Presentation Title: “Insecticidal Pet Collars as a Potential Source of Pesticide Residues in California Wastewater”

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Abstract:

Pesticide products, including those intended for use on domestic pets, are known to contribute pesticide active ingredients (AIs) to wastewater treatment systems. However, little is known about the contributions specifically from insecticidal pet collars. We examined recent sales data for insecticidal pet collar products in California, to determine which pesticide AIs are currently used or have recently been used in these collars, and the estimated annual mass of each AI sold in pet collars. For each AI identified, we calculated yearly estimates for wastewater influent and effluent concentrations, assuming 100% down-the-drain transport. We then compared the estimated effluent concentrations to the United States Environmental Protection Agency’s (USEPA’s) freshwater aquatic life toxicological benchmarks. Based on these estimates, several AIs (deltamethrin, imidacloprid, and tetrachlorvinphos) have the potential to exceed their respective benchmark values. These findings highlight the need to consider all down-the-drain pathways when prioritizing analytical method development needs. Results may be used to help inform future monitoring efforts for pesticides in wastewater influent, effluent, and surface waters of California.