



Is Fracking the Way Forward?

An Interview with Chris Faulkner

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Earlier this year, Petro Industry News editor Rachael Simpson had the chance to attend a special screening of the independent documentary *Fracknation*, directed by Phelim McAleer, at the House of Lords, UK. Following the screening Rachael then interviewed Chris Faulkner, CEO of the Breitling Energy Corporation, a man known internationally as the 'Frack Master' due to his outspoken advocacy of shale gas extraction and in depth-knowledge of the process.

For all those that haven't seen *Fracknation*, or don't know much about the subject of fracking, can you explain what scientific misunderstandings cause the most opposition to the process?

The biggest one is groundwater contamination. I'm sure everyone has seen the image from the movie *Gasland* of people lighting their water on fire. That image appears all over the world and people think that fracking has caused it. The reality is that yes, the water from the faucet was set on fire and it wasn't staged - but neither was it due to fracking. It was due to biogenic or naturally occurring methane in the water in that area.

I went to Balcombe in May (a drilling site in Sussex, UK) and every person I spoke to there said they were most concerned about fracking destroying the land; that sites will be a toxic wasteland when the fracking is finished and that they won't be able to drink the water any more. Those are the biggest fears. And rightfully so; I live in the Barnett Shale (a geological formation located in the Fort Worth Basin, Texas USA) and there are wells all around my house and underneath my house, and I drink the water every day. I can understand that if people are told they can't drink their tap water anymore that it's a huge issue. I think that is the biggest fear around the world.

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You've previously stated that natural gas emits a fraction of the carbon dioxide, nitrogen and sulphur oxides of coal - what technology or instrumentation do you use to support this statement?

The US EPA (Environmental Protection Agency) has done studies using vapour recovery units, in which they tested the escaped methane and in these studies it was shown that there were between 40-42% less greenhouse gas emissions than those seen with coal, so I don't think anyone can dispute those facts. The coal industry may! In the United States, for example, natural gas production has gone up by 40% - at the same time the methane production had gone down by 20%. Fracking is much cleaner than

coal. I think this is why there is this huge battle between gas and oil/coal in the US. Number one, natural gas is cheaper than oil and coal in the US, which obviously creates a big market, but two; using natural gas instead of coal is actually helping the environment.

Are you proactive in monitoring emissions and the environment to reassure local communities and regulatory bodies that the environmental impact is minimal?

Since 2012 every one of our completions have been Green Completions, using Green Completion technology. We use VRU's (Vapour Recovery Units) to capture methane, and use this natural gas to power our equipment instead of using electricity. We are proactive in that regard. There is actually no requirement in the United States to carry out Green Completions, or even use VRU's, but as a company we changed all of our completions to green ones in 2012.

What instrumentation and technologies do you use to monitor emissions and groundwater?

As part our community outreach effort we take water samples before and after we drill, from within a half-mile to mile radius of the well, and we use these "before and after" water samples to show that the water quality hasn't changed during the drilling process. Again, it's an option, not a requirement, but in the US there is a big grassroots movement to try and get communities behind what we are doing. Therefore, it's a very useful tool for us to have that data, and it doesn't come at huge cost. We are looking at technology that uses a unique tag or identifier in the fracking fluid, so that if that fluid escapes from the well or into the water table the unique identifier will show where it came from. This technology is not yet widely used, it's still being tested in the US, but it will show if the contamination is there or not, and if it is there then it will show where it originated from.

How much water is used in the fracking process?

It varies. It ranges somewhere between 4 million gallons to around 13 million gallons at the top end, for operations in the Eagle Ford, for example. On average it's somewhere between 4 and 6 million gallons per fracking job per well.

And how does that amount tally up against how much shale gas is being produced?

That varies as well. If we say the average is 6 million gallons of water per well, and about 56bcf (billion cubic feet) of gas is being produced per fracking job, so it's quite a considerable amount. You can frack the well once, maybe twice, over 6-10 years, so you put 6 million gallons of water down and 30% of it comes back. You can then inject it into a water well to dispose of it and the fracking well will produce gas for a good 15-20 years. So there is a monstrous amount of time where gas is being produced versus one single time of fracking.

How do you monitor and treat the wastewater from the fracking process?

A certain amount of both the natural brackish water and the fracking fluid are flowed back, and we dispose of this water using Saltwater Disposable or Water Injection wells. The water is pumped into a permanent extra well, which is controversial because it's said that this causes earthquakes, but this has yet to be determined.

How much capital investment is there for instrumentation at a new fracking site?

A lot! This entire industry is driven by technology. Obviously a lot of people think it's still 1940, and it's not - instrumentation, technology and monitoring equipment all really power this industry. Look at the drilling rigs - you've got 2 guys working on the rig floor and one guy that sits in a dog house and uses a joystick to control a fully robotic rig. The rig can walk itself and it can monitor everything its doing. Think about how much is going on there. It's a dangerous job, so you want to know the second something goes wrong; the sooner, the better. There is huge investment for technologies and instrumentation at these sites.

How important are new technologies/instrumentation to this new energy market?

They are massively important. When you consider the fundamental idea that we are drilling a hole 2 miles down and 2 miles across, in the dark, then it becomes clear that the equipment and the instrumentation we're using is a massive part of what we are doing. Without it, we just couldn't do it.

You've spoken before about using existing sites to produce oil and gas - can you explain more?

