Why fracking is bad for your health

Friends of the Earth Scotland Supporters Briefing

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There is **growing evidence that shale gas and coalbed methane extraction** are linked to numerous potential **adverse health impacts**. Communities living near gas fields report a wide range of symptoms, while academic studies point to very serious medium and longer-term effects.

Researchers in the US have warned that the unconventional oil and gas industry is an 'uncontrolled health experiment on an enormous scale'.[1]

From the toxic chemicals used in drilling and fracking fluids, to the pollution caused by heavy site traffic and equipment, it seems **increasingly clear that the fracking industry is bad for our health**.

Health symptoms

One of the most detailed public health studies to date was conducted by the New York State's Department of Health, leading to the state's ban on fracking.[2]

The review discussed numerous findings of increased **symptoms reported by residents living near gas drilling sites**, including skin rashes, nausea and vomiting, abdominal pain, breathing difficulties, coughs, nosebleeds, anxiety and stress, headaches, dizziness, eye and throat irritation. These symptoms are **consistent with exposure to chemicals used in gas fracking and drilling**.

Researchers in Pennsylvania found that **increased rates of hospitalisation correlated with a dramatic increase in drilling and fracking activity** in the state. The data examined suggested a link between well density and increased numbers of patients with heart and skin conditions as well as tumours and urological conditions.[3]

Toxic cocktail

The drilling and fracking processes use a range of chemicals that are harmful to health, while also mobilising toxic and radioactive substances that naturally occur in shale rock and coal. A 2011 US study questioned 14 major fracking companies and found that they were using many chemicals that are toxic to humans.[4]

A 2011 study led by the Endocrine Disruptor Exchange found that of identifiable chemicals used in 944 industry products, more than 75% could affect the skin, eyes, other sensory organs, the respiratory and

gastrointestinal systems; 40-50% could cause nervous, immune and cardiovascular system and kidney problems; 37% could affect the endocrine system; and 25% could cause cancer and mutations.[5]

Of particular concern are **chemicals used in fracking that are known to disturb hormones in humans and animals**, called endocrine disrupters. Exposure to these chemicals is linked to sperm abnormalities, reduced foetal growth, cardiovascular disease, respiratory dysfunction and asthma.[6,7] Studies on the long-term effects on female mice indicates reduced fertility.[8] Worryingly high concentrations of endocrine disruptors have been documented in air and water around fracking sites.[9]

A 2016 Yale study found that of the 1,117 water pollutants and 143 air pollutants found in fracking fluids and wastewater, 55 chemicals could be classed as known, **probable or possible human carcinogens.**[10]

Children's health

Children and babies are much more vulnerable to exposure to the harmful chemicals used in fracking and drilling. A number of studies have established links between unconventional oil and gas extraction and adverse health outcomes in babies born to mothers living in the vicinity of well pads, including increases in low birth weights, [11] congenital heart defects[12] and even a rise in infant mortality.[13,14] Further, researchers from the Yale School of Public Health have recently identified 20 compounds associated with childhood leukemia and lymphoma in fracking fluids and waste.[15]

Air pollution and water contamination

Spills, leaks and accidents of fracking and drilling fluids or waste at the surface can also **pose a threat to water, air and soil**. Toxic chemicals used or mobilised by the drilling and fracking processes can contaminate nearby soils and groundwater if wells leak. Estimates put well failure on newly drilled wells at between 5-9%, and at upwards of 50% during their lifespan.[16] A 2014 study by the Pennsylvania Department of Environmental Protection revealed that 243 private water supplies had been contaminated or had lost flow and dried up as a result of nearby drilling and fracking operations over seven years, with pollutants including methane, metals and salts.[17]

Both CBM drilling and shale gas fracking create millions of litres of wastewater per well. The **waste 'flowback fluid'** contains both substances introduced during drilling and fracking and toxins naturally occurring in the ground, **including carcinogens and naturally occurring radioactive materials** (NORM). These wastes must be treated and disposed of extremely carefully to avoid environmental pollution and human exposure.

The Scottish Government's Health Impact Assessment says there is **unequivocal evidence that air and waterborne hazards 'would be likely to occur' as a result of fracking**, and there is evidence that waterborne hazards are 'likely to impact negatively' on the quality of groundwater drinking sources.[18] Air born chemicals can leak from pipes, well-heads and other infrastructure. Combined with air pollution from site traffic and equipment, the **resulting air pollution is thought to be a key cause of many of the health symptoms** reported by people living near gas fields.

Community impacts

The fracking industry brings with it wider community changes that can impact on health and wellbeing. Around wellpads, **workers and nearby residents are exposed to continuous noise and light pollution** from drilling, fracking, flaring, and compressor stations. Exposure to noise pollution is linked to cardiovascular disease, cognitive impairment and sleep disturbance, while there is emerging evidence that continuous artificial light exposure is linked to breast cancer in women.[19]

Scottish Government commissioned research on traffic impacts from fracking calculate that up to **1076 extra truck movements per week** (average) could occur for a fracking development of 20 wellpads with 15 wells per pad.[20] In the US, increases in traffic and congestion from thousands of trucks during construction, drilling, fracking and waste disposal have seen rises in the rates of road accidents linked to the fracking industry.[21]

Workers health

Evidence gathered by the Scottish Government highlights that **workers are exposed to respirable crystalline silica** (sand used as a proppant during fracking) at levels **'sufficient to pose a significant health risk'.**[22] Exposure to silica dust is definitively linked to silicosis and lung cancer.[23]

An investigation of occupational exposures found high levels of benzene in the urine of wellpad workers, especially those working close to flowback fluid returning from wells following fracturing.[24] Drilling and fracking jobs also involve workplace hazards including head injuries, traffic accidents, blunt trauma, burns, toxic chemical exposures, heat exhaustion, dehydration, and sleep deprivation.[25]

Precautionary Principle

Adopting a 'precautionary principle' approach would mean that fracking would not be allowed to proceed until there is robust evidence demonstrating no serious risks or harms. In contrast, there is increasing evidence of potentially serious impacts on human populations as well as the wider environment.

A growing number of health professionals are becoming increasingly concerned that the long-term impacts of fracking are not properly understood. A key reason that fracking was banned in New York State was that **'significant gaps' exist in the knowledge of potential public health impacts** from fracking, and that all the potential impacts have not been adequately studied.[26] Scottish Government commissioned research on health and fracking reflects these data gaps, highlighting that there is 'insufficient' evidence to assess exactly what risk fracking poses to health, in particular, because of a lack of long-term epidemiological studies.

In March 2015, several senior health professionals signed a letter to the British Medical Journal saying, **'The arguments against fracking on public health and ecological grounds are overwhelming.** There are clear grounds for adopting the precautionary principle and prohibiting fracking.'[27]

We have the chance to ban fracking, and you can help!

The Scottish Government is currently running a public consultation and wants to know YOUR views on fracking. We are positive about winning a ban on fracking, but this will only happen if huge numbers of people tell the Scottish Government that it's the right thing to do.

Find out more and take action at: www.stopfracking.scot

Friends of the Earth Scotland's work on unconventional fossil fuels is part of our campaign for a Fossil Free Scotland: A just transition to a 100% renewable, nuclear-free, zero-fossil-fuel Scotland

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