



Introduction

38 Degrees members funded analysis into the potential impacts of allowing fracking in Scotland. It covered scientific research and the views of industry experts. This report contends that the risks posed to workers health by fracking outweigh its potential economic benefits.

Fracking and worker health

- Fracking workers can be exposed to toxic chemicals like benzene, which the [American Cancer Society](#) links to leukaemia, and [over 150 studies](#) linked exposure to fracking chemicals to reproductive and development problems. Susan C Nagel, a researcher with the **University of Missouri**, [reported](#): “We examined more than 150 peer-reviewed studies reporting on the effects of chemicals used in UOG operations and found evidence to suggest there is cause for concern for human health.”
- Workers can also be exposed to [silica dust](#) from sand used in the fracking process, which can cause permanent damage to their lungs. After studies carried out at US fracking sites, the US National Institute for Occupational Safety and Health concluded that “[an inhalation health hazard existed](#)” for workers” exposed to the dust. The sand needed for fracking can contains up to 99% silica – more than in any other industry. If exposed, workers are at increased lifetime risk of silicosis - [a lung disease seen in Scotland among coalminers](#). Silica dust can enter the lungs and stay there, eventually irritating and tearing the lining of the lungs, potentially causing irreparable respiratory issues and potential lung diseases and cancer. ([CDC](#) and [Eric Esswein, MSPH](#); [Max Kiefer, MS](#); [John Snawder, PhD](#); and [Michael Breitenstein, BS](#))
- A long-term study by the [Colorado School of Public Health](#) also showed fracking-related air pollution can contribute to immediate and long-term health problems for people living near fracking sites – not just workers.
- [Health Protection Scotland](#) echoed the two points above, finding ‘sufficient evidence’ that silica and other hazards from fracking pose a risk to worker health, which they outlined in a report to the Scottish Government.
- Estimates suggest fracking could bring in around £50m per year and, [at the most, for a limited time](#) (Page 6), 1,400 Scottish jobs.

Experts concerned

Gretchen Goldman PhD, Research Director, Center for Science & Democracy, the

US-based Union of Concerned Scientists,: 'Hydraulic fracturing poses several risks to workers in the oil and gas industry. In addition to the risk of accidents on-site, they face potential exposure to chemicals used in fracking fluid and to harmful silica dust from the frac-sand used in the extraction process.'

Andrew Watterson, professor of health effectiveness at the University of Stirling, said: "The health and safety of workers involved in fracking for gas and related activities is relatively under-researched and often neglected. Fracking entails exposure to a range of construction, engineering, transport and chemical hazards – ranging from many fracking fluid chemicals, sand, volatile organic compound exposures to diesel. So, there are known and significant safety and occupational health challenges that may not exist in other energy industries."

"Evidence from the USA and the Netherlands in the last two years indicates there will be these worker exposures whatever fracking and treatment systems are used. The debate is about the level of risk that exists for workers not whether there are risks."

"The fracking industry outside the UK uses chemicals and materials that are known or suspect carcinogens and mutagens, reproductive and developmental hazards etc so the questions are (1) at what level might workers be exposed and (2) with what effect. US worker exposure to chemicals for example from storage tanks – different systems may be used in the UK – revealed unacceptable inhalation and dermal risks from a small number of carcinogens. One US inhalation study of 60,644 fracturing wells found methanol posed an acute exposure for non-cancer risk in 7282 wells, and an acute exposure cancer risk for formaldehyde in 4267 wells.

"There have been huge cut backs reported in HSE budgets and staff – between 2010 and 2016 a 25 per cent cut in UK HSE frontline inspectors occurred. It is therefore difficult to see how HSE will be able to effectively monitor and control a burgeoning fracking industry. The HSE itself estimates there are around 13,000 occupational lung disease and cancer deaths in GB each year due to past exposures primarily to chemicals and dusts. This is a horror and not a success story. Fracking is highly likely to add to those figures in the decades to come."

Kathy Jenkins of Scottish Hazards, a network of trade union health and safety representatives, occupational health and safety specialists and others, said: "Scottish Hazards firmly believes that Scottish Workers and the Scottish population should not be guinea pigs in a national experiment with fracking as so many UK workers were with asbestos. Many argue that fracking will create jobs. We are a trade union based organisation and support the creation and defence of jobs, but only good jobs, not jobs that threaten the health and lives of workers and their communities."

Dr David McCoy, Director of Medact, a global health charity, said: "Shale gas production should not be permitted in the UK because of the threat posed by global warming and it's incompatibility with the UK's greenhouse gas emissions reduction targets. In addition, it can harm the health and wellbeing of local communities and the environment, not to mention occupational health risks to shale gas workers."