other property due to the vehicle crash, for example buildings, rigs, other lorries or third party motor vehicles.

### Influenced parties/stakeholders

The operator and any other property owners on site, haulage firms, other vehicle owners on site, homeowners, local community and property owners, any other vehicle owners on the road.

“The potential for damage to occur would depend on a number of factors including; soil geology, vibration energy, duration and frequency of events, building construction, foundation type, age and condition.”

“One of the potential risks we have identified is the possibility of impact damage, for example, if a hauliers vehicle was to crash either at the well site or on a public road (i.e. travelling to or from a well site).”

# 20 Insurance landscape continued

## What cover would respond?

Motor policy would appear to respond to all damage to the vehicles, including personal injury to driver or passengers.

All other property damage should be covered by other insurances e.g. residential or commercial property and motor. However there would be a clear right of recovery against the vehicle owner and their motor policy.

## Business Interruption and consequential loss

Consideration has been given towards cover available should an incident occur as a result of fracking, for example an explosion, pollution or earthquake etc. If a well becomes 'Out of Control' then for most small sites these will need to be completely evacuated, with roads being closed in the vicinity. This would potentially affect businesses who can either no longer access their premises or whose trade is affected by reduced foot fall.

Business Interruption cover is usually related to loss of gross profit (or increased cost of working) as a result of damage at the Insured property. This usually means that there has to be damage to the property insured by one of the insured perils for the Business Interruption cover to respond. Some policies do however offer extensions, such as Insured Perils (or damage) occurring at nearby premises, normally referred to as 'Prevention of Access' cover. The extensions available are variable from policy to policy and leave some uncertainty about what cover would be offered in the event of an incident that did not cause damage to the buildings.

Similarly Loss of Rent or Alternative Accommodation cover is provided for a home that is rendered 'uninhabitable' as a result of an insured peril occurring and causing damage to the property. This is reassuring in the event that the property is physically damaged by an explosion, for example, however it is assumed that should the property not be physically damaged, resulting in a claim, then cover would not be as widely available for alternative accommodation or loss of rent. Some scenarios may be covered under an extension, e.g. 'prevention of access', however there may be situations when there is no cover available for the loss of rent or alternative accommodation, e.g. if a water supply becomes contaminated and the tenant has to move out.

# 21 Insurance landscape continued

## Injury/Death

### Assumption

Every employer will have employers' liability insurance and most if not all companies will have public liability insurance. These would cover any claim from an injured party whether the claims were made by an employee or member of the public.

If any serious workplace injuries were to occur then the Health and Safety Executive would investigate and potentially bring a criminal prosecution against senior management.

### Potential damage

Injuries and death can arise from most everyday activities which seem risk free and although we have moved on from the workhouses of the Victorian era, there is the potential that these types of injuries can occur in the workplace.

### Influenced parties/stakeholders

The operator, any sub-contractor, any visitor to the site (whether for work or a member of the public)

### What cover would respond?

Employers' liability insurance would respond to cover the injuries of anyone who was injured whilst during the course of their employment. This is a compulsory insurance therefore any business on site would need this cover in place by law.

If a non-employee was injured then public liability insurance would cover the claim from the injured party.

Whenever there is a serious injury in the workplace and especially if there is a fatality, then two other investigations are likely to take place:

1. the Health and Safety Executive (HSE) would step in and conduct a formal investigation, and
2. there would be a Coroner's inquest

Both of these types of investigation could demand that senior management attend or provide evidence. The HSE investigation would be conducted in a criminal court and could result in a conviction against a director or other senior manager. If the outcome of one of these investigations is likely to have consequences on a civil claim, then the employers' or public liability policies could step in and offer a level of criminal defence costs for the senior management. However this cover is not always available and is sometimes at the discretion of the employers' or public liability insurers. A directors & officers (D&O) policy provides some level of protection against senior management and therefore they would likely cover the legal costs which would be associated with a representation at an HSE investigation or Coroner's inquest.

