House Subcommittee on the Environment
Committee on Science, Space, and Technology, U.S. House of Representatives
"Expanding the Role of States in EPA Rulemaking"
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My name is Deborah Swackhamer, and I am a Professor Emerita from the University of Minnesota where I held appointments in Science, Technology, and Public Policy in the Humphrey School of Public Affairs, and also in Environmental Health Sciences in the School of Public Health at the University of Minnesota. I also co-directed the Water Resources Center in Minnesota. I am trained as an environmental chemist, with an emphasis on understanding exposures of toxic chemicals in the environment. I also have worked on developing water resources policy for the State of Minnesota. I served as Chair of the U.S. Environmental Protection Agency (EPA) Science Advisory Board from 2008-2012, and currently serve as Chair of the EPA's Board of Scientific Counselors. I speak to you today as an environmental sciences and policy expert, and not on behalf of the U.S. EPA or the State of Minnesota. My perspectives and statements are mine alone.

Key Points.

- Environmental protection must address the fact that pollution does not recognize political boundaries – there is a role for both States and the Federal government.
- Environmental protection is fundamentally about protecting the health of citizens, which requires protecting the quality of our air and water.
- Robust science, not politics, should form the bedrock upon which decision makers develop environmental regulations and policies.
- In general, the capacity to produce and collate robust scientific evidence is found at the federal level, and not at the state level.
- Progress in environmental protection has been achieved, but there is still much to be done to protect public health. Continued investment in EPA science is needed to achieve the protection of public health.
- The future health and well-being of our communities, and of our children and grandchildren, is at stake.

States vs. EPA in Rulemaking. The hearing today is to explore the tension between States and EPA regarding environmental regulation. My statements to this Subcommittee are to underscore the critically important role of science in environmental decision-making, regardless of whether it takes place at the State or the Federal level.

There is a reason and rich history as to why environmental protection is structured the way it is in our country. Our Federal statutes, passed with overwhelming bipartisan support by the Congress in the 1970s, set up a regulatory framework that also honors and empowers the role of States. The Federal role is to ensure consistency across multijurisdictional watersheds and airsheds, and to establish a minimum bar of environmental quality that allows our citizens to safely drink our water, eat our fish, and breathe our air. The States' role is to implement the framework to meet those minimum criteria, because they know their states better than Washington DC does. This framework is a robust and balanced one, and has worked well over the last 47 years for a number of reasons: scale of the problems, involvement of science, and cost efficiencies.

Geographic Scale of Pollution. We all are well aware that air and water do not respect or follow political boundaries. In fact, many state boundaries were established along shared river courses, setting up the need to manage air and water in a multijurisdictional, regional manner. EPA delegates the responsibility of implementing the federal statutes to the States, but maintains some control over setting the national standards. Having 50 states set 50 different standards for a given water pollutant would be highly disruptive, chaotic, and exceedingly expensive to the regulated community, to say nothing of being ineffective.

Role of Science. Environmental protection is at its essence the protection of our citizens' health. To protect public health, you must have clean air and safe drinking water – in other words, you must have a clean environment. To achieve this, one

must establish acceptable exposures of pollutants – to lower the risk of adverse health outcomes – using the best scientific evidence available. Thus science is the bedrock, the foundation, of human health and environmental protection.

Science-based evidence informs but does not dictate policy in the United States. Policy emerges through consideration of many factors including economic factors, technical feasibility, and social and political acceptability. However, all *good* environmental policy has a firm scientific foundation. The scientific foundation must be independent of politics, and must be robust. In environmental science, this means it must be based on a collection of evidence, which is then reviewed and critiqued by other independent scientists. When it comes to environmental regulations, given our litigious society, the regulation that survives a court challenge is one that is based on the best available science. So: our Federal EPA and our state environmental agencies must be able to have the best science available to them, or they will not be protecting public health. Without science supporting environmental policy making, public health loses.

Regulatory Science Must Be Robust. The science that is used to support environmental regulations is a compilation of evidence from many sources. Dozens if not hundreds of publications from federal and international agency research programs, academic publications, and private sector studies are reviewed to produce a consensus regarding a hazard, a source of a pollutant, or the type and degree of an adverse outcome. In EPA, these assessments are usually reviewed by the Science Advisory Board or in some cases the National Academy of Sciences, where an independent assessment of the science and conclusions is conducted.

The EPA Office of Research and Development (ORD) conducts research that others do not, to fill in gaps in our understanding of environment and health. Their research is directed by the needs and requests made from the Program Offices within EPA (such as the Office of Water and Wastewater, the Office of Air and Radiation) and from the Regional Offices. The requests from the Regions are

because the states within those regions have identified certain needs and do not have the scientific capacity to address them. This research conducted in ORD is reviewed for its quality and integrity by the Board of Scientific Counselors (BOSC), which is an independent check on whether the science being done at EPA is consistent with its strategic plan and mission, and is state-of-the-art. This third-party advice provides critical feedback and guidance to the Assistant Administrator of ORD.

