



# SWPA-EHP

SOUTHWEST PENNSYLVANIA ENVIRONMENTAL HEALTH PROJECT

**March 18, 2014**

## **State Department Roundtable on Unconventional Natural Gas Development**

I'm honored to be invited to present today on behalf of the Southwest Pennsylvania Environmental Health project (EHP). EHP is a nonprofit initiative currently funded by the Heinz Endowments and the Claneil Foundation to assist residents of Southwest Pennsylvania who feel their health has been adversely affected by unconventional natural gas development (UNGD). EHP's team includes public health scientists, medical professionals and community service professionals. We also have close, informal ties with Yale University, Harvard University, Carnegie Mellon University, Duquesne University, and the University of Pittsburgh.

In 2012 EHP completed a public health case series. A case series is the standard first step in a public health assessment. Our case series established that a carefully screened group of people in Washington County showed symptoms of toxic exposure for which we could identify no other source than unconventional natural gas development (UNGD). While EPA, Pennsylvania DEP and industry tests indicated there was no consistent connection between such development and similarly observed symptoms, we found this to be the most plausible source.

In 2013, in order to reconcile this apparent inconsistency, EHP examined the potential paths for airborne exposure in detail. To achieve the level of precision that EHP required, we used a continuous monitoring strategy for assessing exposure inside homes near UNGD. We also reviewed the monitoring strategies and standards currently in use by researchers and public agencies. As a consequence of this, EHP discovered that the current methods and standards used for measuring exposure could consistently fail to register the types of exposures we are encountering.

This raises critical issues relative to public safety. The central questions are: how do we determine the level of public health risk when co-locating major industrial activity with civil society, people's homes, schools, workplaces and community activities; how do we regulate and enforce risk reduction; and what formulas do we use in determining either to disregard or mitigate those threats that the affected communities are forced to accept?

In the case of unconventional natural gas development, these questions have to be answered for each of five levels of risk: individual exposures, natal and genomic effects, socio-economic effects, national security threats, and disruption of natural system services.

The first absolute requirement for addressing all of the issues raised by UNGD is transparency. All potentially substantive threats must be fully characterized at each level of risk. For instance, because companies in the United States are not required to publicly fully disclose all specific chemicals they use in horizontal drilling or to determine the chemical character of waste water, it is impossible to

determine any direct causal connection between proximity to drilling and production activities and obvious symptoms of toxic exposure, except in the case of diesel emissions which are obvious and copious and proven to cause cancer and low birth weight.

A second absolute requirement is that standards must suit the types of risk. As one example, industry research indicates that well casings currently have a lifespan measured in decades. This means that at some point in the future any given well may become a conduit for potentially toxic substances like residual industrial chemicals or in situ pollutants like methane, arsenic and radium. In the nuclear waste storage venue in the United States, standards require that stored radioactive materials be secured for 50,000 years. In the U.S. there are no equivalent standards for securing the environment from the effluent of unconventional natural gas development.

A third absolute requirement is that monitoring methods and technology be capable of assessing relevant deviations from required standards. The Federal methods currently in place for monitoring ambient air standards are well suited to that purpose, but we find they are not appropriate for measuring the highly variable UNGD emissions that reach nearby homes. In other words, these monitoring activities miss spikes in emissions that result in acute exposures for nearby residents, and thus Federal ambient air quality standards are not fully health protective.

A fourth absolute requirement is that regulations are both effective and vigorously enforced. For instance, in Pennsylvania, UNGD facilities are permitted individually without consideration of aggregate pollution in the case of multiple proximate installations. This is fine when there might be one or two facilities in a county, but in the Marcellus shale there may be hundreds or even thousands. Individually the installations may be minor sources, but when aggregated they become major sources. This is not reflected in either the regulations or enforcement.

These four absolutes should be minimum requirements for industrial activity in general. One of the broader implications of EHP's findings is that monitoring of all kinds of industrial sites that are situated near homes and communities may well be inadequate. Heretofore unexplained clusters of cancers, auto-immune system disorders and asthma, to cite a few examples, may be explainable after all. We may simply have failed to adequately detect or regulate their presence.

The fundamental issues at hand have already been addressed thoroughly. The United Nations' Aarhus Convention was intended to, "contribute to the protection of the right of every person of present and future generations to live in an environment adequate to his or her health and well-being." To achieve that objective, the convention felt it necessary to guarantee the rights of access to information, public participation in decision-making, and access to justice in environmental matters; which it delineated in great detail.

No nation or industry can be allowed to place its citizens and their children at risk or hold back health data for commercial or economic purposes. We know there have been health effects in the United States from unconventional natural gas development. There are health effects now. Tragically, there will continue to be health effects long after natural gas becomes obsolete as a source of energy.

Raina Rippel, Director