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Contaminants Emerging from a New Look at Old Chemicals: Effects of TSCA Reform

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Background/Objectives. The recently signed Frank R. Lautenberg Chemical Safety for the 21st Century Act (CSA) brought radical changes to the 40 year old Toxic Substances Control Act (TSCA). This paper will explore the possible implications of the new mandate for the Environmental Protection Agency to assess the risks from exposure to existing chemicals, in a data-driven analysis that considers the potential extent of environmental contamination.
The original TSCA Inventory of existing chemicals, created in the years after the passage of TSCA in 1976, listed approximately 62,000 existing chemicals. The USEPA has evaluated the risks from only a few hundred of those chemicals. The Inventory has grown to list more than 84,000 chemical substances based on Premanufacture Notices (PMNs) of new chemicals. Historically, only about half of those PMNs contained toxicology or ecotoxicology data, and the USEPA reviewed only 2 to 3% of PMNs in detail, gauging the potential risks from exposure to other new chemicals by analogy to existing chemicals. In short, TSCA did not require or empower the USEPA to fully assess the risks from chemicals in commerce despite the fact that approximately 2,200 substances are manufactured or imported at more than a million pounds per year and roughly 8,000 chemicals are manufactured or imported in amounts of 25,000 pounds or more per site.

Under the new TSCA reforms, USEPA must conduct risk assessments on priority existing chemicals, with the immediate goal of having 20 ongoing chemical risk evaluations chemicals by 2020. These risk assessments, which may reflect new [eco]toxicological data generated under global product stewardship regulations in the past ten years, may identify new dose-response factors that change the way in which we understand the toxicity of many chemicals.

Approach/Activities. USEPA will have more information than ever before on the potential hazards of environmental contaminants. Although the Integrated Risk Information System (IRIS) lists dose-response factors for approximately 500 chemicals, many of these chemicals have not been evaluated or recently updated and are based on old assessments. USEPA has already identified and prioritized over 300 chemicals for an initial assessment under the new TSCA rules. These new assessments may include chemicals already included under IRIS but with outdated data as well as chemicals not currently included in IRIS. The authors compared the TSCA priorities to IRIS and also evaluated current USEPA remediation analytical lists with the goal of identifying those chemicals that could become a remediation priority based on the TSCA analysis. The analysis also identified those chemicals currently included on remediation lists, but with potentially outdated toxicity data (i.e., prior to 2008) that could result lower cleanup goals. In addition, the authors compared the lists to annual U.S. chemical production rates to identify what chemicals may become the next generation of “emerging” contaminants that industry and remediation practitioners may need to address.

Results/Lessons Learned. We will present the output of the analysis described above, and explore the possible implications of the new mandate for USEPA in a data-driven analysis that considers the potential extent of environmental contamination. Our analysis confirms that TSCA has the potential to not only identify “new contaminants” that could be added to existing

analytical lists, but also could lower many current clean up goals as new toxicity data are added to the review process.