

Research and analysis: Hazard assessment of chemicals used in oil and gas well development

This project assessed the properties of a range of chemicals that might be proposed for use in hydraulic fracturing in the oil and gas industry. Of the 31 substances investigated, 27 were found to be non-hazardous. There was insufficient information to make firm recommendations on the other four substances.

The results will be used to help the Environment Agency understand the risks from oil and gas exploration and production, and to ensure that environmental permits include conditions that protect groundwater. Groundwater is an important natural resource. It is used for drinking water supply and provides flow for many of our rivers. Activities that could affect groundwater must be controlled so that they do not cause pollution.

The findings are relevant to anyone interested in unconventional oil and gas operations, including oil and gas companies and planners, members of the public and non-governmental organisations.

Research and analysis: Minimising risks from fluid reinjection to deep geological formations

This report provides a greater understanding of the issues related to re-injecting water back into the oil reservoir when extracting oil or gas from the ground. It provides recommendations on how to manage risks from commonly used reinjection practices and describes alternatives such as offsite treatment and disposal.

The report will help the Environment Agency to make decisions about the regulation of the onshore oil and gas industry in England.

Research and analysis: Developing DNA techniques to identify freshwater invertebrates for environmental monitoring

A PhD student at Bangor University, co-funded by the Environment Agency, has taken us closer to using DNA analysis for routine monitoring of freshwater macroinvertebrates (animals a few millimetres long such as insect larvae). The project successfully used new techniques to analyse environmental DNA (eDNA) released by organisms into water, for example in skin or faeces, to identify invertebrate species that are used as indicators of water quality.

With further developments this approach should offer a quicker, cheaper and more effective way to carry out this important part of our environmental monitoring work. The project was part of a wider programme of research by UK agencies to develop DNA-based methods for environmental monitoring.

Research and analysis: Landfill methane oxidation techniques

This project provides evidence on selecting appropriate methane oxidation techniques over the whole life cycle of a landfill.

When waste is disposed of in a landfill it biodegrades and produces a gas. This landfill gas is mainly made up of carbon dioxide and methane. Methane is a much more potent greenhouse gas than carbon dioxide and the climate change impact of landfilling is reduced by capturing the landfill gas and oxidising the methane to carbon dioxide.

The project provides a framework within which evidence-based decisions can be made on the appropriate methane oxidation techniques at each stage of a landfill's life-cycle. This will enable landfill operators and regulators to ensure the continued oxidation of landfill methane and so will help to mitigate the climate change impact of landfill.

Press release: Environment Agency approves Third Energy's hydraulic fracture plan

The Environment Agency has approved (Tuesday 10 October) Third Energy's hydraulic fracture plan (frack plan) for its well site at Kirby Misperton in North Yorkshire.

An approved frack plan is required before the company starts fracking under the conditions of the operator's environmental permit, which was issued by the Environment Agency in April 2016 after extensive public consultation.

The Environment Agency is confident, following a thorough assessment of the frack plan, that Third Energy has demonstrated it has the right procedures in place to control and monitor the fracturing process. The plan will be available to view on the Environment Agency's Citizen Space website.

A spokesperson for the Environment Agency said:

We are satisfied with Third Energy's arrangements for monitoring during and after hydraulic fracturing. The Environment Agency is committed to ensuring that shale gas operations meet the highest environmental standards and can only go ahead if they are safe for people and the environment.

Our environmental permits set out the legal conditions needed to protect groundwater, surface water and air quality and to ensure the safe storage, management and disposal of waste. Our staff will continue to carry out regular on-site checks and audits to ensure that the company is meeting the high standards we require.

The fracture plan and other operational documents relating to Third Energy's operation can be found on the Environment Agency's [Citizen Space website](#).