

Emerging Contaminants: What's Next?

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Background/Objectives. The environmental profession is focusing significant attention and resources on investigating, evaluating, treating, and remediating several so-called contaminants of emerging concern, or more simply, emerging contaminants (ECs). The first wave of emerging contaminants in the mid- to late 1990s included perchlorate and methyl-tert-butyl ether (MTBE). Since that time, the list of emerging contaminants has expanded to include 1,4-dioxane (1,4-D), perfluorinated alkylated substances (PFAS), N-Nitroso-dimethylamine (NDMA), polybrominated diphenyl ethers (PBDEs), polybrominated biphenyls (PBBs), nitrotoulenes, pharmaceuticals and personal care products, all of which have been detected in drinking water supplies and various environmental compartments. A relatively recent addition to the expanding universe of ECs is 1,2,3-trichloropropane (1,2,3-TCP).

Not all ECs currently have health or environmental quality standards; however, they all have a significant potential to become regulated in the near term. Health advisory levels, action levels, and enforceable regulatory standards – which in some cases have become *de facto* cleanup levels for soil and groundwater -- are under development or have been released. Most recently on July 18, 2017, the California State Water Board adopted a maximum contaminant level (MCL) of 0.000005 milligrams per liter for 1,2,3-TCP. The California MCL for 1,2,3-TCP is likely to have a significant impact on public water supplies and groundwater cleanup sites throughout the state. For example, the City of Chino, CA, approved an emergency resolution to expend \$5 million to begin treating the city's drinking water to comply with the new MCL for 1,2,3-TCP. With over 85,000 chemical substances currently on the Toxic Substances Control Act (TSCA) inventory, the potential for the universe of emerging contaminants to expand beyond the current chemicals is almost without limit. That potential leads to several logical questions: what chemical substances have the greatest potential to become the next wave of ECs? What industrial sectors should begin tracking regulatory interest and rulemaking activity for those chemicals? What are the ramifications if those chemicals become regulated?

Approach/Activities. This research identified the chemical substances that have the greatest potential to become the next generation of ECs and to evaluate their significance relative to various industrial sectors, environmental media, and cleanup sites. Several lists of chemicals that are being considered for regulatory action were reviewed including those on the Contaminant Candidate List (CCL), the UCMR-4 list, the Toxic Substances Control Act high priority substances list, and other lists. The chemical substances were evaluated qualitatively in terms of usage, toxicity, and degradability.

Results/Lessons Learned. The research identified a set of chemical substances that have significant potential to become the next wave of ECs. The industrial sectors that use or have used these substances in the past is very broad. Various potential pathways for release of these substances into the environment were identified.