

Testimony

of

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On Behalf of

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Emerging Contaminants in U.S. Waters

**House Transportation & Infrastructure
Subcommittee on Water Resources and Environment
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Background

Chairwoman Johnson, Ranking Member Boozman, and Members of the subcommittee:

Thank you for the opportunity to provide testimony before you regarding the pharmaceuticals and personal care products (PPCPs), and other emerging contaminants that are making their way into the nation's rivers, streams, lakes, and estuaries. My name is Keith Linn and I am an Environmental Specialist for the Northeast Ohio Regional Sewer District in Cleveland, Ohio. I am testifying on behalf of the National Association of Clean Water Agencies (NACWA), which represents the interests of municipal wastewater treatment agencies nationwide. NACWA members are dedicated environmental stewards who work to carry out the goals of the Clean Water Act and who treat and reclaim more than 18 billion gallons of wastewater each day.

My public agency is a large district serving the wastewater collection and treatment needs of just over 1,100,000 people. We are a founding member of NACWA and have been a key player in one of the Clean Water Act's greatest success stories — the transformation of the 1960s' notoriously "burning" Cuyahoga River into today's ecologically healthy home for literally dozens of fish species.

The purpose of this testimony is to provide the subcommittee with a sense of the state of science on emerging contaminants and the major data gaps that still exist; to explain the increasing public and media attention this issue is receiving; and to explain that sound science, not fear or an excessive application of the precautionary principle, must be applied to this emerging concern about which we still have so much to understand. NACWA wants to ensure that any approach to address emerging contaminants is firmly rooted in sound science and not dictated by undue public anxiety.

How Do Emerging Contaminants End Up in Our Waters?

These compounds are often described as "emerging contaminants" despite the fact that many have been in the environment for a long time — ever since society began producing and using them. Trace amounts of PPCPs were first reported at detectable levels in U.S. waters by the Environmental Protection Agency (EPA) in 1975. Since then, these compounds have been found in surface water, groundwater, almost all influent and effluent, biosolids, and treated drinking water. Currently, human use of the products containing emerging contaminants is expanding and escalating.

This increasing use no doubt means that more of these products are ending up in the environment, both in waterways and in soils and sediments. While households and individuals represent a huge non-regulated source of these products, other potentially significant sources include manufacturing facilities, businesses, retailers, hospitals and the medical industry, veterinary operations, landfills, septic tank haulers, and meat processors just to name a few. However, no one has been able to confidently rank the relative contribution from each of these categories of sources or their potential risks to human health and the environment.

Advances in Technology Increase Detection Rates, May Cause Unfounded Concern

Increasingly sophisticated chemical detection and monitoring technology is revealing the presence of chemical compounds at lower and lower trace levels, down to nanograms per liter, or millions of times lower than a therapeutic dose of pharmaceuticals. A person would have to drink as much as two Olympic-size swimming pools of untreated water from Cleveland's Cuyahoga River daily to ingest as much as a single therapeutic dose of an antibiotic detected in the river. Stated another way, these concentrations are so small that they are roughly equivalent to one second in the last 10,000 years; that is, a single second in the time from the Earth's last Ice Age until now. Yet, while corresponding information on impacts at these extremely low environmental levels is lacking, presence alone is fostering *awareness* of, and anxiety about, emerging contaminants.

The Associated Press (AP) released several stories earlier this year that ran in newspapers and were discussed on television news programs, focusing on the presence of trace amounts of various pharmaceuticals and other compounds in the drinking water of 24 cities. Measurable amounts of medications for pain, depression, and colds; birth control pills; caffeine; hair product ingredients; cleaning supplies; and pesticides have all been detected in samples collected from U.S. waterways. Some of these products contain endocrine-disrupting compounds and other contaminants that some researchers fear may impact aquatic life or pose a risk to human health. The question remains whether trace concentrations of these or other emerging contaminants in the nation's waters have a negative environmental or human health impact, and what the respective roles should be for the suite of interests along the chain of commerce, from manufacturers, retailers, medical facilities, and users to the nation's publicly owned treatment works (POTWs) and drinking water utilities.

In order to provide a frame of reference for what the presence of these compounds means, scientists have been looking at both occurrence data and human health information. However, identifying which emerging contaminants are of the greatest concern is exceedingly difficult, as many of these compounds are designed to

have effects at low concentrations. Additionally, there is little or no data on the ecological toxicity of most of these chemicals, and performing chemical analyses on all of them would be prohibitively expensive. We need to recognize that we can never have enough data to prove the safety of chemicals at these concentrations; it is impossible to prove a negative. Being tasked with proving their absolute safety is analogous to being tasked with proving that life does not exist anywhere else in the Universe; we may be able to prove someday that life does exist other than on Earth but, even after massive expenditures on research, we'd never be able to absolutely prove that it doesn't.

