

Fracking

By Joanne Green

Fracking is the process of completing retrieval of Natural Gas. For some reason the term is widely associated with unconventional gas retrieval even though it has been used for years in conventional gas retrieval. The act of fracking is the breaking into a rock unit source. Conventional gas is found within impermeable rock units whereas unconventional gas is located within permeable rock because those rocks have not been affected by natural seismic activity which is what enables the gas to migrate into an impermeable rock reservoir initially. [My question here is do aftershocks reseal the impermeable rock?] Because the unconventional gas remains trapped within the permeable rock, these locations are called resources and not reservoirs. Resources are hidden within spaces in seams of rock; it is these rocks requiring anthropogenic fracturing to release their shale gas. To prevent gas absconding wells are placed in situ in impermeable rock where the gas is brought up to the surface. There are two ways to release the gas: fracking and horizontal drilling within the seam where the well extends, methods used for over seven decades in America.

“But we are not in America we’re in the UK,” you may say.

“Yes,” I reply “and we have a Gas Generation Strategy to help provide an affordable solution to the UKs ever-increasing energy usage trends.”

Shale gas in itself may not be the affordable solution as others argue, however, with the UK having the codified Environmental Impact Assessment Directive 2011/92/EU that has general public consensus.

Historically the Cullen Report 1990 investigated the offshore Piper Alpha platform disaster where 162 people died. The report’s 106 recommendations, welcomed by the oil and gas industry focussed upon improving the health and safety of installation and their management systems. All of the recommendations were Actioned and these reduced incidents.

Since then a co-regulatory approach has been developed for onshore gas exploration between Department of Energy & Climate Change (DECC), Landowners, Coal Authority (CA), Local Planning Authority (LPA), Environment Agency (EA), Health and Safety Executive (HSE), with each having a specific role. DECC issue exclusivity licences in License Rounds authorising operations in specific predetermined locations visible on maps. This process is not about selling to the highest bidder; organisations need to provide evidence of their operations, plans,

capacities in addition to meeting stringent criteria. For organisations wanting to drill upon someone else's land they require landowner consent to drill upon that land. Where drilling may impact upon coal seams, CA is required too; these go into future evidence packs for regulatory scrutiny. The LPA requires organisations to work with the EA where an Environmental Impact Assessment (EIA) is required and for an Environmental Permit to be granted. Until recently EIAs took six months to conclude because of processes and public consultation. Consultation remains mandated by Article but the new EIA Directive incorporates a fuller life cycle than historically, such as design, mitigation, alternatives and guidance sought. Once LPA grant permission HSE inspect the site prior to operations to ensure design and operation has the capacity to operate safely (to people, environment and environmental resources such as water) and has effective management systems in place for adverse circumstances. When satisfied with their investigation the HSE issues an intention to drill notice to the EA. The organisation then needs to return to DECC and present geological information and request drilling consent. If granted further tests need to be paid for by the organisation to illustrate that the well contains viable resources. Overall the organisation produces the same or similar documentation to each regulator and co-regulation something that does not cease once authorisations have been granted, they continue throughout operations for monitoring purposes. It'll be during the EIA that water usage and flow back issues will be addressed and monitored during activity. In relation to fracking this will involve continual seismic monitoring as requested by DECC during formation testing in the exploration phase in Lancashire. Perhaps the British Geological Society could add a link into to show an Earthquake Realtime Map as United States Geological Survey do as this may give reassurance to the general public during UK fracking activities.

Further reading:

American States Geological Survey. 2012. Realtime Map. Available from: <http://earthquake.usgs.gov/earthquakes/map/>

DECC. 20 December 2012. Quarterly energy statistics: energy trends and quarterly energy prices. Available from: http://www.decc.gov.uk/en/content/cms/news/pn12_165/pn12_165.aspx

DECC. 2012. Gas Generation Strategy. Available from: <http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/oil-gas/7165-gas-generation-strategy.pdf>

Official Journal of the European Union. 13 December 2011. Directive 2011/92/EU. Available from: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:026:0001:0021:EN:PDF>

Paleontological Research Institute. 2012. Understanding drilling technology. In Marcellus shale: Issue 6 Jan 2012. Available from: http://www.museumoftheearth.org/files/marcellus/Marcellus_issue6.pdf

Rigzone. 2012. How does formation testing work? Available from: http://www.rigzone.com/training/insight_pf.asp?i_id=318

Rigzone. 2012. How does well logging work? Available from:
http://www.rigzone.com/training/insight_pf.asp?i_id=298