## 22 Insurance landscape continued

### Subsidence

It is expected that there will be minimal risk that fracking activities will cause subsidence to buildings on the surface. Other activities, such as coal mining, carry an increased risk of subsidence due to the extraction of large volumes of material from the ground. Within fracking activities this extraction of solid minerals does not occur but rather the extraction of gas from porous rock.

The Department of Energy & Climate Change's investigation into fracking activities advised that;

"The amount that shale rock changes with the extraction of gas is expected to be almost zero, so compaction and resultant subsidence would not be expected."

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/268017/About\\_shale\\_gas\\_and\\_hydraulic\\_fracturing\\_Dec\\_2013.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/268017/About_shale_gas_and_hydraulic_fracturing_Dec_2013.pdf)

As fracking activities have not been carried out in large scales within the UK there is the risk of an unexpected event occurring that could cause subsidence or heave causing damage to properties. However all research taken out so far suggests that fracking will not pose a subsidence risk.

If damage is caused to properties it would be expected to be seen at the weak sections of the property, causing damage to plaster finishes around windows and doors.

Subsidence has long been a section of standard homeowner's insurance cover although typically is an additional extension for commercial cover. Although the risk is low if an event did occur which caused an area to subside it would likely affect more than an individual property and could potentially lead to numerous claims being made.

Based on current information it is not expected that a successful subrogation action could be carried out. For a subrogation action to be successful it would be required to prove causation or foreseeability. When the site of the well (if only one within the potential area) could be several kilometers away and occupied by numerous operators obtaining the relevant technical evidence would be challenging and expensive for insurers. In most cases this could lead to any subrogation action becoming uneconomical; however this would change if there was a large event affecting numerous properties.

"The amount that shale rock changes with the extraction of gas is expected to be almost zero, so compaction and resultant subsidence would not be expected."

Department of Energy & Climate Change

# 23 Insurance landscape continued

## Site reclamation/long tail liabilities

The Environment Agency (EA) have procedures in place to make fracking activities as safe as they consider possible, although bodies like the United Nations Environment Programme have made comments that fracking (just like many other processes) could have unavoidable environmental impacts. The EA is the environmental regulator for onshore and oil and gas operations and will strive to ensure that fracking is conducted in a way that protects people and the environment. They state that with years of experience of working with the existing oil and gas industries, the issues associated with fracking present no new challenges or protocol. However it is worth noting that there are academic critiques, both negative and positive of current regulation and therefore as with all technologies, whilst hazards are minimised it can never be determined that something is completely risk-free.

They assert to have observed and learnt from experiences in other countries and as a result their environmental controls are much stricter. The way in which the EA ensure activities are regulated properly is by issuing environmental permits before hydraulic fracturing for shale gas can commence. An operator cannot proceed without a number of environmental permits. They will not permit certain practices that have been used in the other countries nor the use of chemicals in hydraulic fracturing that they assess to be hazardous to groundwater. Operators are required to disclose all chemicals they intend to use and must also monitor fracture growth within the shale formation and report this information to the EA. With these and other restrictions, the EA expect to regulate the exploratory phase of the well development.

In the event there is an incident which causes pollution of the environment, environmental damage, or if there is a breach of the permit or non-compliance with environmental legislation, the EA have a range of enforcement powers available. Powers include formal warnings, enforcement notices, suspension and revocation of permits, injunctions and ultimately criminal sanctions, including prosecution. Any enforcement action should be proportionate to the risks posed to people and the environment and also to the seriousness of the breach of the law. The EA can also require operators to undertake remedial works to rectify the environmental damage.

The EA undertake announced and unannounced inspections to ensure operators are compliant with their environmental permit. If required the Environment Act also gives the regulator powers of entry.

Operators must adhere to all conditions in the environmental permits. When the operator wants to cease extracting gas from the well they must decommission the well in line with HSE's guidelines and apply to the EA to surrender the environmental permit.

If the planned activity poses an unacceptable risk to the environment, the EA will not permit it. To that end, they remain satisfied that the current regulations are sufficient and continue to review their regulatory approach as the industry develops so that high standards of environmental protection continue, protecting people as well as the environment.

