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May 19, 2015 Submission to the PA DEP on proposed changes to Chapter 78a

The Southwest Pennsylvania Environmental Health Project (EHP) is focused on the public health implications of natural gas extraction, processing and transport. Our orientation in reviewing Chapter 78a is toward actions and information needed to protect the public's health. We see in the proposed revisions opportunities to identify and in some cases mitigate health risks. We believe the DEP did not take full advantage of those opportunities.

In our comments below, each of the five major points focuses on the need for understanding and reducing health risk to the population exposed to unconventional natural gas development (UNGD) emissions. We take the view that short, high exposures can cause health impacts and regulations should mirror that phenomenon. For instance, an asthma event can occur after just a few hours of exposure to well pad emissions. This leads us to encourage the DEP to sharpen its monitoring strategy in order to obtain useful data that can be used to protect the health of those nearby. We also encourage the DEP to reconsider setback distances, especially around schools.

EHP's five primary concerns with respect to the proposed revision of Chapter 78a are below. Each point seeks to strengthen the DEP's role in protecting health in the context of shale gas development:

- 1: ALLOWING GAS DEVELOPMENT (WELL SITES AS WELL AS OTHER INDUSTRIAL ACTIVITIES) NEAR SCHOOLS PUTS CHILDREN AT RISK. AS CURRENTLY WRITTEN, PROPOSED REVISIONS TO CHAPTER 78A DO NOT PROTECT SCHOOL CHILDREN FROM HARM.
- 2: NOISE MITIGATION MUST BE ADEQUATE TO PROTECT NEARBY RESIDENTS AND MUST INCLUDE COMPLIANCE OVERSIGHT BY THE DEP.
- 3: EMERGENCY PLANNING IS INSUFFICIENT TO PROTECT THOSE LIVING, WORKING, OR GOING TO SCHOOL NEAR UNGD SITES.
- 4: CENTRALIZED TANK STORAGE SITES SHOULD BE AT A HEALTH PROTECTIVE DISTANCE FROM SCHOOLS, THEIR PARKS AND PLAYGROUNDS.
- 5: REGULATION ADDRESSING THE EMISSIONS FROM COMPRESSOR STATIONS, METERING STATIONS, AND PROCESSING PLANTS ARE ABSENT. THESE FACILITIES PRODUCE EMISSIONS THAT CAN REACH NEARBY HOMES.

Overall, EHP commends the DEP on the following proposed changes, several of which have the potential to limit possible human health impacts:

- With Chapter 78a, the DEP distinguishes between unconventional and conventional drilling activities, from a regulatory perspective.
- It provides positive improvements in brine-spreading regulations that will protect the public health.
- Open top storage structures for brine and other fluids are to be phased out.
- DEP is moving towards electronic filing of records. This action is important if it leads to greater and more timely public access to permitting data; inventory of the use or release of chemicals at each site; and records on accidents and remediation steps. All such information ought to be included in a report that must be sent to the resident, local health officials, and first responders.
- Spills were added into § 78a.66 so reporting and remediating spills as well as releases are addressed.

Southwest Pennsylvania Environmental Health Project Concerns:

POINT 1: ALLOWING GAS DEVELOPMENT (WELL SITES AS WELL AS OTHER INDUSTRIAL ACTIVITIES) NEAR SCHOOLS PUTS CHILDREN AT RISK. AS CURRENTLY WRITTEN, CHAPTER 78A DOES NOT PROTECT SCHOOL CHILDREN FROM HARM.

EHP has several concerns with respect to the portion of 78a quoted below:

- (1) There are documented and well characterized air emissions and resulting exposures to nearby properties and individuals.
- (2) The burden of proof, as it is spelled out in the regulation, is first on the school or school district to make the case that the DEP avoid or minimize probable harm to the students and staff at the school.
- (3) The DEP then weighs the impact of protective conditions for the school against the operator's optimal development of the oil and gas resources. If appealed, the burden of proof that the students and staff must be better protected goes to the DEP. The industry does not necessarily need to address the health concerns raised and the DEP may be insufficiently attentive to the health risks it has the opportunity to mitigate.

