

New Year Shales



Sam Boileau and **Laura Mackett** of Dentons look at waste issues within the practice of fracking, from the type and volume of wastes generated to the permits required to deal with them



There has been a great deal in the press over the last year in relation to the prospect of onshore shale production projects in the UK. The British Geological Survey's July 2013 report for DECC estimated shale gas resources in central Britain of 822-2 281 trillion cubic feet. Whilst this is not an estimate of shale gas reserves, ie gas technically and economically recoverable, government, industry and the Great British public have certainly sat up and taken note.

A number of oil and gas companies have taken up onshore UK shale licences, hoping for financial returns as well as knowledge and experience to transfer to potential shale projects across Europe. Their interest and investment will no doubt be bolstered by the new tax allowance announced by the Chancellor in the Autumn Statement. Despite the economically attractive aspects of shale, the public

are still wary of the technology, while protestor action has also been in the media spotlight and has caused delays and costs to projects at their very earliest stages.

The press has focused on the reported environmental risks associated with fracking, including seismic activity, groundwater pollution and risks posed to water resources by the considerable water demands of a shale project. A point which few commentators pick up on, however, is that waste regulation is likely to play an important role in the regulation of shale projects. This article takes a look at some of the issues.

Wastes Generated

SHALE PROJECTS are likely to generate a very wide range of wastes. These include drill cuttings; spent drilling muds; flowback fluid mixed with produced water; proppants such as sand removed from flowback fluid; well stimulation fluid remaining underground on completion of the operation; waste gas including any fugitive or transient emissions; and any condensates or contaminated residues that are discarded.

Many of these wastes will need to be dealt with on site; an environmental permit will therefore be required. The oil and gas industry is not unfamiliar with the waste management regime. Indeed, other onshore oil and gas facilities such as oil refineries frequently have their own waste processing facilities on site. That said, for shale gas projects, there

Hydraulic fracturing equipment in use at Cuadrilla's Preese Hall site in Lancashire



are some added complications and issues which distinguish them from conventional oil and gas projects.

- Fracking projects will generate large quantities of waste liquids, which will require treatment either on or off site. The Environment Agency will not accept storage of flowback fluids or produced water in open surface lagoons, as often seen in US shale projects, so waste fluids will need to be piped or tanked away for treatment.
- Waste from fracking operations will be "extractive waste" under the Mining Waste Directive (MWD). The MWD requires extractive waste to be managed in accordance with certain mining-specific rules. It is implemented via the Environmental Permitting (England & Wales) Regulations 2010.
- Fracking involves the injection of large volumes of water, which are likely to pick up naturally occurring radioactive materials (NORM) from underground strata. When flowback fluid, produced water and other materials such as sand and sediment return to the surface they may contain sufficient NORM to be classed as radioactive waste and require an environmental permit for their storage and disposal.
- Fracking sites could be "Category A" mines under the MWD if they handle hazardous waste above certain thresholds, or if an operational management failure could lead to severe environmental harm. If so, this would result in a more onerous permit application process as well as the need for a major accident prevention policy, an off-site emergency plan and a financial guarantee to ensure funds are available for aftercare costs.
- End-of-waste arguments arise around the recycling and re-use of fracking fluids. The Environment Agency considers it is unlikely that flowback fluid and produced waters will be re-used at the exploration stage, but notes there is no absolute ban on this in the MWD. If flowback fluid can be treated to the point where it performs the same function as fresh injection fluid, the

Environment Agency considers it will no longer be a waste and can therefore be re-used in well stimulation. The Agency will need to assess any proposal for reuse.

- Any well stimulation fluid remaining in the ground is likely to be considered a waste and subject to regulation under an environmental permit at the point it no longer serves a useful purpose, for example, when drilling is suspended or a well is abandoned. At that point, the Environment Agency considers the fractures in the target formation will form an area designated for the deposit of waste.
- For waste gas disposal, the Environment Agency prefers the use of enclosed flares. Waste gas may be vented in a controlled manner where flaring is not a safe or practical option. Waste management plans should address management of waste gas as well as the detection and prevention of fugitive methane emissions. An environmental permit and consent from DECC may also be required.

Many waste industry players will be familiar with these legal regimes. They will form part of a complex patchwork of regulatory controls that will apply to onshore shale projects, including planning, a range of environmental controls, licensing and the Petroleum Act.

The waste issues inherent in shale gas projects may give rise to opportunities for the waste sector to add value and bring expertise, for example, in relation to waste treatment technologies and on-site recycling and disposal issues. [CIWM](#)

Sam is a partner at Dentons specialising in environmental and health and safety law. He is recognised as a leading environmental lawyer in the legal directory Chambers and as a health and safety practitioner in Legal 500. Sam speaks regularly at industry conferences, especially in the waste and energy sectors.

Laura is a lawyer in Dentons' Energy, Infrastructure and Project Finance department specialising in UK, EU and international environmental and health and safety law.

A company director for a Manchester-based skip rental firm has been prosecuted after waste was illegally deposited on an embankment close to a public footpath. MCR Central Skip Hire boss, Andrew Smith, pleaded guilty to failing to prevent his company depositing waste on a site without an environmental permit. Waste had been deposited onto the embankment from the distribution centre, where MCR Central Skip Hire had been contracted to clear the site. Smith, whose financial circumstances were taken into account, was fined £500.

The Environment Agency and Teignbridge District Council have launched an appeal for information after a drum of highly dangerous acid was fly-tipped in a public car park near Shaldon, South Devon. The 25-litre drum was unopened and undamaged. It contained an acid-based formulation with a trade name 'Neolith' used by the construction industry as a masonry cleaner. A specialist hazardous waste company was called in to remove the drum and transport it to a suitable site for safe disposal. Members of the public can call the Environment Agency's free 24-hour hotline on 0800 80 70 60 to report environmental crimes.

The Scottish Environment Protection Agency has introduced a new Waste Crime Team to help tackle the most serious offenders, working in partnership with law enforcement agencies to identify and disrupt serious organised crime within the waste sector. Calum MacDonald, SEPA executive director, said: "The waste industry is a cash rich environment and the significant sums of money involved make it attractive to those with an interest in money laundering... The investigatory processes and activities required to identify those involved needs a specialist, focused approach, which this new team can provide."

A Kent man who was employed to keep a farm site clear of illegally dumped waste has been sentenced to carry out 200 hours of community service and pay costs of £8 440 by Canterbury Magistrates' Court... for illegally dumping waste. David Powell was employed as a caretaker at the site following previous illegal waste dumping that had taken place in 2009. He knew the farm owners and was appointed to keep the site clean and tidy after extra security measures had been put in place.