

# Brief Review of The Royal Society/ Royal Academy of Engineering Report and the present position of Shale Gas Regulation

Based on “Shale gas extraction in the UK: a review of hydraulic fracturing” published by the RS/RAEng June 2012 and “Government response to RAE/RS report “Shale gas extraction in the UK: a review of hydraulic fracturing” published by the DECC in Dec 2012. In addition based on meetings with the DECC between the author and Simon Toole (Head of Licensing), Duarte Figueira (Head of Office for Unconventional Gas and Oil) and Naldi Hinds (OUGO – Regulation).

## ABSTRACT

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**THE ROYAL SOCIETY & THE ROYAL ACADEMY OF ENGINEERING: SHALE GAS EXTRACTION IN THE UK: A REVIEW OF HYDRAULIC FRACTURING. JUNE 2012.**

**REVIEW OF PROGRESS BY MICHAEL HILL, B.Sc (Hons.) C.ENG MIET, HYDRAULIC FRACTURING REGULATION EXPERT AND CONTRIBUTOR TO THE RS/RAEng REPORT.**

This review is a brief examination of progress with fracking regulations since publication of the Royal Society (RS)/Royal Academy of Engineering (RAEng) report in June 2012 plus specific comments on two of the ten RS/RAEng recommendations, to illustrate the present status of implementation of those recommendations by the DECC. It is clear that whilst the DECC claim to have acted on all of the RS/RAEng recommendations, they have in fact not been acted upon in full, as claimed by the Secretary of State (Mr. Ed Davey M.P.) in the House of Commons and to the media in general. The author sets out his reasons for this conclusion below.

**MISCONCEPTIONS**

High volume hydraulic fracturing is now commonly agreed to have been developed in the US between 2000 and 2003. It has not been practiced for decades. This is a misconception that has been brought about by the use of the term “fracking” meaning hydraulic fracturing. Indeed this practice started in 1947 in Kansas but the quantities of chemicals used, the volume of water, the amount of sand and the pressures bear little resemblance to fracking today. An analogy would be comparing a local grocers shop and WAL-MART. In the fracking industry size matters, a lot, because the risks to public health and the environment are much higher with what is now known as High Volume Hydraulic Fracturing (HVHF) and that is what we are discussing today in the UK. HVHF has four key elements: multiple lateral sections on a single pad, high pressures (~6000 – 20,000 psi), high volumes (20 Million litres/well) and many possible fracking chemicals (to create slickwater for reduction in friction etc.). All four were not present until the turn of the century. This is HVHF. This is what is planned for the UK.

**THE RS/RAEng SUMMARY (*in italics*)**

*The UK’s well examination scheme must be made fit for purpose for onshore activities.* There have been no changes to this system. Nothing has been proposed to make the scheme fit for purpose for onshore. By this I mean amendments/modifications to the regulations that govern shale gas – DCR and BSOR. Without modification of these documents nothing is binding; all is self-regulatory and it is up to the operator whether they follow guidelines/best practices or not.

*The UK’s health and safety regulators and environmental regulators should work together to develop guidelines specific to shale gas extraction.* This has not happened. EA has published its own guidelines which have been severely criticized for not understanding shale gas operations<sup>(2)</sup>. There has been no joint development between the regulators. The DECC has published guidelines but these are in contrast to the stated operational activities of the regulators<sup>(3)</sup>. Since the publication of the RS/RAE report the EA has been cut back by 10% (1,400 staff) by 2015. The HSE (Offshore Safety Div.) has been “streamlined” and now no longer exists in its original form and with its head, Steve Walker, no longer working in this area.

## GLOSSARY

iHVHF:	Intensive High Volume Hydraulic Fracturing
UFF:	Unconventional Fossil Fuels
EIA:	Environmental Impact Assessment
DECC:	Dept. of Energy and Climate Change
EA:	Environment Agency
HSE:	Health and Safety Executive
OSD:	Offshore Safety Division
CBL:	Cement Bond Log
BSOR:	Borehole Site and Operations Regulations. 1995.
DCR:	Offshore Installations and Wells (Design and Construction). 1996.
MSDS:	Material Safety Data Sheet (standard availability across Pharma/Chem industry)
MWD:	Mining Waste Directive
SCADA:	Supervisory Control And Data Acquisition
UKOOG:	United Kingdom Onshore Operators Group
RS:	The Royal Society
RAE:	The Royal Academy of Engineering

## REFERENCES

1. Items in *italics* come from the Royal Society/RAE Report on Shale gas Extraction published June 2012.
2. Environment Agency – Onshore oil and gas exploratory operations: technical guidance published August 2013.
3. Dept. of Energy & Climate Change – About Shale gas and hydraulic fracturing (fracking) published July 2013.
4. The UK Representation at the EU Commission. DOC Ref 2012.0297 (COD). E-mail from Lowri Lloyd Hughes Second Secretary EP Sections UKREP.
5. Dept. of Energy & Climate- Government response to the RAE/RS report. Ver Final A04- 10<sup>th</sup> Dec 2012.
6. Mail to Mike Hill from Donald Dobson (HSE) 8<sup>th</sup> Sept, 2011.
7. The Scotsman - Frank Urquhart – 29<sup>th</sup> March, 2013.
8. HSE Web site: <http://www.hse.gov.uk/offshore/index.htm> (there is not an /onshore tab)
9. EA Meeting – Mr. Steve Molyneaux and Mike Hill. July 2012.
10. EA Environment Agency – Onshore oil and gas exploratory operations: technical guidance published August 2013 - Groundwater Protection. (Sec 2.2.5 IPPC S1.02 Gasification, Liquefaction and Refining Sector – March 2006)
11. EA publication – Commitment to streamline and simplify environmental regulation of onshore oil and gas exploratory activities – 27<sup>th</sup> June 2013.

## **AUTHOR**

Michael Hill is a Chartered Electrical Engineer. He studied Electrical and Electronic Engineering at Loughborough University following sponsorship by Marconi Avionics Ltd. and his successful apprenticeship. Mike worked in oil and gas as a wireline engineer and then as the engineer on seismic survey crews in the 1990s. He's now a director of a small engineering consultancy specialising in process automation of oil and gas rig equipment. Since, March 2010 Mike has been researching regulations into onshore exploration and development.

He has written several papers on regulating shale gas and has also been published in local and national media including The Guardian, The Times and Private Eye. Mike has also worked on news articles with the BBC, Bloomberg, RTL (German TV) and the Dutch national broadcaster – NOS.

He has consulted/advised/given evidence to: The Dept. of Energy and Climate Change (U.K. Gov.), The European Commission (DG-ENV), Office for Unconventional Gas and Oil, the local councils (FBC, WBC, LCC), The Royal Society, the UK Regulators (HSE, EA), NGOs (FoE, COOP, RAFF, EKAF, REAF, FFF), the British Geological Survey and the industry. He has spoken at numerous conferences, Q&A Panels, public meetings, professional bodies and in the media. He lives in Lytham St. Annes, Lancashire, England.