

FRACKING'S METEORIC PATH IN THE US TO BE MIRRORED IN THE UK

The fracking industry is well along a meteoric path across the US where the country is forecast to become the biggest oil producer, surpassing Saudi Arabia, by 2017. It has already edged ahead of Russia as the biggest natural gas producer

The FracShield dual coating system, produced by Castagra, is exceeding the average lifetime of conventional epoxies which average an eight month lifespan

The Green River Formation in the US has, potentially, 3 trillion barrels of oil - three times more oil than the world has consumed in the past 100 years.

Fracking is not only creating bonanzas for countries fortunate to have vast shale deposits which trap oil and gas, it's also allowing old, formerly tapped out oil fields to give up vast amounts of oil that was formerly not economically recoverable by conventional methods.

In simplistic terms, fracking is the high pressure pumping of a cocktail of chemicals deep into rock formations and forcing them to open up with the resultant minute gaps stopped open with grains of sand carried by the liquids that can include a variety of acids such as hydrochloric, sulphuric and formic, as well as ammonia persulfate as found in hair bleach.

One major well can use up to 6 million gallons of water and the process results in huge quantities of wastewater that can require significant post treatment if it is not dumped in very deep waste reservoirs such as old mine workings. When transported in surface road tanker lorries, the liquids have been known to corrode through poorly protected steel within minutes.

In 2011, the top four oil services companies in the US spent over \$2 billion on research and development, with a large proportion being spent on developing greener solutions for the basic

process and liquids being use. Halliburton has developed CleanStim, an enzyme based process based on fruit and vegetable compounds.

The oil and gas industry has, and will continue to face opposition from environmental groups concerned about the groundwater resources and even the potential fracking has to stimulate seismic activity as has been experienced in the UK where large populations exist over the prime UK Lancastrian gas shale play.

The UK is sitting on a potential 200 trillion cubic feet of shale gas worth about £1.5 trillion. Worldwide technically recoverable gas is about 16,000 trillion cubic feet.

Fully exploited, the shale gas reserves would give the UK natural gas independence for 50 years, and

create at least 5,000 jobs. The geo-political significance is enormous, particularly as one views Europe currently with the 'PIIGS' (Portugal, Italy, Ireland, Greece and Spain), in such dire financial states, as well as the reliance on Russia not to turn off the gas tap.

Although fracking has been around since the 1860s, it is in its infancy in the UK. This 'green and pleasant land' with its very strict planning and development regulations and 'green belt' areas, is rapidly waking up to the potential its shale gas can do long term for the nation's horrendous debt load and overall economic and political aspirations in a Europe now dominated by the German powerhouse.

Castagra CEO, Peter Roosen, observed "The oil and gas industry is not paying lip service to the need for more environmentally benign practices in fracking. We are experiencing considerable demand for our veggie plastic coatings, including our FracShield System for protecting tanks, and fracking wastewater road tankers."

The FracShield dual coating system is exceeding the average lifetime of conventional epoxies of eight months. Inspections have shown no sign of any disintegration or failures in the company's largest frac project in Oklahoma, frac tanks, even after deliberate torque testing to see if the coatings would fail in adhesion and subsequent waste water exposure.

Roosen continued, "The UK countryside is so completely different to the arid and rough rangelands in West Texas where thousands of oil pumps dot the area and populations are relatively sparse. We see a very strong emphasis and creativeness developing in the UK for good practices. But, one thing is for sure, fracking can provide the basic enabling technology for the UK for cheap gas energy that will far surpass the economic benefits the North Sea oil boom brought."

Castagra Products, Inc., is a US company with manufacturing capacity for its oil and gas industry protective coatings in Fort Worth and Houston, Texas. The coatings are principally made of vegetable oil and gypsum and have a 20-year history of protecting ships and concrete structures. Castagra has now commenced coating activities in Lancashire. **RSW**

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