There is a huge resurgence of what we call Conventional Assets. Like the 1950's all over again - the old becomes new. We started our entire company by going back to mature oil fields, these long forgotten places, and applying new technologies and equipment. The oil we capture today, even with today's technology, is only a very small amount, say 15-20%, 30% tops. Years ago companies were producing just 5-8% of the world's oil, so there is a massive amount still left in ground. We can go back with new

technologies and reinvigorate these sites much more cheaply than you can these new unconventional fields. Oil is not cheap to produce - the average barrel of US oil from, say, the Eagle Ford, costs maybe \$40-50 a barrel, so it's quite expensive.

If you go to these older, more mature fields and apply some new technologies then the cost per barrel is a fraction of that. I think that in the future more will be done; right now everyone is focussed on unconventional oil and shale gas - it's all the rage, if you will - but I think there is a lot more we can also do with older assets by applying new technologies.



Chris Faulkner, the 'Frack Master'

You've referred to fracking as being a "game changer" as long as safety regulations and procedures are adhered to – what are you referring to?

People always think that oil and gas companies don't want regulations, but this couldn't be any further from the truth. Regulations give us guidelines, and more importantly it gives people comfort and peace of mind that things are being monitored and done correctly, and that people are watching. Go to a place like Poland – they jump started shale gas production there without any regulation and sort of worked backwards, building as they went. If you look at what is happening there now you'll see that their success has been very limited. The United Kingdom has regulations in place, frameworks and tax legislation that allow oil and gas companies to invest billions of dollars into developing these assets. Without regulation no one is going to go to any country and start drilling, putting that kind of money in the ground, because it could be the next France or Bulgaria – Total leased a load of land, started drilling, then fracking got banned and suddenly the whole thing was over – they were out.

Regulation is important because it establishes a framework that gives the public peace of mind and understanding. Fracking hasn't yet started mainstream in the UK, though that day is coming, whether environmentalists want it or not, so people have to understand the regulation and feel comfortable with it. If fracking caused groundwater contamination, even with regulations in place, we would be having a very different conversation. As an oil and gas company, understanding and adhering to regulations, and even just having the regulations, is a good thing. We would never get off the ground without it because no one would allow it. The public need peace of mind because, as mentioned earlier, they are the ones drinking the tap water. If contamination occurs then we have a big issue.

In my viewpoint, environmentalists aren't scared of fracking –

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they are scared of natural gas. To them I think natural gas, in their mind, causes some kind of deviation or deferment away from the renewable energy society. If no hydrocarbons can come out of the ground then money can't be put into it. They've used fracking as a sort of boogiemer to generate capital for fighting their cause. Go to Greenpeace and ask them what sort of energy they're for and its energy "efficiency". Well great, we could all be more efficient energy users, but we need an energy form to be efficient with. They don't like oil, they don't like nuclear, they don't like gas

- they seem to be against anything. On this planet, we have renewable energy, and that will be a part of the mix – we also have coal, nuclear, oil and gas, and all these forms will be a part of this puzzle. I'm not saying that shale will displace all these other forms of energy, it can't, but the population is getting bigger and bigger by the minute so all these energy forms are needed to power the planet.

Where we are today, with the society that we have, China, Latin America, India; it's really non-stop. I think that shale gas can be a game changer for the UK. Drilling in the UK is never going to get as big as it is in the US, and it doesn't have to be – just a fraction of the (natural gas) resource, 10% for example, will power this country for 5 decades. The UK has to get serious because there is no plan that says the UK is going to get off of gas. Contracts are being signed with Qatar, and with the US for LNG (liquid natural gas) cargo, so obviously the United Kingdom thinks that natural gas will be a piece of the energy puzzle, whatever that looks like, for the next 3, 4 or 5 decades.

The reality is that there are huge quantities of gas beneath your feet, why are you not getting serious about extracting it in a safe and proper way?

I don't think that natural gas is going to stop renewable energy development. We talked about it earlier (after the showing of

“People need to understand that we can't just stick our heads in the sand and hope that Russia keeps the gas on”

Fracknation) – with renewable energy the wind is not always blowing and the sun is not always shining, so you have to have a baseload type of energy. You can't baseload nuclear, neither can you baseload coal. Natural gas will turn on and off with a switch, so it's a great friend of renewable energy as a baseloading factor. The UK has to figure out a way of having energy security and that means diversification and sources of natural gas – it can't all be from Russia, it can't all be from offshore renewables - it has to come from the diversification of energy sources. Look at last year (referring to supply chain interruptions last year stemming from problems at a processing plant in Norway) – how does a country like the United Kingdom come within 6 hours of having no natural gas, and therefore being unable to heat homes in winter? Yet here we are, discussing whether the UK should be producing natural gas for itself.

Finally Chris, what comments would you really like the readers to take away with them?

We can talk about American experiences and American technology and we can bring all of that to the UK. The reality is that we can't bring natural gas a resource. We can't go back 300 million years and go sticking it in the ground if it just isn't there. Natural gas is a huge resource, the Blackpool reserves for example (Lancashire, UK) – but let's just say that we've got the estimates of how much gas there is there wrong, and it's not 1300 tcf, it's 600 tcf – that's still 25 years worth of power for the whole country.

People need to understand that we can't just stick our heads in the sand and hope that Russia keeps the gas on. Ukraine and Qatar will continue to ship more natural gas cargo to Asia because they are paying more than Britain is, and they will continue to pay more. The resource here in UK is huge and we have to find a way to extract and exploit it for the betterment of the country.

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