

EHP Air Exposure Model

The Southwest Pennsylvania Environmental Health Project has developed a comprehensive model to help you determine when the air around your house is most likely to be polluted from nearby gas extraction activities and when the air may be cleaner. That model includes different types of shale gas activities, their emissions, and different distances from those activities. This shorter version is meant to give you a general idea of how weather affects the movement of air from a pollution source toward your home.

In Washington County, and anywhere else drilling occurs, exposure to air pollution from natural gas drilling activities will be different on different days depending on the weather. Some weather conditions will allow pollutants to rise and disperse quickly and not hover close to your home. Other weather conditions keep pollutants concentrated in the air and closer to the ground, possibly moving them nearer to your home.

We have heard from many people that some days they feel worse than others even if it seems that nothing has changed in the gas extraction activity around them. Some days they may feel more eye and throat irritation, for instance, or are coughing all day while others days aren't so bad. These changes in how people feel may be because of the weather ... some days the pollution at their house really is worse than others. More pollution leads to poorer air quality, which can lead to health problems.

How to predict likely exposures

Figure out what direction industrial activity is from your house. You might be mostly upwind from one facility but mostly downwind from another. If you are upwind from something you are less likely to be affected by it unless the air is quite still and you are a very short distance away. If you are downwind that means the wind can carry pollutants toward your home.

How much pollution comes out of an activity varies depending on that activity. For instance, we have found that more pollution comes out of a gas processing station or a site that is being actively fracked than comes out of a producing well.

Also how far away you are affects your exposure to pollution. If you are more than 2 miles away – even if you are downwind from an activity – you are unlikely to be exposed to air emissions from that activity. An exception to this is gas processing plants which,

under some limited conditions, appear to cause emissions that reach over three miles. Unfortunately, our research has shown that if you are within about 400 yards of shale gas activity your air is likely to be affected regardless of the weather. But beyond a few hundred yards emissions from most activities begin to diminish.

Please keep checking our website for more detailed information. Remember, the chart we have here is very general. It will give you an idea of how the weather can affect the air quality around your home.

General guidance on the weather and your exposure to pollutants from nearby industrial activity

If you live within 2 miles of shale gas development, keep these tips in mind:

Day/Night	Sun/Clouds	Wind	Air Quality
Day	Sunny	No wind	Healthy
Day	Sunny	Light wind	Healthy
Day	Sunny	Windy	Healthy
Day	Cloudy	No wind	Unhealthy
Day	Cloudy	Light wind	Unhealthy
Day	Cloudy	Windy	Moderate to healthy
Night	Less than half cloudy	No wind	Very unhealthy
Night	Less than half cloudy	Light wind	Unhealthy
Night	Less than half cloudy	Windy	Moderate to healthy
Night	More than half cloudy	No wind	Very unhealthy
Night	More than half cloudy	Light wind	Unhealthy
Night	More than half cloudy	Windy	Unhealthy

Recommendations

Look ahead at the weather forecast so you can predict whether upcoming days are likely to be good, bad or moderate air quality days based on the wind direction and the location of nearby facilities. Remember, weather forecasts report wind direction by saying where the wind is coming *from* not where it's blowing *to*.

At times when the air is unhealthy, consider closing the windows and keeping your activities limited. Under very unhealthy conditions no one should be outside; children should be kept inside to play. If you are very concerned you might want to spend your time somewhere else.

Consider ways to filter your indoor air if you experience frequent unhealthy air. Some people are able to filter the air through their forced air heating systems. You'll have to talk to a contractor for information and prices. Alternatively, air experts that EHP consulted recommend the portable Austin Air HealthMate 400 room air filter. Discounted machines are available at www.trutechtools.com/Healthmate400. The coupon code for those learning about this machine through EHP is ca400.¹ Please see our website, www.environmenthealthproject.org, for more information about cleaning your indoor air.

Keep a record of the quality of your air, your health (and that of your family) and shale gas activity. You may see patterns that are useful to you or your doctor. And *always* contact your doctor or other health professional if you have health concerns.

¹ EHP does not receive any funds from TruTech or Austin Air. We have simply worked with these companies to provide better access to the model that was recommended to us.