EHP believes that the DEP needs to reconsider this approach to probable harm to a public resource, particularly a school. We fear that future epidemiological research as well as the lived experience of the children at schools near gas development will reveal the proposed form of regulation as insufficiently protective of school children's health. We question DEP's emphasis on the property rights of the applicant and instead, support empirically based, protective set-back distances that would apply to schools throughout the state, regardless of the impact of those

setbacks on natural gas operators. There is a growing body of literature on health risks posed by close proximity to UNGD activity (cited in the following pages) as well as information on setbacks employed under other circumstances, which can be tapped to guide setback decisions.

p.16-7: (f) An applicant proposing to CONSTRUCT A WELL SITE [drill a well] at a location THAT MAY IMPACT A PUBLIC RESOURCE AS PROVIDED [listed] in paragraph (1) shall notify the applicable PUBLIC resource agency.... (1) This subsection applies if the proposed [surface location] LIMIT OF DISTURBANCE of the well SITE is located: (vii) WITHIN 200 FEET OF COMMON AREAS ON A SCHOOL'S PROPERTY OR A PLAYGROUND.

(2) The applicant shall notify the public resource agency responsible for managing the public resource identified in paragraph (1)[, if any]. From the date of notification, the public resource agency has [15] 30 days to provide written comments to the Department and the applicant on the functions and uses of the public resource and the measures, if any, that the public resource agency recommends the Department consider to avoid or minimize probable harmful impacts to the public resource where the well, well site and access road is located. The applicant may provide a response to the Department to the comments.

The Department will consider the impact of any potential permit condition on the applicant's ability to exercise its property rights with regard to the development of oil and gas resources and the degree to which any potential condition may impact or impede the optimal development of the oil and gas resources. The issuance of a permit containing conditions imposed by the Department under this subsection is an action that is appealable to the Environmental Hearing Board. The Department has the burden of proving that the conditions were necessary to protect against a probable harmful impact of the public resource.

The most recent studies show the need for UNGD regulations to include a strong focus on the potential to damage child health. We encourage the DEP to consider research on risks associated with close proximity to wells and compressor stations.

Moore et al. (2014) report, in particular, in pre-production, particulate matter (PM_{2.5}), PM₁₀, methane (CH₄), nitrogen oxide (NO_x), volatile organic compounds (VOCs), silica (sometimes 10 or more times higher than the recommended exposure limit for workers), benzene, toluene, ethylbenzene, and xylene (BTEX), hydrogen sulfide (H₂S), and formaldehyde are released. Several of the chemicals cited by Moore are known or suspected carcinogens and can produce a variety of non-cancer health effects, particularly in the respiratory system. In their extensive study of air emissions, Colborn et al (2012) found numerous chemicals in the air associated with UNGD, including methane, ethane and other alkanes. They found many non-methane hydrocarbons especially during the drilling stage. Methylene chloride was detected 73% of the time. Formaldehyde and acetaldehyde were detected in every sample. Naphthalene was detected in every sample and was the highest concentration among the polycyclic aromatic hydrocarbons (PAHs) detected. The chemicals detected in Colborn's study can have an array of cancer and non-cancer health effects including those affecting the endocrine, respiratory and neurological systems.

McKenzie (2012) estimated chronic and subchronic non-cancer hazard indices (HIs) and cancer risks from exposure to hydrocarbons for residents living > 0.5 mile and >= 0.5 mile from wells in Colorado. The authors found that residents living <= 0.5 mile from wells were at a greater risk for health effects from exposure to natural gas development than those living > 0.5 mile from wells. They found a subchronic non-cancer HI of 5 for those living <=0.5 mile compared with an HI of 0.2 for those living > 0.5 mile from wells , which was driven primarily from exposure to trimethyl-benzenes, xylenes, and aliphatic hydrocarbons.

In her 2014 paper, McKenzie looked at birth outcomes and presence of multiple wells. Prevalence of congenital heart defects (CHDs) increased with exposure tertile, with an odds ratio of 1.3 for the highest tertile and neural tube defects prevalence was associated with the highest tertile of exposure, compared to no gas wells within a 10-mile radius.

Hill evaluated effects of proximity to drilling on birth outcomes. In PA, the introduction of drilling increased low birth weight and decreased term birth weight, on average, among mothers within 2.5 km of a well compared to others within 2.5 km of a future well. Adverse effects were also detected using measures such as small for gestational age and APGAR scores (Hill 2012). In CO, proximity to wells reduces birth weight and gestation length on average and increases the prevalence of low birth weight, premature birth and small for gestational age (2013). In Dallas – Fort Worth Hill finds that living in a zip code within the shale gas region reduces birth weight and gestation length on average, with mixed effects for low birth weight and premature birth. Findings also suggest that NO_x, sulfur dioxide (SO₂), formaldehyde and BTEX associated with shale gas development have adverse impacts on birth outcomes (Hill 2014).

