Hearing on Environmental Permitting, Enforcement and Policy

House Oversight and Reform Committee

Environment Subcommittee

Good morning, Chair and Members of the Subcommittee on Environment

My name is Stuart Batterman, and I am a professor at the University of Michigan, in Ann Arbor. By way of background, I have a BS from Rutgers, MS and PhD degrees from the Massachusetts Institute of Technology. I have worked in the environmental area for over 40 years, including as professor at UM and Texas A&M, and as scientist at several international institutes and universities. At UM I am Professor of Environmental Health, Global Public Health, and Civil and Environmental Engineering. I teach and direct or lead a number of centers and research projects addressing exposure science, environmental and occupational health, environmental epidemiology, ambient and indoor air quality, water quality, and other topics. I have supervised or co-directed many research projects and training programs, and published over 240 journal articles and 300 abstracts. Currently, I serve on State of Michigan committees including the Air Advisory Committee and the Statewide Drinking Water Advisory Council. Earlier, I served on the Lead Abatement Workgroup, Air Quality and Health Assessment Initiative, and the Emissions and Health Monitoring Technical Advisory Committee for the City of Detroit. I've also worked with a number of non-governmental and community organizations on environmental projects in Detroit and elsewhere. I am pleased to share some thoughts with the Subcommittee today. In my time, I will highlight issues with standards and regulations, then enforcement, and then the workforce. My written testimony provides additional details and examples.

First I want to note five deficiencies in environmental regulations and standards. First, many standards and rules are not sufficient protective. Environmental justice has been defined by disproportionate impacts experienced by certain population groups; these groups are typically minority, economically poor, less healthy than comparison groups, with limited access to health care, healthy food, parks, and so forth. Individuals suffering from environmental injustices are especially susceptible to adverse impacts of pollution at levels below current environmental standards. While the Clean Air and Water Acts, for example, set standards that are intended to be health protective with a margin of safety, and standards are often strengthened in the standard setting and review process, lags in the process also compromise health. In the US, the well-respected Institute for Health Metrics and the Health Effects Institute estimate 60,200 deaths per year attributable to air pollution in 2019, most of which (47,800 deaths) is attributable to PM2.5 (https://www.stateofglobalair.org/data/#/health/plot) – even though most of the country meets the federal PM2.5 standard. While the US EPA is considering strengthening the PM2.5 standard, which is 12 µg/m3 on an annual basis (National Ambient Air Quality Standard or NAAQS), and this standard is met in most locations, the US endures approximately 50,000 deaths per year due to PM2.5 exposure, the World Health Organization has moved to a level of only 5 µg/m3.

Second, our regulations do not require consideration of cumulative effects or impacts. They largely focus on one chemical in one media at a time. Regulators examine one air pollutant, such as airborne

particulate matter or PM2.5, and do not alter rules or policies if other air pollutants are also present at potentially injurious levels, which is common in environmental justice areas. For example, portions of Detroit experience PM2.5 along with ozone, sulfur dioxide and toxics like formaldehyde; these pollutants may work together to increase disease and death. Similarly, regulations and policies in one media -- like air -- rarely influence permits and policy in another media -- like water. Thus, exposures to toxics in drinking water, such as lead or PFAS, which can cause a variety of health impacts, generally are not considered when setting rules for air quality, soil, or food. Nor are emissions and impacts from associated with induced development and traffic considered. Consideration of cumulative impacts from multiple pollutants, multiple media and uptake routes, and induced effects requires broader knowledge and training in exposure science, toxicology, risk assessment and other fields than is available in most enforcement agencies; it also requires data sharing practices and platforms, and forward looking rules, guidance and incentives from US EPA and others. This would be facilitated by accelerated development of tools and resources, some of which has been initiated by US EPA and others.

