New Impacts on Drinking Water and Non-Target Identification of New Disinfection By-Products

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Drinking water around the world is experiencing increased impacts from anthropogenic activities. These include impacts of treated wastewater, where potentially hazardous contaminants are not completely removed and enter our source waters; impacts of droughts where natural bromide and iodide, as well as wastewater contaminants are concentrated in our rivers; and new impacts of energy extraction, where hydraulic fracturing activities are introducing fracking chemicals and natural brines into our source waters. Besides the parent chemical contaminants that can enter drinking water, disinfection by-products (DBPs) can be formed from these contaminants. Moreover, it is often the case where non-hazardous chemicals become potentially hazardous once they react with disinfectants in drinking water treatment. This presentation will discuss the state-of-the-science regarding these impacts, as well as new non-target mass spectrometry approaches to identify these unknown DBPs and transformation products.