



Regulating the Frackers

*A study of U.K. Regulation and Implementation on Hydraulic Fracturing in
the U.K.*

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Who and why?

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- Chartered Electrical Engineer
- Ex-oil and gas (wireline and seismic)
- Fylde Borough Council Technical Advisor to Task and Finish Group Shale Gas
- Local resident in the key U.K. shale gas zone

Regulation in the U.K. – Initial Position

1. Expectation: Industry complying ‘just’/ paying “lip service” and authorities “full on” regulating, testing and inspecting.
2. Reality: Cuadrilla over compensating for a lack of regulation and the authorities paying “lip service”.
3. No overview: All the agencies/authorities act on their own. There is confusion as to who is responsible for what and when.

Regulation in the U.K. – The Investigation

- Started investigation in December 2010.
- Self funded to remain independent. Cost is presently approx. £17K. Passionate I am. Study has told me what regs are needed and how it should be implemented.
- On what basis: Freedom of Information Act responses (FOI), site trips, meetings, speaking at conferences, letters, mails and calls.
- With the DECC, EA, HSE, BGS, Cuadrilla and Select Committee – DECC, IGEM, United Utilities, Royal Society and Royal Academy of Engineering

Regulation in the U.K. – Brief Examples

- Recycle Flow back – Is this allowed or is it illegal?

Cuadrilla (Chris Heard) states *“important part of the process is to recycle the water”*

The EA Head (Dr. Tony Grayling) states *“Disposal of waste water is covered by the Mining Waste Directive and Environmental Planning Directive 2010 and as such recycling of water is not allowed and the Environment Agency is still seeking legal clarity on this”*

- Regulation – is it self regulatory?