Third, our regulations are based on the assumption of a threshold for a pollutant, below which levels are considered healthy. While some argue that this simplicity is needed for an enforceable standard, this approach may not be protective of public health. A favorite example is lead in drinking water. While we know that no exposure to lead is safe, the current rule for drinking water in most states is 15 parts per billion at the 90th percentile (defining an Action Level Exceedance). This means that 14 ppb is safe, and also that 10% of homes can have levels higher than 15 ppb, without an enforceable limit to how high lead levels can go. The threshold problem applies elsewhere – like the air pollution deaths mentioned – many of those deaths will occur in regions of the country below the National Ambient Air Quality Standard. To address the threshold problem, we need ways to encourage significant reductions or elimination of emissions and exposures, or possibly use risk-based approaches. There are also opportunities to incentive emission reductions with energy conservation, electrification, and greenhouse gas reductions by formalizing and incentivizing co-benefits, that is, the accounting for avoided health impacts (and potentially improving equity) along with energy and greenhouse gas reductions.

A fourth concern with regulations is their limited scope. For ambient air, standards exist for only six pollutants: particulate matter, ozone, nitrogen oxides, carbon monoxide, sulfur dioxide and lead. An additional 189 toxic pollutants are addressed under Title 3 of the Clean Air Act, however, these do not have ambient standards and monitoring tends to be very limited. Some of these air toxics smell bad or cause irritation, but others don't, so there is often limited awareness of these exposures, even in environmental justice communities that are organized and mobilized. The proximity of communities to industry with toxic emissions locally – e.g., in SW Detroit, in Hamtramck, and Conner Creek – is a fact of life in EJ communities; this proximity causes exposures at home, work, schools, in playgrounds and parks.

Fifth and final on this topic, we also need adequately discuss, address and communicate uncertainties. In past years, the precautionary principle got a bad reputation as it was misinterpreted, but we need to address uncertainties in ways that do not lead to sustained and deleterious impacts.

I next want to mention three enforcement issues. As I noted at the onset, I have served on various city, regional and state boards, including the old Wayne County Air Pollution Control Board prior to its activity being transferred to the State. Various organizational approaches can be effective. In EJ and other areas, permit conditions and fines for permit violations frequently do not encourage environmentally responsible behavior. There are not many inspectors, and EPA's guidance for fines may not achieve this goal. Community benefits agreements, sometimes used to increase community acceptance of a permit or development, are rarely meaningful and responsive to broad environmental and community impacts. Permits do not generally encourage reducing other sources of pollution or other environmental impacts at a facility.

For larger facilities, many permits are often piecemeal, addressing only a subset of processes, and do not evaluate the larger and overall impact of a facility; key missing data is an understanding of the significance of a source, which can be understood using source apportionment and health impact assessment tools.

Transparency is the last enforcement issue I wish to mention. We have seen many advances in technology that can provide real-time emissions and activity monitoring. The use of continuous emission monitoring systems, or CEMS, is sometimes a requirement for the very largest emission sources. Even so, in most states, such data are not publicly available. My recommendations would be to encourage this type of monitoring, and make the information available in real-time. This would also benefit emergency responses capacity.

My last points address the workforce. Health departments at city, regional and state levels need incentives and resources to promote interactions with environmental departments; this is essential to address cumulative effects and to perform health impact assessments I noted earlier. The many skilled professionals in these departments often have interest in environmental epidemiology, health impact and risk assessment, and other topics, yet there is limited activity linking pollution and other environmental stresses – including noise, vibration, and heat stress --- to health and well-being.

Lastly, the linkage between occupational and environmental health should be addressed. While many individuals in EJ communities live in polluted areas, in substandard housing, in food deserts, etc., many also work in challenging jobs with chemical exposures, physical stress, and other conditions that can increase susceptibility and vulnerability to environmental stressors. We also know that individuals suffering from such environmental stresses that can cause health symptoms and disease will not perform well at work and will experience higher accident rates. This affects their personal well-being as well as their productivity at work and health care costs. Occupational health and safety professionals have begun to recognize the many factors affecting worker health and well-being, but programs spanning occupational and environmental areas and other sectors are new and very limited at present. Funding to promote practice and research in this area, sometimes called "One Health" by WHO or "Total Worker Health" by NIOSH, would be especially valuable in EJ areas given the magnitude of exposures.

I appreciate the opportunity to meet with the Subcommittee on Environment, and am happy to discuss these or other topics.