

## Second Reading briefing



## Summary

Fracking for shale gas poses significant risks for our rivers and groundwater, including the serious hazard of water pollution and the increased pressure the industry will place on water resources.

If properly implemented and enforced, the current regulatory regime will mitigate some of these issues. However, fracking is a new technology in the UK, and there are inherent risks that cannot be fully addressed by the regulatory regime. Groundwater pollution is one such risk, and clean-up would be expensive (see below) with potentially devastating impacts on the supply of water and the natural environment.

Shale gas exploration and production is also a very water intensive industry. After drilling a standard well, the process of fracking for shale gas requires enormous volumes of water which is combined with sand and chemicals and injected at high pressure deep underground to fracture the shale rock and release the gas. Up to 2,200 m<sup>3</sup> of water is required per well (or roughly the equivalent of an Olympic sized swimming pool) and this process may have to be repeated several times over the life of that well to keep the gas flowing. With proposals for thousands of sites, each with multiple wells, the potential drain on our already water stressed rivers and groundwaters could be huge.

**The Water Bill is an opportunity to address these concerns by reforming the abstraction regime for how we take water from the environment, and by putting in place the necessary provisions to ensure that a financial guarantee is in place to address any pollution incident that may occur.**

## Pollution

Fracking for shale gas involves injecting fracturing fluid at high pressure down a borehole into a shale formation. Waste fracturing fluid will contain various chemical additives, and can pick up other toxins underground such as Naturally Occurring Radioactive Materials.

Contamination of groundwater could occur from a fault in the production well, and surface water contamination could result from spillages associated with waste storage, handling and disposal.

Groundwater remediation costs can be very high. For example:

- A UK Water Industry Research<sup>1</sup> report found that groundwater quality problems cost the water industry about £754 million between 1975 and 2004 in the UK. Of this, £436mn was spent on treatment schemes, £134mn on blending and £184mn on replacement water to compensate for source closures.
- Elevated concentrations of bromide and bromate (from a former chemical works) were found in a chalk aquifer near St Albans, Hertfordshire in 2000, leading to an extensive contamination of public drinking water supply boreholes in the Hatfield area. The estimated cost of groundwater remediation, which lasted about a decade (2000-2010), was in a region of £16 million.

Given that groundwater cleanup is costly and can take decades, even if liability can be proven there remains a risk that companies could go bankrupt, leaving taxpayers, water companies or others with the costs. This is currently a

<sup>1</sup> UKWIR report 04/WR/09/8

major issue, for example, with Scottish Coal, whose liquidators have been given permission to abandon coal mines and polluted land without carrying out restoration or controlling pollution from the sites.

Fracking and other unconventional oil and gas extraction techniques are not subject to a unique regulatory regime, however many of the activities are regulated under the Environmental Permitting (England and Wales) Regulations 2010.

**The Water Bill should therefore be amended to include a provision that requires the Environment Agency to ensure onshore oil and gas operators have secured Financial Provisions to cover a range of eventualities, including groundwater pollution, before issuing permits under the Environmental Permitting Regime.**

## Water stress

The vast majority of the water we use is taken from the environment by abstraction. This is where water is taken directly from either rivers or groundwater through wells and boreholes. In England a third of all our domestic water supply comes from groundwater reserves, and they are vital to industry and farming, being worth roughly £8 billion to the economy. Our rivers and wetlands are also partly fed by groundwater and some are almost entirely dependent on it, yet almost three quarters of our rivers are ecologically degraded through over-abstraction, drainage and pollution.

The water abstraction regime has barely been reviewed since the 1960s and there are some major issues. Currently 80% of abstraction licences are permanent, which means there is little or no opportunity for review or adjustment. The majority of licence holders use only 50% of their allotted volume of water, yet most of the rivers and groundwaters in England and Wales would be at serious risk of damage if these unused volumes were abstracted.

There are few rules to prevent this water being used and no incentives at all to encourage efficient usage. Charges are not linked to the volume taken, nor the scarcity or vulnerability of the environment, and no consideration is taken for the amount of water that is actually available. Whilst a new system for regulating abstraction is being considered, with a consultation planned for later this year, there is no legally-binding timetable for implementation.

All of this is even before we consider the implications of fracking. The government has stated that regulation around fracking will ensure no harm comes to our environment. Yet fracking companies could put huge pressure on our rivers by buying supplies from water companies with unused but already allotted volumes. Even worse, the new Water Bill raises the prospect of trades that would allow them to buy directly from existing abstraction licence holders.

**The Water Bill should therefore be amended to include a legislative framework for abstraction reform, giving the Government powers to reform the abstraction regime from 2015, according to the principles set out in the Water White Paper. This will go a long way to ensure that additional pressure on water resources from fracking does not result in the over abstraction of water from areas which are already under water stress.**

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