Health Risk Analyses for Dioxin, Dose-Response Uncertainty, Toxicity Values, and Cumulative Risk

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Dioxins have been characterized by the U.S. Environmental Protection Agency (EPA) as likely human carcinogens and are anticipated to increase the risk of cancer at background levels of exposure. Dioxin levels in the environment have been declining since the early seventies and have been the subject of a number of federal and state regulations and clean-up actions. However, current exposure levels to dioxin and dioxin-like compounds (DLCs) still remain a concern to communities and organizations because of their potential toxicity combined with relatively long half-lives in the environment and in human tissues.

The EPA undertook an extensive assessment more than twenty years ago (1980's) to address extant environmental health concerns. In response to emerging information, the Agency initiated a comprehensive update in the early 1990's. This draft reassessment was provided for initial review to the EPA Science Advisory Board (SAB) in 1995, then revised to address SAB comments, distributed for interagency review, and resubmitted for SAB review in 2000. Following subsequent revision and interagency review, the dioxin reassessment was provided to the National Academy of Sciences (NAS) for review in November 2004. Finally, in July 2006, the NAS panel released its review report identifying several key technical issues and areas for improvement.

The goal of the EVS dioxin project is to strengthen the understanding of potential health risks from dioxin and dioxin-like compounds (DLCs) through a systematic evaluation of toxicity-related information and assessment methodologies, including for uncertainty characterization and cumulative risk. The near-term scope involves the following activities: (1) assess key technical issues from the National Academy of Sciences (NAS) review of the dioxin reassessment, (2) identify and evaluate current scientific information to address those issues, as the dioxin literature has continued its significant expansion since the reassessment document was last revised (in 2003), (3) involve experts and solicit public input on key studies and technical issues, and (4) summarize inputs to guide the technical work plan for completing the dioxin assessment.