# 24 Insurance landscape continued

## Insurance implications

The United Kingdom Onshore Oil and Gas (UKOOG) state that the risk of water contamination is negligible. The volume of water needed to operate a well for over a decade is the same amount of water used by a coal power plant for 12 hours and the water used is mixed with less than 0.17% of chemicals that are already used for farming. Drilling will be conducted beneath an impermeable ground layer between the fractures and the water table making any contamination even less likely.

But what should happen in the event that slow and gradual pollution occurs after the fracking site has been abandoned and the land has since been used for other purposes, such as farming or housing?

The UKOOG state that once a shale well has been decommissioned, the risk of pollution occurring is very low.

Shale wells are not naturally pressurised, therefore once a well has run dry and has not produced any hydrocarbons, the likelihood of leakage is very low indeed.

Permit relinquishment and land remediation is closely regulated. The decommissioning design must be signed off by the HSE, who ensure that the plugging of the well has been undertaken as designed.

The EA will not allow the operator to surrender their permit until it is satisfied that either no pollution has occurred at a site, or if it has, that the site has been returned to its original condition. The site will be restored and any remediation required to return the land to its previous or agreed future use including a period of aftercare.

But whilst highly unlikely, what happens to future residents in the event their house is sat on a former fracking site and pollution occurs to the area?

A well must be decommissioned in line with the plan and HSE's guidelines in order to surrender the permit. Only if the EA are satisfied this has been done appropriately will they allow permit surrender.

Taken together, if a company causes damage, harm or pollution to the environment, they can be required under existing regimes to remediate the effects and prevent further damage. Environmental regulators have the power to require upfront financial bonds to address these risks. The industry does not wish to leave this to the taxpayer or the landowner. As an alternative UKOOG is working with the Government on the development of an industry scheme that will step in and pay for liabilities.

“The UKOOG state that once a shale well has been decommissioned, the risk of pollution occurring is very low.”

# 25 Considerations for the insurance industry

## Obtaining insurance

The most important question for consumers of general insurance is what will fracking do to the price of their premiums or availability of insurance cover? Is there a possibility that insurance policies will increase in price, or even be refused cover if someone lives or works in an area where fracking activities are to commence?

Currently there is little evidence that obtaining insurance would be difficult or more expensive. However this position is because fracking has not taken off in the UK and there have not been any serious or large losses under property insurance policies. Furthermore all the research undertaken within the insurance industry appears to be relatively sparse and no insurer has yet to affirmatively say that fracking is a risk that they would specifically exclude.

Consequently, in the short term purchasing insurance appears unlikely to be altered. However this could change very rapidly if there was a large fracking-related loss and more so if the loss is of a type which insurers have not yet predicted.

Using a case study of a well-established risk and drawing similarities with fracking is how the flood risks have affected the property insurance market. With flooding it is relatively easy to compartmentalise properties into high and low risk areas. Flooding is well established, maps show where properties are located and whether these are close to rivers or built on flood plains. Therefore insurers can predict the likelihood of a property being susceptible to flooding. Using the same methodology, planning applications for exploratory fracking activities are public information which is lodged at a local council. An insurer will be able to produce a map of the country and locate how far each property is from a fracking site and determine whether there will be an increase in the number of vehicles on the roads close to a policyholder.

All this data could be utilised to create a fracking map of the country similar to the ways other insurers have done for flooding. However the real question to ask is would this be a likely scenario? On present information it is unlikely that any major insurer views fracking as such a risky activity that they are going to such lengths and expense to create a fracking map. It should also be noted that flooding is a well-known risk in the UK that consistently causes widespread property damage. There is currently no evidence that fracking would cause such damage either by frequency or severity.

# 26 Considerations for the insurance industry

## continued

### Redefining Insurance Policies

At present there are no policies which exclude fracking; however some consumers may be wary that no policies actually specifically cover fracking. If any property damage were to occur it would in all probability be covered under the earthquake, subsidence, heave or possibly even landslip covers of a property policy. This would depend on what type of damage occurred and given the processes involved in fracking, subsidence or heave are extremely unlikely. There is currently no general exclusion of fracking under any of these perils. This is more likely because insurers do not see fracking as a significant risk and large-scale fracking activities are not taking place across the country yet. Whether this will change in the future depends on whether any claims relating to fracking occur in the future and if they do, the frequency and severity of the claims would be considered before reviewing the cover offered to consumers.

