

# OIL & GAS: Study Finds Natural Gas Wells Can Impact Health of Residents



Many oil and gas extraction and processing activities raise environmental and other concerns. That's especially true of hydraulic fracturing (commonly referred to as 'fracking'), which involves the high powered injection of water and chemicals into a drilled area to release natural gas. For example, opponents of fracking have questioned whether the practice causes earthquakes and endangers the health of workers who work at fracking sites. Another group that may also be impacted by these operations is the residents who live near these and other natural gas sites. For example, a recent study by the National Institutes of Health (NIH) found that the proximity of natural gas wells may be associated with the prevalence of skin and respiratory conditions in residents living near natural gas extraction activities. Here's a look at the study and its findings.

## The NIH Study

The researchers conducted a health symptom survey of 492 people in 180 randomly selected households with ground-fed wells in an area of active natural gas drilling. The survey asked whether the respondent or any household members had experienced any of the conditions in the past year. It also asked general yes/no questions about concerns of environmental hazards in the community, such as whether respondents were satisfied with air, water or soil quality, environmental noise and odors, and traffic'but didn't specifically mention natural gas wells, fracking or other natural gas extraction activities. The researchers then compared the gas well proximity for each household with the prevalence and frequency of reported dermal, respiratory, gastrointestinal, cardiovascular and neurological symptoms.

## The Results

The study found that the average number of reported symptoms per person in households less than one kilometre from a gas well was greater compared with those living more than two kilometres from gas wells. Specifically, individuals living in households less than one kilometer from natural gas wells were more likely to report having skin conditions over the past year (13%) than residents of households more than two kilometres from a well (3%). The same was true for reported upper respiratory symptoms: 39% v. 18%. And the link between symptoms and well proximity persisted even after adjusting for age, sex, smokers in the household, presence of animals in the household, education level, work type and

awareness of environmental risks. These findings are consistent with earlier reports of respiratory and dermal conditions in persons living near natural gas wells. (Note that for the other groups of health symptoms examined, there wasn't a significant relationship between the prevalence of symptom reports and proximity to the nearest gas well.)

The researchers concluded that there were several potential explanations for the finding of increased skin conditions among inhabitants living near gas wells, including:

- Natural gas extraction wells could have contaminated well water through breaks in the gas well casing or other underground communication between ground water supplies and fracking activities. Petroleum and coal exploration and extraction activities may increase the risk of chemicals in fracking fluid or flowback water entering ground water and contaminating wells. If such contamination did occur, several types of chemicals in fracking fluid have irritant properties and could potentially cause skin rashes or burning sensation through exposure during showers or baths. There are published reports of associations between the prevalence of eczema and other skin conditions with exposure to drinking water polluted with chemicals including VOCs;
- Another possible explanation for the skin symptoms could be exposure to air pollutants including VOCs, particulates, and ozone from upwind sources, such as flaring of gas wells, and exhaust from vehicles and heavy machinery; and
- The clustering of skin and other symptoms could also be related to stress or anxiety that was greater for households living near gas wells.

As to the increased reporting of upper respiratory symptoms among persons living near natural gas wells, airborne irritant exposures related to natural gas extraction activities could be playing a role. Such irritant exposures could result from a number of activities related to natural gas drilling, including flaring of gas wells and exhaust from diesel equipment. Because other studies have suggested that airborne exposures could be a significant consequence of natural gas drilling activity, further investigation of the impact of such activities on respiratory health of nearby communities should be investigated, recommended the researchers.

## **BOTTOM LINE**

The NIH study isn't the first on the possible health effects of fracking. (See, 'Study: Air Emissions Near 'Fracking' Sites May Be Hazardous.') But the study's findings that natural gas drilling activities could be associated with increased reports of dermal and upper respiratory symptoms in nearby communities suggests the need for more research into the health effects of natural gas extraction activities. And keep in mind that if residents living near natural gas wells could develop such symptoms, then your workers are likely at risk, too.

## **INSIDER SOURCE**

'Proximity to Natural Gas Wells and Reported Health Status: Results of a Household Survey in Washington County, Pennsylvania,' *Environmental Health Perspectives*, Vol. 123, Issue 1, Jan. 2015