Testimony to Subcommittee on Energy and Mineral Resources Hearing
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Thank you for the opportunity to testify at today's hearing. My name is Raina Rippel, and 7 years ago, I helped found the Southwest Pennsylvania Environmental Health Project (EHP) in Washington County, PA, the most heavily drilled county in the state of Pennsylvania. EHP's mission is **to respond to individuals and communities' need for access to accurate, timely and trusted public health information and health services associated with shale gas extraction**.

I am here today to testify on behalf of residents and clients of EHP, regarding our knowledge of health impacts to date, particularly as it relates to unconventional oil and gas development (UOGD), health protective setbacks, schools and children. Today, my children are being cared for in my in-laws home, less than 1000 feet from a gas well pad, and less than 100 feet from a transmission pipeline. I know all too well the risks our loved ones face in the presence of this industry.

EHP began seeing residents in January 2012. Our Nurse Practitioner offers exams and consultations to people who think their health may be compromised by nearby shale extraction activities. We also provide guidance to specialists and primary care providers on appropriate diagnoses and treatment. To date, our Nurse Practitioners have conducted environmental health assessments for over 500 individuals, and our team of health professionals and public health consultants have provided public health interventions, including air and water monitoring devices and targeted guidance, to over 600 households in CA, NM, NY, OH, PA, VA and WV. In the absence of state and national leadership, EHP functions as a highly focused public health organization working to resolve issues related to shale gas extraction and associated health concerns.

Through the activities I just described, EHP has, to our knowledge, assembled the most comprehensive and robust set of data as gathered by healthcare professionals in the nation, particularly as it is paired with environmental monitoring data. First and foremost, we use this data to advise residents on how to potentially stop the exposure, following trusted and well-researched public health advice and protocols.

EHP's analysis of the health impacts of shale development relies on the National Institute for Occupational Safety and Health (NIOSH) information. NIOSH has identified acute and chronic effects on health from the chemical emissions related to various industrial operations, including UOGD. Potential health risks are associated with exposure to chemical emissions into the air including, but not limited to, VOCs (Volatile Organic Compounds),

BTEX (Benzene, Toluene, Ethyl Benzene, Xylene), Formaldehyde, carbon dioxide, carbon monoxide, methane, nitrogen oxide, hydrogen sulfide and particulate matter.

In the United States the oil and gas industry dumps millions of tons of air pollutants into our air each year. This mix of pollutants includes methane, a very potent climate pollutant, and enormous amounts of toxic air pollutants and pollutants that cause ozone smog pollution. Toxic air pollutants cause cancer and other diseases, while ozone smog can cause a variety of health problems, such as asthma attacks and worsening the effects of bronchitis and emphysema.

With nearly 10% of the nation's oil and gas wells, compressors and processing plants located in the State, Pennsylvanians bear many of the health risks caused by shale oil and gas industry air pollution. I can testify first-hand that the amount of industrial build-out in alarmingly close proximity to homes, schools, and across our region has irrevocably changed the formerly rural nature of our communities, and is causing significant health effects as documented by our Nurse Practitioners.

According to EPA's data for 2011, over ***1,300 tons*** of hazardous toxic air pollution — benzene, formaldehyde, acetaldehyde and other compounds — were emitted by oil and gas companies in Pennsylvania. Between 2011 and 2017, production of natural gas increased by 316 percent in Pennsylvania, so this pollution has likely increased as well. Western Pennsylvania is most directly affected by these toxic gases: **Residents of eight counties surrounding Pittsburgh face cancer risk that exceeds EPA's level of concern due to exposure to toxic gases spewed by the oil and gas industry.**

1.5 million people in Pennsylvania and 12.6 million people nationwide live within a half-mile of active oil and gas operations. Toxic air pollution emissions can directly affect the health of individuals living adjacent to sources.

Children are especially vulnerable to air pollution exposure. Over 1,300 schools in Pennsylvania are located within a half-mile of oil and gas operations. 2.9 million children nationwide attend schools within a half-mile of an oil and gas facility. I commend our Congressional representatives today for proposing legislation calling for a 1500 foot buffer between wells and homes and schools.

EHP's data analysis, backed up a rapidly growing number of peer-reviewed scientific studies, indicates this is a minimal protection which will nonetheless improve the wide range of setback distances found in states, most notably in OH which allows for shale activities within 100 feet of homes and buildings. There is absolutely no doubt in my mind that this is a dangerous, toxic operation which cannot be allowed to occur in such close proximity to our homes, and our nation's children. My children are on the front-line, so I share this burden with countless others. We quite simply do not have a choice to steer clear of these industrial operations.