From earlier analysis in this report we have seen that a risk to homeowners is that of earthquake damage. There is still much debate on whether earthquakes can be caused by fracking activities and this will obviously be an area which will be closely under review by the government when the number of fracking wells increases. However if there is clear geological evidence that fracking causes earthquakes, and the earthquakes that arise in the UK are of a size and scale that damages buildings, insurers will want to limit their liability to such losses. One way a property insurer could react would be to add a specific exclusion for man-made earthquakes. In this situation we would see a property policy contain a specific exclusion which would deny cover for non-natural or man-made earthquakes. Such action would cause considerable interest in the media as well as government and the introduction of such an exclusion (or the redefining of earthquake) would certainly gain considerable publicity very quickly. Insurers would have to consider whether limiting earthquake cover would have any unintended consequences such as restricting cover for other man-made tremor related incidents not associated with fracking. One more thing for insurers to consider before redefining an earthquake is that if these changes are inserted into policies during a renewal process, they would likely have to write to their customers setting out the change to the policy and why this is necessary. Any such correspondence will likely be of significant interest to the media, therefore any written correspondence would need to be carefully considered.

If an exclusion for man-made earthquakes is added into a policy, the burden of proof on determining whether or not an earthquake is man-made would be down to the insurer. Where there are a lot of properties in an area affected by an earthquake then insurers and their agents will be keen to obtain evidence on what was the proximate cause of the earthquake and try and find a link between local fracking activities. Proving that an earthquake was as a result of fracking may in practice prove to be difficult so it may not be easy for insurers to always rely on that exclusion.

If the insurer was able to exclude the claim, this would leave the consumer in a situation where they have no cover for the damage to their property and they would have to pursue a claim directly against the well operator. If the well operator did not admit liability this could be a costly exercise if legal action was required which could be beyond the means of a small homeowner with few assets or savings. Furthermore any civil action against a well operator is far from certain with the property owner having to rely on case law set of nuisance set out in *Rylands v Fletcher* which was a case relating to the escape of hazardous materials following the construction of a reservoir.

# 27 Considerations for the insurance industry

## continued

### Development of fracking as a peril

As almost all property insurance wordings work on a named perils basis, property insurers could decide to add damage caused by fracking-activities as a specific peril. Insurers would add a specific peril for fracking activities and could use it as a distinguishing feature in marketing material as it would clear up any perceived ambiguity as to whether damage caused by fracking activities is covered or not. This would be in a similar way that travel policies were advertised as being “volcano and ash-cloud friendly” after the eruption of Eyjafjallajökull in Iceland in spring 2010 which caused flights across Europe to be cancelled.

Fracking as a specific peril could still leave a lot of uncertainties for consumers, for example if there is a small earthquake, how would a policyholder prove what damage was caused by the earthquake? Small cracking in a wall could possibly be old and it would be difficult to prove the damage is recent and actually caused by the earthquake. Furthermore, insurers could put a high excess for losses caused by a fracking peril, for example, many insurers have a high excess for subsidence usually £1000.

One benefit of developing a specific fracking peril would be that policyholders have the choice of whether to purchase it or not. If a property is not close to a fracking site then there would be no need to add the fracking peril to any combined policy and so save money.

### Narrowing of cover

If there are any likely property losses resulting from fracking related activities, there is the possibility that premiums will increase and cover will narrow. Neither of these are in the interests of consumers.

It is strongly recommended that an organisation such as the industry trade body the Association of British Insurers, monitors the wording of property insurance over a period of ten years in order to scrutinise the level of cover provided and ensure that it is not unnecessarily restricted due to fracking losses or perceived risks.