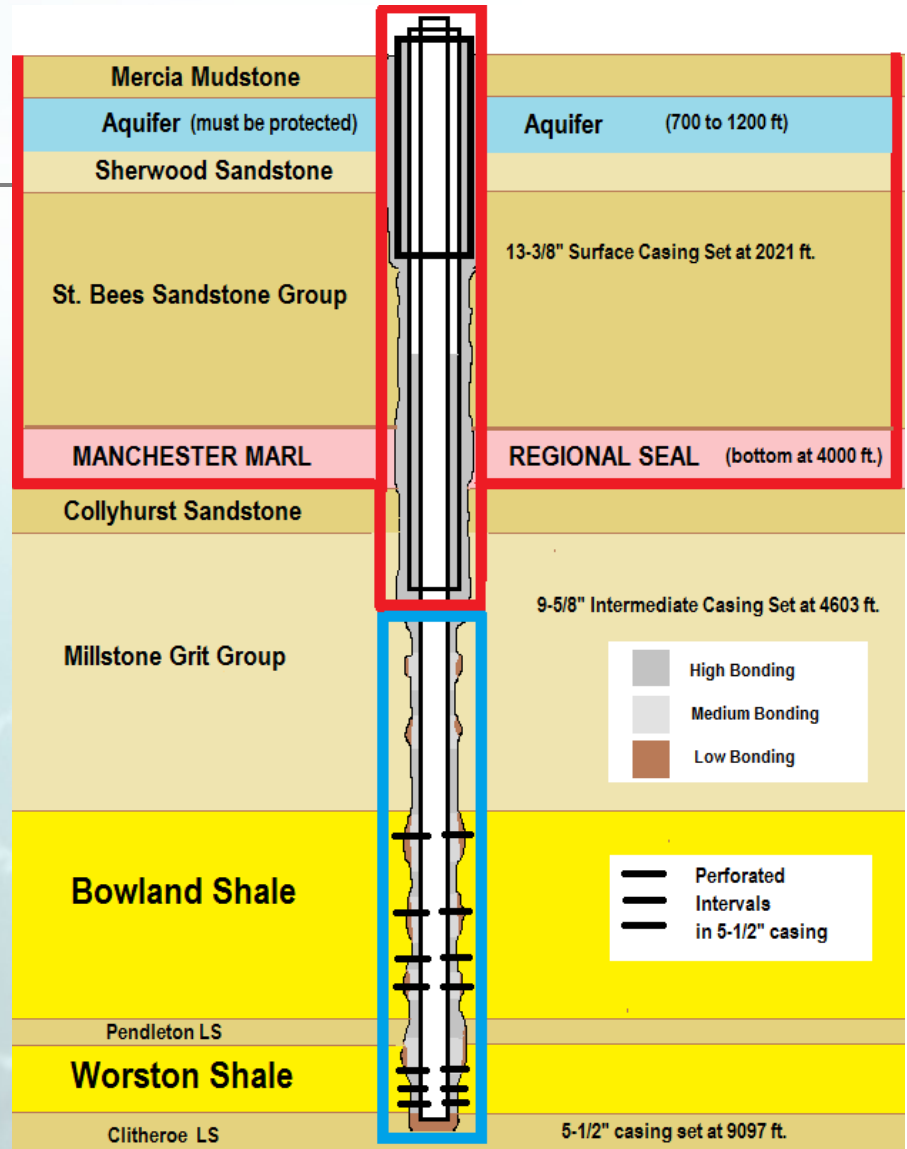
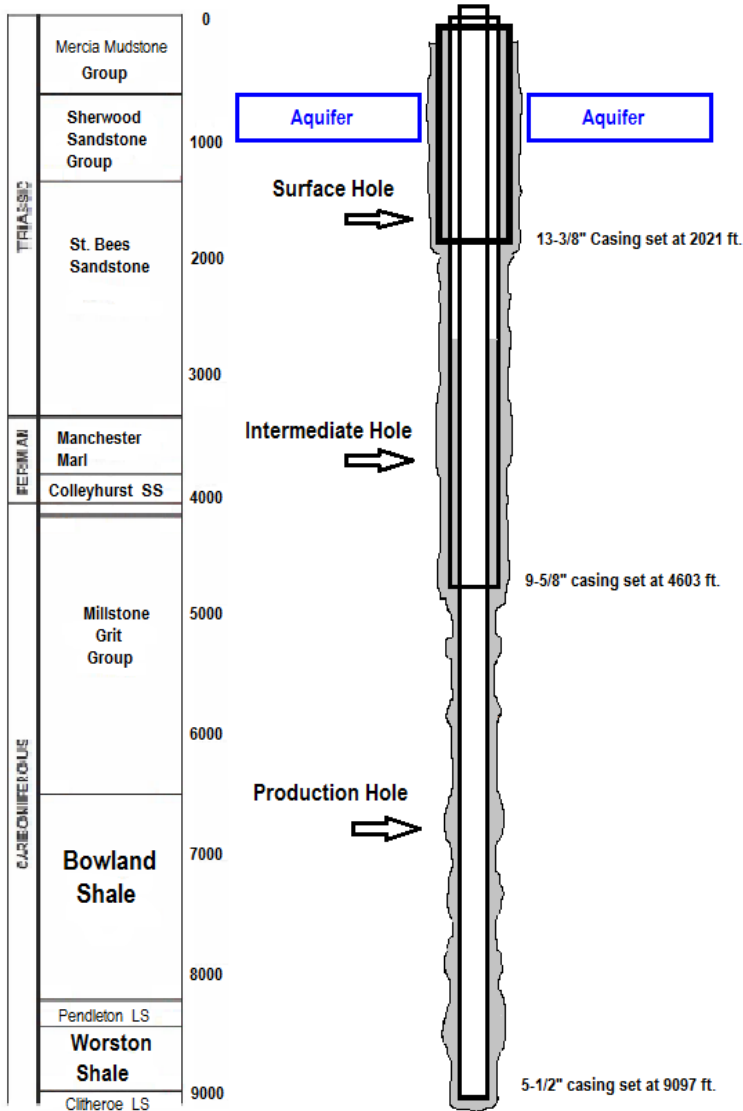
Cuadrilla (Chris Heard) states *“we are monitored all the time by HSE and EA - it is not self regulating”*

