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ENDOCRINE DISRUPTING CHEMICALS AND OTHER EMERGING CONTAMINANTS IN WASTEWATER AND DRINKING WATER TREATMENT TECHNOLOGIES

Marc Mills *

ABSTRACT: Research has shown that wastewater (WW) can be a significant source of endocrine disrupting chemicals (EDCs) and other Emerging Contaminants to the environment. WW treatment (WWT) may include centralized wastewater treatment plants (WWTPs) or smaller on-site WWT technologies. EDCs found in WWT effluents (aqueous and biosolids) include estrogenic and androgenic hormones, detergent metabolites, and plasticizers. Other emerging contaminants include a significant list of pharmaceuticals, personal care products, and other trace organic contaminants such as fluorinated chemicals, flame retardants, and detergent metabolites. Many questions exist as to why WWTP have higher or lower removal efficiencies. Little research has been conducted to demonstrate how technology or plant operations contribute to the EDCs removal. The efficacy of the unit processes within the plant is not well characterized. In addition, no significant research has been conducted to evaluate on-site WWT for the management of EDCs. One focus of NRMRL's EDCs and wastewater research is to characterize the performance of existing risk management strategies. The results of this research program may be used to help WWT and DW operators understand the capability of their treatment technologies to manage EDCs and other emerging contaminants, how process variables and demographics influence performance, and how to improve the operation of their plants to minimize effluent levels of EDCs. In the future, if EPA concludes that EDCs or other emerging contaminants in effluents must be regulated, the Office of Water will require performance information on conventional and innovative treatment to develop regulatory guidance.

***** Environmental Engineer, U.S. Environmental Protection Agency ORD-NRMRL, 26 W. Martin Luther King Drive, Cincinnati, OH 45268, USA, Phone: 513-569-7322, Fax: 513-569-7105, Email: mills.marc@epa.gov