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Key concerns surrounding 'fracking'

1 Disposal of frack fluid

Fracturing fluids are injected into geological formations at high pressure. Once the pressure is released, a mixture of fracturing fluid, methane, compounds and additional water from the deposit flow back to the surface. This water must be collected and properly disposed of. According to industry sources, between 20% and 50% of the water used for hydro-fracking gas wells returns to the surface as flowback. Part of this water will be recycled to fracture future wells. According to other sources, between 9% and 35% recover to the surface.¹ The proper disposal of waste water has been raised as a major issue in North America, particularly regarding the huge quantity of waste water and the improper configuration of sewage plants. Although recycling would appear to be possible in some cases, project costs may increase as a result of the recycling process.

Some problems associated with the improper disposal of water have been reported. Most of these water contaminations are due to improper practices. It has been concluded therefore that very strict handling of these issues is mandatory. In Europe, for example in Germany, reportedly accidents have occurred in hydraulic fracturing operations. For instance, waste water pipes from the tight gas field Söhlingen are reported to have leaked in 2007, causing groundwater contamination with benzene and

¹ European Parliament, 'Impacts of shale gas and shale oil extraction on the environment and on human health' : <http://www.europarl.europa.eu/document/activities/cont/201107/20110715ATT24183/20110715ATT24183EN.pdf>

mercury. Though the corresponding Mining Agency of Lower Saxony (Landesbergbehörde) was correctly informed, reportedly the public noticed the accident only in 2011 when the company started to replace the agricultural soil where the fluids had leaked into the ground.²

Regulations in the UK covering frack fluid are generally more stringent than in the USA. Injection into groundwater of water containing pollutants, including fracturing fluids, requires authorisation. Any application for authorisation must be accompanied by information on the type and concentration of these pollutants.

In England and Wales where a permit is required, information on the type, concentration and volume of all the substances that they intend to discharge to ground, including frack fluids, will be included on the public register. Where frack fluids are injected into formations that do not contain groundwater a permit may not be required. The Environment Agency still expects companies to disclose the nature and composition of the discharge and can use powers under the Environmental Permitting Regulations to obtain such information.

In Scotland, where operators can demonstrate that information on discharges to ground is commercially sensitive they may request that it is withheld from the public register.³

2 Effects of fracking on human health

Possible health effects are mainly caused by the impacts of the relevant emissions into air or water. These consist predominantly of headaches, and long-term effects from volatile organic compounds. Groundwater contamination may be dangerous when inhabitants come into contact with contaminated water. For instance, when small children are frequently washed with contaminated water this may have an effect on allergies and general health. Also, wastewater pits and blow-out fluids are a matter of concern when the skin is exposed.

2.1 Experiences in North America

Beyond potential effects actual health effects and their direct link to hydraulic fracturing activities are rarely documented. Usually, reports on headaches are prominent. The death of young horses in Dish (Texas) has been linked by some to gas drilling there; however, this relation cannot be proven. Other extreme, but well-documented, examples of the health repercussions of drilling exist, although their relation to gas drilling cannot be proven. The case of Laura Amos is stated in a written testimony to the House Committee on Oversight and Government Reform, USA:

2 European Parliament, 'Impacts of shale gas and shale oil extraction on the environment and on human health' : <http://www.europarl.europa.eu/document/activities/cont/201107/20110715ATT24183/20110715ATT24183EN.pdf>

3 UK Parliament, 'Shale Gas: Government Response to the Committee's Fifth Report of Session 2010-12' <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmenergy/1449/144904.htm>

A woman [Laura Amos] from Silt, Garfield County, Colorado called to tell me that she had developed a very rare adrenal tumor and had to have the tumor and her adrenal gland removed. One of the effects of 2-BE [2-butoxy ethanol] was adrenal tumors. She told me that she lived within 900 feet of a busy gas well pad where fracking took place frequently. During one fracking episode her domestic water well erupted. She also began describing the health problems of others who lived near her.]

Another well-known case is that of a nurse, Cathy Behr:

In mid–August [2008] the Colorado debate intensified when news broke that Cathy Behr, an emergency room nurse in Durango, Colorado, had almost died after treating a wildcatter who had been splashed in a fracking fluid spill at a BP natural gas rig. Behr stripped the man and stuffed his clothes into plastic bags.... A few days later Behr lay in critical condition facing multiple organ failure.” [Lustgarten 2008]⁴

The Environmental Protection Agency in the US has been forced by the volume of reports of negative environmental and health impacts to conduct an investigation of its effects. Their report will not appear until the end of 2014⁵

3 French ban on fracking

France is the first nation to ban hydraulic fracturing.⁶ The government came under heavy pressure from concerned citizens; a law was passed, by vote of 176 to 151, on Thursday 30 June 2011.⁷ As well as the environmental concerns involved; there was also controversy surrounding the granting of certain exploration permits, particularly in relation to exploration in the south of the country and in the Paris basin. Concerns exist within the liberal wing of French parliament that this 'ban' contains certain loopholes which may allow other forms of shale extraction to continue. The new law provides a two month notification period in which companies with current oil shale drilling permits must notify the state as to which extraction technique they are using; if fracking is declared, or if the company fails to respond within that time period, the permits will be

4 European Parliament, 'Impacts of shale gas and shale oil extraction on the environment and on human health' : <http://www.europarl.europa.eu/document/activities/cont/201107/20110715ATT24183/20110715ATT24183EN.pdf> p.35

5 Irish Times, Legislators must deal with dangers of 'fracking' : <http://www.irishtimes.com/newspaper/opinion/2011/1003/1224305143508.html>, accessed 24/10/2011

6 Planet Save, 'France is Now First Nation to Ban 'Fracking' : <http://planetsave.com/2011/07/10/france-is-now-first-nation-to-ban-fracking/>, accessed 24/10/2011

7 Le Point, 'Gaz de schiste : Paris interdit la fracturation hydraulique : http://www.lepoint.fr/economie/gaz-de-schiste-paris-interdit-la-fracturation-hydraulique-01-07-2011-1348093_28.php accessed 24/10/2011

revoked.⁸ Although France is the first country to officially ban fracking, New York State has a moratorium in place⁹. However, moves are currently being made to end it.¹⁰

8 Planet Save, 'France is Now First Nation to Ban 'Fracking' : <http://planetsave.com/2011/07/10/france-is-now-first-nation-to-ban-fracking/>, accessed 24/10/2011

9 Financial Times, '<http://www.ft.com/cms/s/0/1a98b436-e2c5-11e0-897a-00144feabdc0.html#axzz1b1wsFspl>

10 Planet Save, 'France is Now First Nation to Ban 'Fracking' : <http://planetsave.com/2011/07/10/france-is-now-first-nation-to-ban-fracking/>, accessed 24/10/2011