Endocrine-disrupting compounds (EDCs) are the "poster children" of the emerging contaminant issue. Sometimes referred to as "hormonally-active agents," these compounds have been linked as early as the 1960s, through wildlife exposure to subsequently-banned pesticides such as DDT, to adverse biological and ecological effects. Concern has become more widespread throughout the 1990s and into this decade, as scientists have begun to look at the presence of intersex fish and higher numbers of females in some fish populations, an observation that has garnered significant media attention. Researchers are still working to define the scope of the problem, and there are several data gaps that need to be addressed.

Critically, the information that EPA has on how chronic exposure to some of these compounds affects native fish is based on data extrapolated from studies of mammals. Also, effects observed in fish and other aquatic organisms attributed to EDCs can have other causes, such as changes in temperature. They may further simply represent natural variation in a population. This is not to say that all of the effects we are talking about here today are not linked with EDCs. They may be. The key point, however, is that all likely causes of these effects on aquatic ecosystems must be addressed before we conclude that EDCs are primarily responsible. Furthermore, while some research suggests impacts to aquatic life, no effects on human health from exposure to environmental levels of these compounds have yet been demonstrated.

Nonetheless, when people read or hear reports of possible effects in fish or other aquatic life, they often become concerned about similar effects occurring in humans. Even if presumptions of potential impacts are not supported by solid scientific evidence, this issue could be significant for POTWs if regulations and subsequent technology standards arise out of a public perception that a problem exists.

Next Steps in Addressing Emerging Contaminants

It is critical to point out that “emerging contaminants” refers to a much broader category of constituents than just pharmaceuticals, although these have tended to garner the most notoriety from the press and attention from the public. Given that many of these compounds find their way into the nation’s waters via wastewater treatment plant effluent, NACWA and its member agencies have taken a proactive approach and are working to ensure that EPA provides careful oversight and review of a number of other contaminants.

The Northeast Ohio Regional Sewer District has had a longstanding interest in this issue and is actively involved nationally through membership on the NACWA Emerging Contaminants Workgroup and on the Water Environment Research Foundation (WERF) Trace Organics Issue Area Team. Locally, the Sewer District has spearheaded the creation of a multi-agency “used medication” workgroup. This local workgroup has developed an outreach campaign to educate the public on proper medication disposal methods, and it seeks to establish a regular and legal medication collection initiative.

NACWA has been involved in coalition efforts to remove from the stream of commerce potentially harmful contaminants that add little or no practical value, such as soaps and detergents that use triclosan, a substance found most commonly in hand-soaps, that could harm the delicate balance of the biological wastewater treatment process. NACWA has also been a participant in discussions with EPA on permethrin-impregnated clothing and copper and silver biocodes that may create problems for aquatic life. The Association has worked to establish a national strategy to address the complex issue of PPCPs that make their way into the aquatic environment and has formed a partnership with the Product Stewardship Institute on a national dialogue to develop a comprehensive approach for managing the disposal of unused PPCPs. Many of NACWA’s member agencies have established pharmaceutical take-back programs to keep these compounds out of the environment, altogether resulting in the collection of significant quantities of unused medications.

However, product stewardship initiatives such as drug take-back programs face numerous barriers, not the least of which are federal narcotics laws under the jurisdiction of DEA and the Resource Conservation and Recovery Act (RCRA), the primary law for regulating solid waste. While DEA does not oppose pharmaceutical take-back programs and community collections, the agency works to ensure that the opportunities for diversion of narcotics and other controlled substances are limited. This creates a complex system for tracking drugs and impedes the development of community take-back initiatives. NACWA hopes that DEA will

consider changes to broaden disposal options and help to remove some emerging contaminants from the wastewater stream.

Federal guidelines also continue to advise that certain prescription drugs be flushed into the sewer system. Unfortunately, at the same time, EPA and other regulatory agencies at the federal and state levels are conducting efforts that may ultimately require POTWs to install additional equipment or take other action to remove these same drugs from their wastewater effluent. Clearly, preventing illicit drug use must be a national priority, but NACWA feels strongly that there are better ways of managing prescription drugs without resorting to disposal in the sewer system. Instead, sustainable approaches such as ongoing collection of unused drugs need to be explored.

In addition, NACWA strongly encourages Congress and EPA to address other emerging contaminants in a cooperative manner with the regulated community. Before regulation of any contaminants can be reasonably contemplated, EPA must first answer whether, and at what levels, the presence of trace amounts of these compounds in our waters can be reasonably expected to result in short-term or long-term effects on human health or the environment. Although millions of dollars are already being spent to look at impacts and fund support projects being conducted by EPA, the Water Environment Research Foundation, and the U.S. Geological Survey, substantially greater funding for the appropriate research is needed before broad national strategies for addressing the problem are implemented.

In the meantime, opportunities exist for collaboration and innovation, including innovative research, community collections, take-back programs, and aggressive public education campaigns. NACWA will continue to work with its member utilities and other organizations that are doing environmental research to take the results and develop options for communicating these strategies to the public. As we look to a future with new mixtures of chemicals and the increasing use of nanotechnology, we must make sure that we fully understand their impacts, while not standing in the way of innovation and progress, and while not saddling communities where resources are already scarce with potentially unwarranted additional burdens.

Thank you for your time and the opportunity to testify before the committee. I would be happy to answer any questions you may have.