Analysis by the Clean Air Task Force found that nationally, there are more than 750,000 summertime asthma attacks in children under the age of 18 and 500,000 days of missed school due to ozone smog resulting from oil and gas pollution each year. **Pennsylvania children will suffer over 30,000 asthma attacks per year due to ozone from this industry.**

Americans need EPA and BLM's rules to protect them from methane and other harmful air pollution resulting from oil and gas activities. Americans are already paying the price for oil and gas leaking and venting, and they will continue to do so if this administration continues its attacks on these critical pollution safeguards. Oil and gas industry pollution is dangerous and a serious public health threat; we know that if the federal pollution standards are suspended or repealed, millions across the country will face unfair health challenges, and children will be disproportionately impacted by reckless pollution.

Any public health issue is ultimately concerned not just with the economic benefits of an industrial activity, but the health risks borne by the communities in which they occur. The number of peer-reviewed academic journals concluding that health symptoms and risks closely correlate with shale oil and gas extraction activities is rapidly increasing. This literature, which is consistent with our analysis of our health intakes and monitoring, compels EHP to offer protective interventions to affected residents and track health conditions to the extent a small organization can.

In closing, thank you for hearing my testimony, coming today from the front lines of one of the most heavily impacted counties in the country.

Thank you.

Raina Rippel, Director
Southwest Pennsylvania Environmental Health Project

Sources:
CATF Fact Sheet: *Health Risks in Pennsylvania from Oil and Gas Air Pollution*
http://www.catf.us/resources/factsheets/files/HealthEffectsPA.pdf

The Oil & Gas Threat Map
http://oilandgasthreatmap.com

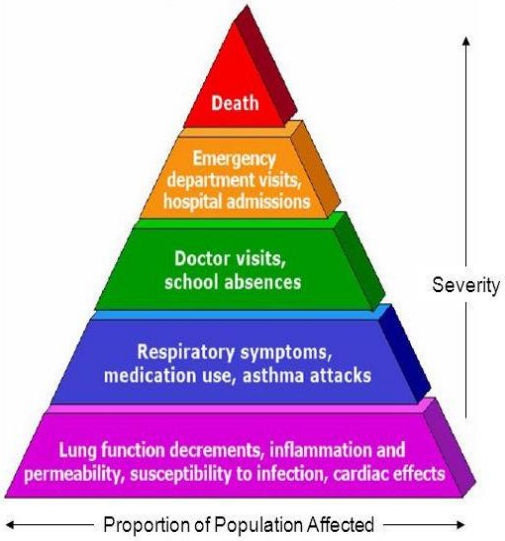
Gasping for Breath
http://www.catf.us/resources/publications/view/226

Fossil Fumes
http://www.catf.us/resources/publications/view/221

Table 1.

Health Impacts of O_3 and $PM_{2.5}$

- Premature death in people with heart and lung disease
- Increased hospital visits for respiratory diseases (and for CVD for $PM_{2.5}$)
- Reduced lung function
- Increased symptoms (coughing, wheezing)
- Aggravation of chronic lung diseases
- Increased susceptibility to respiratory infection (O_3)
- Heart rate variability, arrhythmias ($PM_{2.5}$)



U.S. EPA, http://www.epa.gov/groundlevelozone/pdfs/2008_03_factsheet.pdf, 2008

Table 3. Frequently Reported Symptoms

SYMPTOMS TEMPORALLY RELATED TO UOGD

SYMPTOM CATEGORY	n	%	Symptom	n	%
UPPER RESPIRATORY SYMPTOMS	39	64%	Nose or throat irritation	25	41%
			Sinus pain or infections	17	28%
			Nose bleeds	8	13%
CONSTITUTIONAL SYMPTOMS	33	54%	Sleep disruption	26	43%
			Fatigue	13	21%
			Weak or Drowsy	9	15%
NEUROLOGICAL SYMPTOMS	32	52%	Headache	25	41%
			Dizziness	11	18%
			Numbness	9	15%
			Memory loss	8	13%
PSYCHOLOGICAL SYMPTOMS	32	52%	Stress or anxiety	23	38%
			Irritable or moody	12	20%
			Worry	6	10%
LOWER RESPIRATORY SYMPTOMS	30	49%	Cough	21	34%
			Shortness of breath	19	31%
			Weezing	14	23%
GASTRO-INTESTINAL SYMPTOMS	27	44%	Nausea	13	21%
			Abdominal pain	12	20%
EYE SYMPTOMS	23	38%	Itchy eyes	11	18%
			Painful or dry	10	16%
DERMATOLOGICAL SYMPTOMS	19	31%	Rash	10	16%
			Itching	7	11%
			Lesions or blisters	6	10%
CARDIAC SYMPTOMS	17	28%	Palpitations	9	15%
			Chest pain	6	10%
			Other cardiac symptoms	6	10%
HEARING CHANGES OR TINNITUS	10	16%	Hearing loss	3	5%
			Tinnitus (ringing in the ear)	10	16%
MUSCULOSKELETAL	10	16%	Painful joints	9	15%
			Aches	7	11%
ENDOCRINE	7	11	Hair loss	7	11%

n = Number of clients reporting symptom, out of 61 clients assessed
% = Percentage of clients reporting symptom, out of 61 clients assessed
Adapted from: http://environmentalhealthproject.org/resources/4/click/93