# 28 Considerations for the insurance industry

## continued

### Government Initiative

Whenever a consumer is potentially going to lose out it is the Government's job to help them out. If any of the above situations arise then consumers are left with higher insurance prices for less cover.

There is a difference in opinion in the political sphere with central government pushing ahead with fracking however this is counteracted by local government and council opposition. For example former Prime Minister David Cameron's remarks in January 2014 that the government were "going all out for fracking" can be contrasted with Lancashire council refusing an application for consent on planning grounds. This however is not unique to fracking and occurs with other energy industries, for example wind farming permissions are often rejected by local councils.

However, this report is drafted with the assumption that the Westminster Government's desires for fracking across many parts of the country will proceed. Therefore given that the Government are pushing ahead with fracking in a big way it would be in their objective to help out consumers who are at a loss with higher insurance prices for less cover. One option would be to make any fracking-related incidents a strict liability offence. If a contractor is pumping fluid into a well and if there is a small scale earthquake which results in damage to properties, it could be a strict liability that the damage was caused by the well operator. The fracking company would then have to compensate the property owners directly and there would be no need for an insurance company in the middle. Alternatively a homeowner can claim via their property insurer but the insurer can easily bring a subrogated claim against the fracking company.

In order to make this a strict liability offence, a lot of lobbying of government would be required. The main problems with this are twofold (i) most anti-fracking groups are so against the process that they cannot comprehend a situation where this process is carried out in the UK, therefore they are more interested in stopping this altogether rather than petitioning for something like this, and (ii) the other party who would undertake such lobbying would be the insurance industry; however it would not be in their favour to do this given most do not see this as a big issue at present.

# 29 Considerations for the insurance industry

## continued

### Reinsurance scheme

Another way the insurance industry can minimise any of the fracking related risks without increasing the costs of insurance premiums significantly could be to work with the ABI and set up a reinsurance scheme along the lines of Flood Re for flooding or Pool Re for terrorism. For this example we will name it Frack Re. If this scheme ran similarly to Flood Re, insurers would be able to cede policies into Frack Re if the fracking risk is considered to be high. If the consumer then has a fracking claim the insurer would be able to claim back the costs of the money paid out from the scheme.

We should however make it clear that we are not comparing fracking to flooding as the two are completely different risks. Many people are aware of the high frequency and severity of flooding claims in the UK and we don't expect fracking to be an issue in the way flooding is.

The initiative to set up a Frack Re would likely be a joint venture between the Government and the ABI, however the main question is would key stakeholders want such a Frack Re to be developed? To take a comparison with Flood Re, this was only set up after a joint industry and government led solution following many decades of flooding resulting in large catastrophes and many insurers taking decisions not to cover properties located in certain locations or being charged high premiums and having substantial excesses. Flood Re is primarily funded by insurers and required legislation to get it up and running. Therefore a Frack Re scheme could require a significant amount of time and financial investment from stakeholders and at present they would be reluctant to consider this given that fracking is being viewed as low risk.

Floods have been a problem for the UK over a number of years and a solution was required to ensure flood cover was still available. At present large scale fracking incidents are only a theory and as we have stated elsewhere in this report, many insurers do not see it as a big risk which would need a Frack Re to step in.

Therefore although it is not recommended here that a Frack Re should be set up, this is something which the insurance industry need to keep in close review. This should be considered only if there is a large catastrophe-style loss that results in many insurers taking the decision to withhold certain types of policies from specific areas.

# 30 Considerations for the insurance industry

## continued

### Buncefield

When considering the potential impact of damage that could occur from a fire/explosion at a fracking site in the UK one of the most relevant cases in recent history is the Buncefield fire that occurred on the 11<sup>th</sup> December 2005.

A fuel-air explosion occurred at an oil storage terminal in Hertfordshire. The flames were not extinguished until the 13<sup>th</sup> December. In total 20 large storage tanks were involved in the fire and the resulting explosions resulted in tremors measuring 2.4 on the Richter Scale. The root cause of the initial explosion appears to be as a result of a fuel storage tank overflowing and the petrol later igniting (cause of ignition unknown due to extent of damage).