A fundamental principle of robust science is that it is reviewed by an independent set of peer scientists, who have no personal or professional stake in the outcome of the review. All research that is published in top scientific journals is peer-reviewed. EPA has wholeheartedly embraced this principle for the science that it conducts – ongoing research is reviewed by BOSC (and others when published) and constructive criticism and recommendations are provided to the Assistant Administrator. EPA Administrator Pruitt has recently not renewed half of the 18 BOSC Executive Committee members for a second term, stating through a spokesman that more representation from the regulated community is needed on the committee. This may lead to the perception that science is being politicized and marginalized within EPA. BOSC does not review regulations or the scientific evidence that is compiled to support regulations, it reviews science that is filling in information gaps that may or may not be used in regulations. Thus BOSC members appointed from the regulated community must be esteemed scientists with no conflict of interest, or the independence and objective review the BOSC offers may become biased by special interests.

The Nature of Environmental Science. Environmental issues are complex, and thus the science to address them requires approaches that are interdisciplinary (for instance a cell biologist and a genetic biologist), multidisciplinary (for instance, a pathogen microbiologist and a water treatment engineer), and transdisciplinary (for instance, natural science experts working with economists and behavioral scientists). This involvement of many disciplines and perspectives makes it

expensive, both in terms of human resources and research costs. Simply put, State agencies have limited capacity to do this breadth or quality of science. In addition, it makes no sense to decentralize the science – that would be inefficient and create redundancies – something that is wasteful and the Congress generally does not like. Much of the scientific evidence that is needed to protect public health is best done at the Federal level, where they can take full advantage of capital resources such as laboratories, scientific capacity to attack large problems (such as the Cancer Moon Shot), and collate scientific evidence from across the national and international scientific communities. States have excellent scientific resources, but these are appropriately focused on using science to implement policy through risk assessments or permit calculations.

It should also be noted that when a city or a state has an environmental crisis, the states often turn to EPA for the science needed to address the issue. EPA serves as the backstop for the states when there is an emergency, and as you know, crises are non-partisan. Examples where EPA scientists stepped in and responded to large scale science crises include the rapid assessment of the oil dispersant that was used after the Deep Water Horizon spill; the clean up levels of soils in the yards of homes inundated by Hurricane Katrina; and more recently, the challenge of preventing toxic algae blooms from shutting down drinking water supplies for Toledo and other Lake Erie cities.

Who Will Provide the Needed Science? The President's proposed FY2018 budget reduces investment in EPA's science programs, an ominous indication that the foundation of science to support policy is being marginalized and less valued by the current administration. If not EPA, then who? There is no indication of how this scientific capacity would be replaced – in fact, pass-through programmatic dollars to the states are also cut in the proposed budget. Cutting environmental protection funds to the states will further decrease science-based policy and states' capacity to produce sound policy. My own state of Minnesota is well-regarded for its progressive stance on environmental protection. But even there, the Legislature has

proposed significant cuts to the budget of the state environmental protection agency. Thus the Federal cuts would be compounded by state cuts - a double lose-lose for the health and environment of Minnesota citizens. States will not be able to make up the difference in Federal cuts.

Federal Science Works. An example of the need for science in regulatory decision making is the National Center for Computational Toxicology. This research collaborative is part of the EPA Office of Research and Development, and has spent the last several years producing computerized models and high capacity cell-based approaches to predicting whether a chemical is potentially toxic. This precludes the enormous expense of animal based toxicity studies, and allows many more chemicals to be assessed in far less time. In collaboration with other federal agencies, they have assessed over 9000 chemicals, allowing policy makers to focus on the chemicals of higher risk and eliminate the focus on those with little or no risk. This research, seen by many as the world-wide gold-standard, could not be done at the state level – it required the scale of federal investment and resources. Without it, we would be regulating the wrong chemicals or not regulating the right ones well – again, imperiling public health.

EPA's Job is Not Finished. The proposed cuts in science support and the marginalization of science in environmental protection has been justified by some in part by statements that we have done enough, these investments are no longer as necessary. Nothing could be further from the truth. We have made tremendous progress in the improvement of our environment and in reducing illness and premature deaths through our environmental regulation, but it is a myth that we can coast on these successes. Four out of ten of our nation's lakes and rivers still do not meet basic water quality standards. Even in the great state of Minnesota, Land of 10,000 Lakes, over 4000 water bodies are listed as not meeting water quality standards. It is estimated that more than 200,000 people die prematurely each year in the U.S. as a result of air pollution exposures. These premature deaths, and hospital illnesses caused by air pollution, cost the US economy over $100 Million

dollars per year. Marginalizing science will reverse the trend in improvements to these numbers, and cause them to worsen again.

What is at Stake? The path laid out portends a decline in support of science at the federal and state levels. Should we follow this path, it will lead to a decline in public health, a decline in our communities' health, and put our country at a competitive disadvantage. It erodes the future health and well-being of our children and our grandchildren. Investing in and maintaining our pre-eminence in environmental science, and ensuring its use in sound environmental policy, will put us on a much better path.

Thank you for the opportunity to provide these comments.