1,2,3-Trichloropropane: Insights from Data Mining of Occurrence and Cleanup Site Databases

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Background/Objectives. 1,2,3-trichloropropane (TCP) is an emerging contaminant that is persistent in groundwater and classified as "likely to be carcinogenic to humans" by the U.S. EPA. Sources of TCP to the environment include both nonpoint sources from agricultural chemical use and point sources associated with agricultural chemical manufacture and distribution, industrial use, and use in production of other chemicals. Occurrence data has recently become available for TCP from Uncontaminated Monitoring Rule (UCMR) sampling at the federal level (UCMR3) and at the state level in California. TCP was added to the U.S. EPA Contaminant Candidate List 4 in 2015 for consideration for a future drinking water standard. At the state level, drinking water standards and guidance levels vary by orders of magnitude. Hawaii established a maximum contaminant level (MCL) of 600 nanogram per liter (ng/L) in 2005, while California adopted an MCL of 5 ng/L MCL in 2017 and New Jersey is recommending adopting 30 ng/L. In addition, the reporting limits that inform our understanding of TCP occurrence vary by over an order of magnitude.

This presentation will examine the occurrence, sources, and plume characteristics of TCP from the perspective of the ng/L emerging regulatory levels using available occurrence and cleanup site databases.

Approach/Activities.
Data will be mined from publicly available data bases including:

- U.S. EPA UCMR3 occurrence data, with TCP data collected using a method reporting limit of 30 ng/L
- California UCMR occurrence data, with TCP data collected using a method reporting limit of 5 ng/L
- California Geotracker, the State Water Resources Control Board's data management system for sites that impact, or have the potential to impact, water quality in California

Data summary, mapping, and visualization techniques will be used to analyze the available data.

Results/Lessons Learned.
Key insights to be illustrated by the data analysis include:

- An understanding of the geographic distribution of TCP occurrence and elucidation of potential data gaps of occurrence at low ng/L levels due to varying reporting limits with different analytical methods.
- An understanding of the relative magnitude of impacts from various point and non-point sources.
- An understanding of general TCP plume characteristics, including plume length and the extent to which plumes have been delineated at various regulatory levels.