A green, efficient alternative to fracking that can prevent earthquakes

Whilst the extraction of shale gas in a safe and responsible way is an EU priority, an extraction method easing public concerns has yet to be found. Hydraulic fracturing - commonly known as ‘fracking’ - not only fails to fit the bill, it is also known to trigger earthquakes. A UK-based company is putting forward a promising alternative in the EU-funded OCTOPUS TECHNOLOGY project.

Octopus Completions strongly believes in its technology, which they think ‘will lead to the development of an economical, fast and environmentally sustainable alternative to fracking technologies.’ And, as a matter of fact, a technology even superior to fracking’s so-called ‘green’, waterless counterpart.

Octopus is a drilling technology that creates hundreds of ‘micro laterals’ simultaneously, all emerging from a vertical or horizontal well bore. The technique leaves the mother bore with full bore access for the future, increases productivity by 2 to 10 times compared to state-of-the-art techniques, and enables well completion 40 to 80 days earlier than with existing multi-lateral well-completion technologies.

With support from the SME Instrument, the company is now looking to further develop the technology and demonstrate its efficiency and environmental benefits.
develop the technology and demonstrate its efficiency and environmental performance to potential clients. This certainly seems worthwhile: fracking is currently used in 160 000 wells across the world. The promise of a technique that boosts productivity, avoids the pollution of billions of litres of clean water and reduces the risk of earthquakes arising from the injection of this polluted water into the ground has the potential to shake up the sector.

Nick Barnett from Octopus Completions discusses this potential, the results from the Phase 1 feasibility study and the commercialisation plans ahead.

How is your technology superior to alternatives?

Nick Barnett: Octopus simultaneously drills hundreds of micro laterals, eliminating time wasted on repeated tool changes and trips in and out of the well. After completion, the main well (motherbore) is left uncluttered, allowing easy access for future interventions. There’s no use of additional water or materials, which eliminates almost all the load on local roads and the risk of earth tremors. It also does away with the spectre of pollution - and further stress on road networks - when the foul water has to be ‘re-situated’ after fracking.

What’s your opinion on efforts to develop ‘green’ fracking instead?

Waterless fracking has been going on since 2009 and is technologically a very commendable method of stimulating wells. It is still regarded as unproven though, some 8 years after its introduction and has not yet gained significant traction.

It’s also seen as a costly option, even though the LPG used (propane or butane) can be re-sold after stimulation.

Can you explain how Octopus technology works?

Since many of the details of Octopus are commercially sensitive, this is a very superficial description: Octopus joints are deployed into the well and then normal drilling fluid is used to pressurise the whole system to typical drilling conditions.

This results in micro laterals simultaneously drilling their way out from the motherbore and forming supported ‘tributaries’. Drilling takes only a short while to complete, after which the well is de-pressurised and starts producing. Industry standard models show that yield can be increased by more than three times that of a conventional well.

How did you proceed to enhance this technology?

As with most of our technical developments, we have adopted a process of incremental scaling up. We tested individual element functionality before combining
these elements in a workshop environment for initial systems tests, finally integrating them to form a basic operational system for field trials in the future.

How have potential customers reacted to your work so far?

We have been receiving letters of interest and support from a number of potential customers and, although it is still a little early to be choosing our commercial partner, we are interested in pursuing these early, positive reactions with a view to developing more substantial relationships going forward.

What were the main learnings from your feasibility study?

We now understand better where our early potential markets lie, geographically and by formation/operation type. We have also gained interest in the potential of our technology for the renewables sector.

Are you applying for Phase 2 funding? If so, what will you try to accomplish with this additional support?

We are already building the Phase 2 proposal and believe that this will fast-track our company efficiently and rapidly to the level where we will be able to develop a global presence.

OCTOPUS TECHNOLOGY
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Octopus Technology
Octopus Technology: Shale gas and tight oil drilling technology evolution - 100’s micro laterals drilled simultaneously to maximise well productivity
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