The explosions and resulting plumes of smoke caused hundreds of homes to be evacuated and several people ended up in hospital with respiratory issues. The smoke plume could be seen up to 70 miles away and caused wide spread disruption to traffic in the area and inevitably disruption to local businesses.

In total 6 buildings required demolition and 30 required extensive repairs before they could be re-occupied. Thankfully due to the extent of the fire the fuel was consumed rather than soaking into the ground and therefore there was no effect to the groundwater.

It is clear that whilst the risk of explosion is small such incidents can occur. In this case a tank became full and the high-level switch that should have detected this and shut off the supply failed. An alarm should have sounded to alert them that the shut off valve was not operating, but this also failed. It was considered that another item had also short-circuited/failed to cause the initial spark that started the fire and explosion; possibilities include an emergency generator or the fire pump system. Rather than one single cause there is a link of various failures that resulted in extensive damage to the operator's property and the surrounding areas.

In the case of the Buncefield fire it should probably be considered lucky that it occurred in the early hours of the morning, which meant the surrounding offices and buildings were empty of people, had the explosion occurred just 4 hours later office buildings would have been occupied and would almost certainly have resulted in a catastrophic loss of life.

That being said, since this incident and the subsequent inquiry held by the HSE and the EA provided advice on how to prevent such incidents in the future and Fracking operators have strict guidelines they need to comply with before they are granted operating licenses initially.

Of some concern for both consumers and insurers is the recovery timescale for this matter. In total 2,700 claims, equating to nearly £700m, were filed against Total. The main trail to determine liability for the damage did not commence in the High Court until October 2008, with none of the parties at the oil depot accepting liability. The High Court found Total liable for the blast in March 2009, stating that they were satisfied that Total had control of the tank filling operations at the Buncefield depot. Total argued that they should not be liable for the damages because it could not 'reasonably have foreseen that it would cause the destruction it did'. Total appealed the decision and this was later dismissed in March 2010, four and a half years following the initial fire.

It is clear that this was a lengthy process and none of the parties responsible for the site were willing to accept liability for the damage caused. Several of the claimants were individuals pursuing a recovery directly via a class action, although it is unclear if this was through personal preference, lack of insurance or inadequate cover. In any event the time period to recover monies puts a strain both on consumers and insurers, who need sufficient funds to cover the losses whilst they pursue a recovery.

# 31 Considerations for the insurance industry

## continued

A meeting with a liability lawyer provided their thoughts on the matter. They thought that initially a claim would be brought against all parties involved with the site and these defendants would later reduce as liability and responsibility was determined. It was considered likely that each insurer involved in the incident would pursue one 'test case' and the remainder of the claims would follow the same route.

If there was a larger catastrophe (as in the Buncefield case) it was considered that any recovery action would be placed on hold to await the outcome of the public enquiry by the HSE and EA etc.

It was agreed that there would be a recovery against the responsible party; the lengthier part of the process would be determining who the responsible party was. Timescales of the enquiries and subsequent recovery process were not discussed.

Whilst we have considered the likelihood of such damage occurring, which is accepted to be small, and have been reassured that appropriate cover will be in place in the unlikely event of such an incident occurring, this does not signal an agreement to accept responsibility for the incident. Or to swiftly reimburse those affected.

Should a similar incident occur will consumers and insurers be faced with another long drawn out legal battle to determine which of the parties on site holds ultimate responsibility for the incident?

In the Buncefield fire case both Total and Herefordshire Oil Storage Ltd agreed that negligence was the cause of the fire, but could not agree on who had been negligent.

What steps could be introduced or agreed ahead of any such incident that could make the process smoother and swifter for all parties involved?

### **Reputational Risk**

From our research, operators are likely to be the first point of recourse should an incident occur on a fracking site. Should the operators and their insurers be giving out advice and assurances now on how they would respond if an incident did occur? As unpalatable as this will no doubt be to prospective insurers of fracking operators, we have seen from flooding events that the media is not shy about naming and shaming insurers for any delays or repudiations, however valid their reasons may be.

