

## Air Quality an Issue in Marcellus Region

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Last month, the Pennsylvania Department of Environmental Protection (DEP) released the third in a series of reports on short-term air sampling in the Marcellus Shale region. According to DEP's press release, the testing showed "no impact on short-term air quality".

"There are no emission levels that would be of concern to the health of residents living and working near these operations," said DEP Secretary Mike Krancer. In the next breath he advised the press that the testing was "not meant to address potential cumulative impacts".

While DEP maintains there is no concern from the air pollutants around gas wells and compressors, residents in PA's drill zone say otherwise. A member of Citizens for Clean Water in Susquehanna County, PA has visited numerous gas wells and interviewed many residents. Air quality is affected by every aspect of the drilling and production process, she says. Trucks delivering materials and water and hauling waste from the site generate diesel fumes. Diesel and gas generators generate emissions during drilling, and once the well is finished, invisible gases leak from condensate tanks.

The odor is so bad, she reports, that residents living 300 feet and further from the well pad report headaches, sore throats and nosebleeds.

One homeowner told *Broader View Weekly* that during a 13-day period, when drillers vented wells located about 1/2 hour away and upwind of her, the air "smelled like a chemical soup – sickly sweet". It got so bad that she had to go inside her house.

A resident in Jefferson County, PA, who lives near active wells and condensate tanks, documented his observations of air quality when a nearby well was flared. On days when there was a temperature inversion, high humidity or significant cloud cover, he characterized the air as "scarily odorous". "I had never experienced those fumes before," he wrote in an email interview. "I didn't feel safe and the chemical nature of the smell made me feel that it was something that I should probably not be breathing." He complained of headaches that came within minutes of smelling the odors.

Though DEP is conducting air sampling in drilling areas, even they admit their effort is limited. The most recent report, covering a period of five months, from August to December 2010, sampled air downwind of two compressors and two wells. The findings, notes DEP, only represent conditions present at the time of sampling.

What was in the air? DEP found measurable amounts of methane, ethane, propane, butane and associated compounds in the air. Not enough to cause concern for short-term exposure. Still, when inhaled these chemicals can cause headaches, nausea, vomiting, dizziness, irregular heartbeat and loss of consciousness.

DEP also found levels of methyl mercaptan at levels high enough to produce noticeable odors. Methyl mercaptan is released from decaying organic matter and found in marshes as well as natural gas, coal tar and some crude oils. Scientists know little about what happens to methyl mercaptan after it is released to the environment. But according to the

Centers for Disease Control, the compound primarily acts on the respiratory system. Even low levels can affect people with pre-existing heart and lung conditions.

DEP makes a point to note that these tests do not reflect cumulative air quality impacts. And given that they tested the air during early morning and late evening hours, they may have missed some pollutants, such as ground-level ozone. The tests, says DEP, did not detect ozone levels higher than national air quality standards – yet during the hot summer months, NY Department of Environmental Conservation (DEC) sent out ozone advisories warning people with asthma and other health conditions to remain inside during the heat of day, when ozone levels would be highest.

Industrialized drilling brings urban-style air pollution to the rural countryside, says ecologist Sandra Steingraber. She addressed air quality issues related to hydro-fracking recently in Vestal. Ozone is a big problem, Steingraber explained. Nobody pumps it into the air – instead ozone is created when nitrogen oxides mix with volatile organic compounds.

These emissions accompany every stage of the gas extraction process, Steingraber points out, from building well pads to hauling away the flowback and waste fluids. And they affect every stage of our lives. Air contaminants can decrease fertility and may increase the chances for miscarriage, she says.

Air pollution affects brain development in fetuses and young children. It is also linked to low birth weight and premature births. Smaller, earlier babies are more likely to develop a chronic lung disease which means increased health care and social services costs. Slower brain development translates into increased educational costs.

Dirtier air means more asthma. A recent study in the Barnett Shale shows that children living near drilling areas suffer much higher asthma rates – 25 percent compared to the national rate of 9 percent. Asthma, says Steingraber, costs our nation \$20 billion a year, and the rate has doubled since 1980. Then there's the increased rate of lung cancer – 36 out of every million people get cancer just from breathing the air.

The problem with air pollution is that it doesn't stay in one place. Airborne contaminants from gas drilling activities have been found to travel as far as 200 miles. People living a county away from active Marcellus wells could be exposed to the volatile toxic compounds and particles produced in the drill zones.

“The health costs of drilling will be borne by children living in areas where no one is benefiting financially from land leases,” Steingraber says.

You can read the DEP air quality study at [http://www.portal.state.pa.us/portal/server.pt/community/northcentral\\_regional\\_office/13777/community\\_information/590823](http://www.portal.state.pa.us/portal/server.pt/community/northcentral_regional_office/13777/community_information/590823)

You can read more about how environmental pollution affects children in Steingraber's new book, *Raising Elijah*.