Paulik (2015) sampled for 62 polycyclic aromatic hydrocarbons (PAHs) near well sites. PAHs are associated with cancer risk and respiratory distress. She found PAH levels were higher near well sites (<0.1 mile) than those between 0.1 and 1.0 mile and > 1 mile. Paulik concludes that PAH mixtures in areas heavily impacted by natural gas extraction may have higher than acceptable cancer risk, and this risk increases as exposure moves closer to an active well.

Rabinowitz (2014) included 180 randomly selected households with ground-fed wells in his study. Gas well proximity for each household was compared to the prevalence and frequency of reported dermal, respiratory, gastrointestinal, cardiovascular, and neurological symptoms. The number of reported health symptoms per person was higher among residents living < 1 km compared with >2 km from the nearest gas well. Reported skin conditions were more common in households <1 km compared with >2 km from the nearest gas well. Upper respiratory symptoms were also more frequently reported in persons living in households less than 1 km from gas wells compared to households 1-2 km or >2 km from nearest well.

These peer reviewed and published findings, as well as personal reports from residents themselves, document the need for DEP to assure that setback distances are protective of child health.

School children and risk

Overall, children are at higher risk from air and water contamination than are adults. This has been well established.

- Children have higher respiratory rates and breathe a greater volume of air than adults do. As a result, children exposed to air contaminants breathe in more toxics per pound of body weight than adults.
- Children accumulate more toxins in their bodies than adults. Their bodies are still maturing and they cannot metabolize some toxicants as well as adults. They don't detoxify as efficiently.
- Children's lungs are still developing and they have narrower airways than adults. Children are more vulnerable to the harmful effects of ambient air pollutants. As their lungs are not completely developed, children may experience greater exposure to environmental pollutants than adults and higher doses of varied composition may remain in their lungs for a greater duration (Tzuvian 2005).
- Children spend more time engaged in vigorous activity outside.
- Children's brains are still developing. Many classes of the toxic agents released in air and water during unconventional natural gas development are known to interfere with developmental processes within the brain (Rodler 1995).

Children, by law, must spend at least 180 days per year at school. Concerned parents are prevented from taking protective steps to protect their children's health and are thus depending on the DEP regulations to do so.

In Pennsylvania, public schools are open for instruction at least 180 days. The number of instructional hours in a school year is to be at least 450 for half-time pre-K and kindergarten, 900 for full-time pre-K and kindergarten and elementary schools and 990 for secondary schools. While children spend the bulk of their school day inside, they may frequently be outside for recess and gym class. That said, outdoor air contamination quickly becomes indoor air contamination.

This can constitute a great deal of exposure for these school children.

Exposure to ozone, particulate matter, sulfur dioxide, and nitrogen oxides (all of which are associated with UNGD) have been well documented to exacerbate asthma (Tzuvian 2011). In the 2011-12 school year, 9.55% of Washington County students, 10.64% of SW Pennsylvania students and 12.05% of Pennsylvania students had a diagnosis of asthma (PA DOH 2012). In Pennsylvania in 2010 the child lifetime prevalence of asthma among males was 18.6 percent. For girls the child lifetime prevalence was 10.1 percent (PA DOH 2012).

Of 66 reviewed studies addressing asthma and school attendance, virtually all showed a correlation between the illness and high rates of student absenteeism (Taras 2005).

POINT 2: NOISE MITIGATION MUST BE ADEQUATE TO PROTECT NEARBY RESIDENTS AND MUST INCLUDE COMPLIANCE OVERSIGHT BY THE DEP.

EHP is pleased to see noise addressed in these regulations and believes site specific noise mitigation plans are an essential idea. We are strongly supportive of the mention that the Department would suspend operations if necessary. Our concern is whether the DEP's limits for noise and enforcement of those limits are adequate to protect residents and students. The information provided by the industry to the communities relative to noise levels is inconsistent with the levels necessary to protect individuals residing near drill sites, compressors, and processing plants. Additionally, EHP does not believe that operator self-monitoring of noise (or air or water), is sufficient. It appears that the DEP is relying on the operator to detect and remedy noise problems without adequate oversight. There is also no mention of citizen complaints about noise and how that community information is factored in to both the operator's assessment or, more importantly, the DEP's consideration of those complaints.