HSE (Donald Dobson – Head of Well Discipline) states *“To date HSE has conducted one site inspection of Cuadrilla's UK operations; it focused on the occupational safety aspects of the hydraulic fracturing and that the management controls identified in the notification were in place. We do not generally make unannounced site visits”*

Regulation in the U.K. – Respect

- RESPECT - Green, Environment, Aesthetic, Financial (House and Tourist)
 - ANTI- FRACKING – CROP, RAFF, REAF. F-O., YOU?
 - ANTI- NO FRACKING REGULATION
- ANTI- NO FRACKING IMPLEMENTATION OF REGULATION
 - ENGINEERING PRINCIPLES – NOT RUMOURS

Regulation in the U.K. – A Typical Well



Regulation in the U.K. – The Environment Agency - Contamination

- 8 site inspections all unannounced in 12 months
 - Changed to 8 site inspections – all announced
 - Cuadrilla – 2/3 visits per month all unannounced.
 - Fracking chemicals missing off ‘determinand’ list.
- No verification of quantity of flow back water (even though it is subject to a permit)
- Water found to be 10 – 90 times EA max permissible limit. Permit required since 1/Oct/2011.
- RIA now required. Assessed dose to receptors accounting for accident.
 - Recycling of flowback – illegal (London) – not clear – Preston.
- Resource issues – Coping with any ramp up in number of wells in Lancashire.

Regulation in the U.K. – The Health and Safety Executive- Well Integrity

- Made 1 trip in 2 years
 - Not once verified/inspected or tested well integrity
- No need, low risk, too busy in North Sea following Deep Water Horizon event
- USA learn from our Self Regulatory approach. No proven cases happened in the USA re: Shale Gas.
 - BGS – Documented cases of methane migration by EPA.
- Resource issues – not enough inspectors, could not afford to travel down from Aberdeen to meetings.
 - Rely on BSOR and DCR Offshore regs.
- Rely 100% on self regulation + ICP and offshore guidelines.

Regulation in the U.K. – Lessons from the USA

- USA now implemented strict regulation with state inspectors attending wells regularly doing drilling. Inspect each cement job and sample, verify CBLs, watch FITs, Apply permit to site with well construction details and name of inspector – accountability.
 - We must learn from the mess of 2005 – 2010. Parliament (Tim Yeo)/Industry (Cuadrilla)/BGS (Mike Stephenson) and Consulting Engineers (Mike Hill) all agree – why not the HSE/EA/DECC?

Regulation in the U.K. – What needs to be done now

- On shore specific regulations: 200m not 200 miles (CBL, FITs, AP, Methane, local bore hole testing, 600M rule, seismic TL, flow back recycle & quantity and disposal etc.)
- Verification: Independent (financially and professionally) Similar to US. Removal of reliance on self-regulation.
- Overview: DECC to appoint a person to take an overview of regulatory activities of Shale Gas Sector in the UK.
- Compliance: Random / arranged site trips. Fines, licence revocation, criminal.
- Funding: develop new structure to allow for a levy raised on the industry to fund such an inspection regime.

Regulation in the U.K. – What can you do?

- Must have additional on shore regs to protect us coupled with as new “hands on” implementation regime.
- Please write to your M.P. and the DECC - make clear your view. Please make use my DECC response as basis for your letter and these slides. (copies at front and download from RAFF web). Feel free to state my name and that you attended a meeting. DECC – Simon Toole, Head Licensing Exploration and Development, Floor 3, Area B, 3 Whitehall Place, London. SW1A 2AW.
- Please ask questions in the Q&A following and come up after should you wish. Find out.
- I will continue as an independent engineer to push for regulation.
Follow me on Twitter : Mike Hill@FrackingRegs
- If the status quo persists for rest of exploratory phase and on to development, if this lack of regulation continues then
 - i) Serious Risks
 - ii) Moratorium?