Fracking, as minimal as the risks may be, presents an opportunity for the industry to fall short of the public expectations by not being handled correctly or treated fairly. Against this is a backdrop of critical media coverage on both the insurance and fracking industries and the government for pushing this through. Lessons need to be learnt and insurers should be minded to be proactive rather than reactive if they're to avoid reputational damage.

## 32 Final findings and conclusions

At the start of this project we considered fracking to be a process which was subject to a large volume of negative press coverage. We have discovered that there is a wide variety of reasons why people are against fracking from fears of pollution, the impact on green areas, perceptions on increased congestion and traffic in an area to potential devaluation of properties. We have entered this topic with the precaution not to have any strong views on whether fracking was good or bad for the country and hence we have tried to remain neutral, however we have used the assumption that this will be something which is coming to the UK and therefore any risks need to be examined in detail. Our final findings, conclusions and recommendations can be summarised in the following three points:

**Insurance industry being open and transparent about any risks that fracking causes:** the insurance industry should ensure that there is ongoing monitoring of fracking and that there are appropriate discussions and forums where the industry can raise and discuss any emerging risks or issues. The Association of British Insurers, the Chartered Insurance Institute (CII) and the Chartered Institute of Loss Adjusters (CILA) would be best placed to host such forums.

**The insurance industry, energy industry and government to work closer together and to be able to easily communicate with each other on any issues that may occur:** this could be to ensure that legislation and regulations are sufficient to reduce the likelihood of potential risks occurring and if they are not they should consider where they can be improved. For example whether further legislation is required in order to place a stricter liability on fracking operators to ensure a reduction in the likelihood, and potential impact of property damage or injury. If a fracking related incident occurred (such as an earthquake or explosion), then any one affected would expect the fracking operator to accept liability for any injury or damage caused. As commented on in this report, this may not always be as straight forward in practice, but then a consumer or business will have their own insurance policy which, depending on what incident has occurred, may be able to claim through their own policy. One point insurers need to be acutely aware of is that any uncertainty as to where liability rests will always lead to increased litigation and if any such disputes are insurers vs. insurers then the whole industry loses out, either by spending exorbitant sums in legal fees or as a detriment to their reputation. We recommend that the Government set up a cross industry body to discuss such an issue as a way of avoiding any future satellite litigation or coverage wars that could arise following a large fracking incident. This should also consider whether further legislation is required in order to place a stricter liability on fracking operators to ensure a reduction in the likelihood, and potential impact of property damage or injury.

**Insurers should ensure they are ready for any potential claims and understand how their policies will respond:** we would recommend that insurers review their own policy coverage and ensure that they fully understand the potential risks that fracking poses and understand how their policies would respond if claims did occur. This will ensure that they can manage claims effectively and consistently. Individual insurers are responsible for reviewing and deciding the cover they have in place and whether this is suitable to meet their customer's needs. Insurance policies from different insurance providers will vary in terms of the level of cover provided so insurers should ensure that they make their customers aware of any key differences in their policy coverage. Insurers should also ensure their claims departments have the appropriate knowledge, resources and mechanisms to investigate and handle such claims.

# 33 References

As part of our research we have contacted, spoken with, exchanged correspondence and/or used publicly available information from the following:

- Association of British Insurers
- BBC News
- Berrymans Lace Mawer
- Campaign to Protect Rural England
- Chartered Institution of Water and Environmental Management
- Chartered Insurance Institute
- CHEM Trust
- Coal Authority
- DAC Beachcroft
- Department for Business, Energy & Industrial Strategy
- Department for Environment, Food & Rural Affairs
- Department of Energy and Climate Change
- Environment Agency
- Fact Check
- Friends of the Earth
- Greenpeace
- Health and Safety Executive
- Inside Climate News
- Live Science
- Mark Menzies MP
- National Union of Farmers
- NFU Mutual
- OHES Environmental Ltd
- ProPublica
- The Green Party
- The Guardian
- The Independent
- The Telegraph
- UK Onshore Oil and Gas
- Water Framework Directive UK TAG