§ 78a.41. NOISE MITIGATION

(a) PRIOR TO PREPARATION AND CONSTRUCTION OF THE WELL SITE OR ACCESS ROAD, THE OPERATOR SHALL PREPARE AND IMPLEMENT A SITE SPECIFIC NOISE MITIGATION PLAN TO MINIMIZE NOISE DURING DRILLING, STIMULATION AND SERVICING ACTIVITIES.

(c) IF THE DEPARTMENT DETERMINES DURING DRILLING, STIMULATION AND SERVICING ACTIVITIES THAT THE PLAN IS INADEQUATE TO MINIMIZE NOISE, THE DEPARTMENT MAY ORDER THE OPERATOR TO SUSPEND (27) OPERATIONS AND TO MODIFY THE PLAN AND OBTAIN DEPARTMENT APPROVAL.

Research shows that noise exposure is associated with an array of psychological and physical effects. A review article on noise exposure and health risk published in *Noise and Health* concludes that there is sufficient evidence to support a causal relationship between community or transportation noise and cardiovascular risk. The evidence is strong for ischaemic heart disease and evidence for a causal relationship between noise and hypertension continues to grow. There is only limited empirical support for a causal relationship between noise exposure and biochemical effects, such as increased cortisol (Babisch 2006).

According to a World Health Organization assessment of research, excessive noise can also increase risk of cognitive impairment in children, sleep disturbance, tinnitus, and high levels of annoyance (WHO 2011). Researchers have found associations between elevated sound levels – including community sounds levels – and hearing loss, reduced performance and aggressive behavior (Moudon 2009). Additionally some attention is being paid to the health effects of vibration exposure which is connected with but distinct from noise itself (Alves-Pereira 1999).

Noise exposures are associated with construction activities and blowdown episodes. We believe the effects of these exposures (as well as vibration exposures) should be evaluated by outside experts in the field. As with air exposures, the periods of extreme exposures (in this case noise exposures) can cause different and sometimes more serious effects than low-level exposures.

POINT 3: EMERGENCY PLANNING IS INSUFFICIENT TO PROTECT THOSE LIVING, WORKING, OR GOING TO SCHOOL NEAR UNGD SITES.

EHP notes that the emergency/accident planning by natural gas companies and the State is inadequate to protect Pennsylvania residents.

§ 78a.14. Transfer of well ownership or change of address.

(a) Within 30 days after the sale, assignment, transfer, conveyance or exchange of a well, the new owner or operator shall notify the Department, in writing, of the transfer of ownership. (pg. 14)

EHP recommends that, for the sake of transparency to the public and emergency responders (and to be reflected in posted signage and contact info), this time period allocated for written notification be greatly reduced. 24 hour contact information must be available to Emergency Responders at all times, as well as site specific emergency plans that might have changed due to change in ownership or address. The 30 day lag in notification could potentially adversely affect emergency response and public access to information.

§ 78a.55. Control and disposal planning; emergency response for unconventional wells.

(b) Preparation and implementation of plan for well sites. In addition to the requirements in subsection (a), the well operator shall prepare and develop a site specific PPC plan prior to storing, using, generating or transporting regulated substances to, on or from a well site from the drilling, alteration, production, plugging or other activity associated with oil and gas wells.

(v) The plan and subsequent updates shall be submitted to:

(A) PEMA.

(B) The Department.

(C) The county emergency management agency.

(D) The Public Safety Answering Point with jurisdiction over the well site.

EHP recommends that information contained in sections (ii)(B) and (v) and all emergency plan-related material (particularly Material Safety Data Sheet) be posted to public database in addition to "being prepared and developed" PRIOR to any usage of chemicals AND before beginning any UNGD operations. EHP recommends clarifying, for the benefit of general public, what comprises "Regulated Substances". We also recommend that the above information be submitted, in addition to (v)(A) through (D), to residents within 2000 feet of UNGD. Finally, we recommend that the process of emergency planning be more inclusive of residents within close proximity of risk.

