August 2018

Summary briefing

The acid test:

The case for a ban on acid stimulation of oil and gas wells

Acid stimulation is the use of acid to stimulate oil and gas wells to increase production. This briefing explains the terms used, the risks associated with the process and our concerns.

Acid stimulation has been used to improve the production of wells since the 1950s. However, globally there has been a big increase in the use of a range of well stimulation techniques to allow more exploitation of unconventional oil and gas[i]. Drilling more longer horizontal wells has considerably increased the quantity of fluids and acids used [ii].

Friends of the Earth's main concerns about acid stimulation are:

- It is being proposed and is potentially already being used in England to increase fossil fuel production. But, to avoid the worst impacts of climate change, we need to reduce fossil fuel use fast. Increasing fossil fuel production is not compatible with the climate change goals the UK has signed-up to.
- Regulations are not strong enough to cover the risks associated with acid stimulation. There are significant gaps in knowledge about the chemicals used in the treatments, including overall volumes used, and their toxicity and persistence in the environment, meaning that there are clear risks that residents are right to be concerned about.
- It could involve hundreds of new oil wells, some in our most precious areas of countryside.

For these reasons, we believe the government should immediately put in place a ban on acid well stimulations in England.

We also recommend:

- A full and independent assessment of the health and environmental impacts of acid well stimulations in England is carried out.

- The government should make data publicly available on the number and type of acid stimulations that have taken place in England with estimates of the quantities and types of chemicals that have been used.
- A study is carried out to identify chemicals of concern and how they are being dealt with from all onshore well stimulation operations.
- Surface level development related to acidising of wells should not be allowed in nationally and internationally designated sites.
- A requirement in planning guidance for energy companies to state explicitly if they intend to carry out maintenance acid washing or well stimulation – and the type of treatment planned.

Our full briefing explains what acid stimulation is and sets out our concerns in more detail. It covers the following points:

- Well stimulation is a set of techniques used to allow greater exploitation of oil and gas reservoirs.
- One class of these techniques that is well known is “hydraulic fracking” or just “fracking”, but another class is “acid stimulation”
- Acid stimulation is based on the injection into the well of a fluid containing acid and chemical additives. These are at a much higher concentration than used in hydraulic fracking.
- There are two main acid stimulation treatments: matrix acidising (where the fluid is injected below the fracturing pressure of the rock formation) and acid fracturing (where the fluid is injected at pressure above the fracturing pressure of the rock formation).
- Existing oil wells in England may be using acidising techniques but there appear to be no accessible aggregate data on the number of wells and quantities of chemicals being used.
- Many new wells are likely to be drilled using these techniques – some in areas which are designated for their wildlife or landscape value. We have already seen applications in the South Downs National Park for example.
- There is legitimate concern about the use of acid stimulation treatments for oil exploration with the use of long horizontal wells and therefore high volumes of acidising fluid in England.
- The acids and other chemicals pose risks to the environment and local communities.
- No proper environmental risk assessment study appears to have been performed.
- There are significant data gaps about the toxicity and persistence in the environment of chemicals used in acidising.
- The regulations covering fracking are unlikely to cover acidising well stimulation operations, and this must be addressed.
- In order to avoid catastrophic climate change, new onshore oil and gas extraction projects must be halted whatever processes are used.

The full briefing is available at: https://friendsoftheearth.uk/climate-change/case-ban-acid-stimulation-oil-and-gas-wells

[i] *Acidizing - Treatment in Oil and Gas Operators: Briefing paper.* American Petroleum Institute (API) 2014. http://www.api.org/~/media/files/oil-and-natural-gas/hydraulic-fracturing/acidizing-oil-natural-gas-briefing-paper-v2.pdf

[ii] Abdullah et al., 2017. Toxicity of acidization fluids used in California oil exploration. Toxicological & Environmental Chemistry, 99(1). http://dx.doi.org/10.1080/02772248.2016.1160285