

## WHAT WE ARE DOING

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Researchers at the University of Cincinnati College of Medicine and Oregon State University received funding from the National Institute of Environmental Health Sciences (NIEHS), to study air quality before, during and after UNGD activity.

We will be doing research in Carroll County, Ohio, as well as other regions in Ohio and neighboring states experiencing UNGD for the next year. We are using air and personal passive samplers.

If you would like to learn more about the study or are interested in participating, please call Dr. Erin Haynes with the University of Cincinnati at 513-558-5427 or email her at [erin.haynes@uc.edu](mailto:erin.haynes@uc.edu).



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OREGON STATE UNIVERSITY  
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## Air Quality in Ohio: Impacts of Unconventional Natural Gas Drilling

chemical exposure:  
WRISTBAND



chemical exposure:  
AIR SAMPLER



input & engagement  
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## WHY STUDY AIR?

We want to know if air quality is affected by unconventional natural gas drilling (UNGD), also known as hydraulic fracturing, or fracking.

## PASSIVE SAMPLING

We use passive sampling to measure air quality. Passive sampling does not require power or maintenance to work.

chemical exposure:  
AIR SAMPLER



The passive sampling material can absorb chemicals found in the air. This sampling material poses no danger to humans, livestock or crops.

Sampling material is placed in a box that is in the shape of a T, weighs 3 pounds, and is 29 inches long and 12 inches wide (see center photograph). It can be strapped to a tree or a fence post to measure air quality.

We also have wristbands made of the sampling material. These wristbands measure your personal exposure to chemicals in the air.

chemical exposure:  
WRISTBAND



- Watch this video for more information: <http://fses.oregonstate.edu/PSDs>

## HOW CAN I PARTICIPATE?

If you have a well pad on your property, or live within 100 yards of a well pad, we would like to:

1) Place air sampling boxes around the well pad to sample the air for 3 weeks and/or;

2) Give you a wristband to evaluate personal exposure. You will be asked to fill out a daily activity log and wear the wristband for 7 days.



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(On the left) Samplers strapped to a fence post.  
(On the right) An OSU researcher loads an air sampler with the passive sampling material.

## WHAT WILL BE TESTED?

The sampling material can collect over 1,000 chemicals including VOCs (volatile organic compounds), which can impact human health. This includes PAHs (polycyclic aromatic hydrocarbons) and BTEX (benzene, toluene, ethyl benzene and xylenes) which may be related to UNGD activities.

These samplers do not test particulate matter.

## WILL I RECEIVE THE RESULTS OF THIS SAMPLING?

We will provide data a few months after the sampling event is over. However, some samples will be archived for future use.

## HOW WILL THE DATA BE USED?

The data from these projects will increase our knowledge of air quality before, during and after UNGD activities, which can lead to better decision making and a better understanding of health risk.

## FREQUENTLY ASKED QUESTIONS



### How does the sampler work?

The sampler is like a sponge. Certain chemicals prefer the sampling material over the surrounding environment (air). So when they are absorbed into the sampler, they stay stuck inside.

### Can the samplers detect low levels of chemicals?

Yes. Our lab at Oregon State University can detect chemicals below EPA detection levels, so these samplers are very sensitive.

### How do you detect the chemicals trapped in the samplers?

We use a technique called gas chromatography-mass spectrometry.

- To learn more: [http://www.unsolvedmysteries.oregonstate.edu/MS\\_03](http://www.unsolvedmysteries.oregonstate.edu/MS_03)