Accidents at shale extraction or production sites pose dangers to schools and children in three primary ways. The first is the exposure to chemicals or particles

produced or dispersed by the accident; the second is the inadequate chemical information first responders often have; and the third is the difficulty of quickly and safely evacuating a school full of children and staff and getting them the necessary medical attention.

While there are no central national or state inventories of accidents in the shale gas industry, there are local newspaper accounts of some portion of them. One accident that received significant public attention in Pennsylvania was the 2014 fire at a gas well in Dunkard Township, Greene County. This fire resulted in one worker injury and one death on the site. Previous accidents in the SWPA region include, to name a few, a condensate fire in Washington County, March 2010; a well blowout in Clearfield County, June 2010; a July 2010 explosion in Indiana Township, Allegheny County resulting in two deaths, July 2010; and a condensate fire in Avella, Washington County in February 2011 with two severe injuries and one minor injury. Regulations must assure that children can be rapidly removed from accident locales and not be left to escape through their and their teacher's own devices.

POINT 4: CENTRALIZED TANK STORAGE SITES SHOULD BE AT A HEALTH PROTECTIVE DISTANCE FROM SCHOOLS, THEIR PARKS AND PLAYGROUNDS.

EHP recommends that the DEP require and document greater protection for residents (school children and otherwise), by ensuring adequate setback distances for waste tanks. The fluids contained in these tanks are known to include highly and immediately toxic chemicals, chemicals of unknown concentrations, and mixtures of chemicals which may have interacted with each other. The tanks are designed to vent substances into the ambient air producing odors and chemical exposures. Furthermore, water coming up from the well (flowback or produced) has the possibility of containing radioactive material. Radioactive material can be capable of producing cancer and is soluble in water. Monitoring for it should occur on a regular schedule. 300 yards is not a sufficient setback distance in the event of a leak or accident, nor is it sufficient to protect children from the emissions vented from the tanks into the air.

p. 51. No portion of a centralized tank storage site may be constructed in the following areas:

(4) WITHIN 500 FEET MEASURED HORIZONTALLY FROM A BUILDING, WITHOUT THE WRITTEN CONSENT OF THE OWNER OF THE BUILDING.

(8) WITHIN 300 YARDS OF A BUILDING WHICH IS OWNED BY A SCHOOL DISTRICT OR SCHOOL AND USED FOR INSTRUCTIONAL PURPOSES, A PARK, OR A PLAYGROUND.

In addition to information provided by the industry to the DEP and to FracFocus, the research on the constituents of fracking, flowback and produced water (brine) is mounting. Fracturing fluids contain organic and inorganic chemicals many of which are known to be harmful to human health. For a review of UNGD-related water constituents see Shonkoff S, Hays K, Finkel M (2014). See also, for instance: Aminto and Olson (2012); US House of Representatives, Committee on Energy and Commerce (2011); Colborn T, Kwiatkowski C, Schultz K; Bachran M (2011); Kassotis

C, Tillitt D, Davis J, Hormann A, Nagel S (2014); and New York State Department of Environmental Conservation (2011).

Substances commonly identified in fracking solutions include silica, acids (hydrochloric acid), viscosity adjusters (guar gum, borates, ammonium persulfate), corrosion inhibitors (isopropanol, acetaldehyde), iron precipitation control (citrate), biocides (glutaraldehyde), oxygen scavengers (ammonium bisulfite), scale inhibitors (acrylic polymers), and friction reducers (surfactants, polyacrylamide, ethylene glycol). (Vengosh 2014). Others are methanol, diesel oil, naphthalene, benzene, xylene, toluene, and ethyl-benzene (US House of Representatives Committee on Energy and Commerce 2014). Many of the chemicals disclosed by the industry have identified health effects (Colborn 2011). However, for others, such effects are not known typically because the research has not yet been conducted. Kortenkamp et al (2007) provide a systematic assessment of published studies on exposures to multiple chemicals at low doses. They conclude that the widely held view that mixtures of dissimilarly acting chemicals are “safe” at levels below NOAELs (no-observed-adverse-effect-level, i.e., the highest exposure level at which there are no biologically significant increases in the frequency or severity of adverse effects) is not supported by empirical evidence.

Attention has been, and must continue to be, directed to the mixing of chemicals under high pressure and heat (in some circumstances). These conditions have the potential to create other toxic compounds (Shonkoff 2014).

