

Public Statement on Environmental Health News Investigation to Determine Levels of Chemicals in SWPA Families Living Close to Shale Gas Development

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Background:

Today, the Environmental Health News (EHN) published a series of articles discussing its investigation into the body burden of shale gas development in southwestern Pennsylvania:

<https://www.ehn.org/fractured-series-on-fracking-pollution-2650624600/fractured-fracking>

Over a 9-week period, EHN collected a total of 59 urine samples, 39 air samples, and 13 water samples from five SWPA households. Scientists at the University of Missouri analyzed the samples using the best available technology to look for 40 of the chemicals most commonly found in emissions from shale gas development sites (based on other air and water monitoring studies).

This laboratory study revealed:

- *Evidence of harmful chemicals like benzene, ethylbenzene, styrene, and toluene in the bodies of adults and children at levels **up to 91 times higher** than are seen in the average American.*
- *Cancer-causing chemicals in air samples at levels **exceeding recommended safety thresholds**.*
- *Harmful chemicals like **benzene, naphthalene, and xylene** in drinking water.*

The 2-year investigation also exposed a regulatory system that favors shale gas development at the expense of residents' mental, physical, and social wellbeing. The investigation was conducted by EHN staff reporter and investigative journalist Kristina Marusic.

SWPA Environmental Health Project Statement:

The urine analysis methodology, which detects biomarkers in the samples, is at the core of EHN's first-rate, cutting-edge work. Generally, in the past, using biomarkers to determine exposures from shale gas activities has been viewed with skepticism by both outside scientists and our own organization because most of the chemicals associated with shale gas development don't stay in the body long and may have left the study participants' systems before they are tested, because other sources of exposure must be accounted for, and because we don't yet know what levels of certain chemicals pose a health risk.

But this work is different. Test samples were taken from study participants in their homes, where chemicals were still traceable. Further, participants completed activity logs to determine whether other sources of chemicals might be present. Volatile organic compound (VOC) metabolites were found that are consistent with the VOC emissions from shale gas activities. Also, the test results were compared to

people who don't live in proximity to shale gas development, which created an exposure baseline against which the study participants could be compared. It is a well-designed approach that opens the door to the possibilities of biomonitoring.

More than two dozen peer-reviewed epidemiological studies already show a correlation between shale gas development and a host of health issues, including asthma, cardiac hospitalizations, and adverse birth outcomes. Increased exposure to air pollution can make the symptoms of infectious lung diseases, such as COVID-19, worse. Studies also show that shale gas activities can lead to psychological distress which can cause depression, anxiety, sleeplessness, and a host of other mental health issues.

The EHN investigation contributes decidedly to the research already completed and demonstrates a methodology that other researchers can replicate and expand. It shows a path forward to definitive biomonitoring approaches when studying the body burden of people living in proximity to shale gas development.

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