Microconstituents in the Environment

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Modern science has produced innumerable products and medicines that have improved the quality and longevity of our lives and afforded many conveniences. Their production, use, and disposal have resulted in the presence of low levels of microconstituents in the environment. Microconstituents may be found in surface water, ground water, drinking water, domestic and industrial wastewater, agricultural runoff, reclaimed water, other waters, and biosolids. Many of these substances also may be found in soils and in the air. The Water Environment Federation (WEF) defines *microconstituents* as natural and manmade substances, including elements and inorganic and organic chemicals, detected within water and the environment for which continued assessment of the potential impact on human health and the environment is a prudent course of action. Frequently mentioned microconstituents include pharmaceutical and personal care products, pesticides, and industrial chemicals.

WEF advocates further research to better understand this evolving and complex issue. Potential future regulatory requirements to address microconstituents must be driven by sound scientific principles.

WEF is committed to advancing understanding of microconstituents in the water environment and supports continuing efforts to safeguard the public and the environment including monitoring, assessment, and prevention. WEF believes that information in this developing area should be shared broadly among all stakeholders.

Monitoring

Continuous improvements in analytical tools have enabled researchers to detect the presence of microconstituents in the environment at low levels. Federal agencies and academia should support further improvements in the accuracy and precision of microconstituent detection and quantification.

Local, state, and federal agencies should engage in cooperative monitoring efforts to better understand the presence of microconstituents. The U.S Environmental Protection Agency (USEPA) should provide funding for state and local agencies to support these efforts.

The U.S. Geological Survey (USGS) should continue to focus resources on monitoring for and quantifying the presence of microconstituents in the water environment.

Assessment

The assessment of risks to human health and the environment posed by exposure to any substance is fundamental to understanding and mitigating its potential impacts. Research efforts focused on the fate, transport, and effects of microconstituents on human health and in the environment, although just beginning, are critical to understanding this complex issue.

Federal agencies and academia should engage in cooperative efforts to accelerate research on the fate, transport, and potential effects of microconstituents on human health and the environment. Such research should be funded by USEPA, USGS, the Centers for Disease Control and Prevention, and the Food and Drug Administration (FDA).

Screening level risk assessments based on preliminary information on presence, levels, fate, and effects should be developed and used to determine priorities for further research and possible safeguards.

Prevention

Controlling microconstituents at their source is an option for limiting their release to the environment. Industry, agriculture, and the water and wastewater community should be active proponents of controlling microconstituents at their point of generation to prevent harmful impacts.

USEPA and FDA should work together to identify and address gaps in the existing regulatory framework for evaluating new substances prior to their production and use to insure that they do not present significant threats to public health and the environment.

Federal, state, and local agencies, working with manufacturers and water and wastewater professionals, should educate consumers on their role in reducing the release of microconstituents to the environment. Such programs should promote understanding of the proper methods for recycling or disposal of products and the consequences of improper use.

USEPA should fund research on the treatability of microconstituents in impacted media.