Attention has also focused on radioactive material in flowback and produced water; and methods for its analysis. For an overview see Brown V (2014). See also for instance, Warner N, Christie C, Jackson R, Vengosh A (2013). We view the possibility of radioactive air or water pathway contamination as a serious concern.

POINT 5: REGULATIONS ADDRESSING THE EMISSIONS OF COMPRESSOR STATIONS, METERING STATIONS, AND PROCESSING PLANTS ARE ABSENT.

DEP’s 2013 Natural gas emissions inventory by source type (TPY)

| | Blowdown vents | Dehydrators | Heaters | Tanks |
|--------------------------|----------------|-------------|---------|-------|
| CO | 3 | 82 | 701 | 22 |
| NOx | 8 | 40 | 827 | 20 |
| PM2.5 | 0 | 2 | 48 | 0 |
| VOCs | 133 | 431 | 63 | 1398 |
| Benzene | 3.2 | 7.3 | 0 | 1.5 |
| Ethyl benzene | 3.2 | 4.6 | 0.1 | 0.5 |
| Formaldehyde | 23.2 | 0 | 0.7 | 0 |
| n-hexane | 9.5 | 19.7 | 13 | 48.7 |
| Toluene | 3.2 | 17.9 | 0 | 1.6 |
| Xylenes | 3.2 | 12.1 | 0.1 | 0.9 |
| 2, 3,4-trimethyl pentane | 0.4 | 0.4 | 0.1 | 0.2 |

It is evident from the above totals that facilities outside of the well pad emit chemicals which can be dangerous to human health. Health effects risks produced by the above chemicals are discussed in the literature, including many of the studies cited in this document. These data are presented by the DEP in *tons per year*. The aggregate *tons per year* may have its place in assessing regional air quality over time, but falls short as a way to determine immediate and short term health risks to those nearby. In the latter case, *tons per year* masks the variability in those emissions and therefore the variability in exposures to Pennsylvania residents. Times when exposures are highest pose the most dangers to residents while yearly averages cannot tell us enough about the risks posed.

We have, from DEP reports, documentation of extremely high levels detected for short periods of time (6 hours). Variation in emissions, in conjunction with weather impacts on emissions dispersion, mean that residents are often exposed to low or no emissions, but many are periodically exposed to high and potentially illness-causing emissions.

Variation in ambient air measurements of five VOCs near a compressor station in Hickory, PA, reported in ug/m³ *

| Chemical | May 18 | | May 19 | | May 20 | | 3 day average |
|-----------------|-----------|-----------|-----------|---------|---------|-----------|---------------|
| | morning | evening | morning | evening | morning | evening | |
| Ethylbenzene | No detect | No detect | 964 | 2015 | 10,553 | 27,088 | 13,540 |
| n-Butane | 385 | 490 | 326 | 696 | 12,925 | 915 | 5,246 |
| n-Hexane | No detect | 536 | 832 | 11,502 | 33,607 | No detect | 15,492 |
| 2-Methyl Butane | No detect | 230 | 251 | 5137 | 14,271 | No detect | 6,630 |
| Iso-butane | 397 | 90 | No detect | 1481 | 3,817 | 425 | 2070 |

*The PA DEP collected data on many more chemicals than those listed above; EHP has chosen these chemicals specifically to highlight variation in emissions. (PA DEP 2010).

Note, in particular, the table illustrates the information lost when combining and averaging emissions over time. Looking at ethylbenzene, for instance, we see that its detection varies from zero to over 20,000 ug/m³ in just three days.

These Pennsylvania DEP reports highlight the importance of long-term continuous monitoring of emissions from sites which maintains the levels that are emitted over short periods of time so that the short spikes in exposures are captured in the datasets. EHP cannot emphasize enough how critical it is to thoroughly document and understand what substances Pennsylvania residents, and particularly children, are being exposed to; at what levels; and with what frequency. The PA DEP has an

opportunity to take great strides in health protection as it revisits its regulations of oil and gas activities.

SUMMARY

EHP is pleased to be part of the dialogue on how best to protect Pennsylvania citizens in the era of rapid and large scale shale gas development. There are positive and concrete steps that the DEP can take to better balance health with development and we think it is imperative that the DEP embrace this opportunity to do so.

Respectfully submitted,

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