DEVELOPING EMISSION INVENTORY BOUNDING ESTIMATES FOR USE IN COMMUNITY-BASED RISK ASSESSMENTS – George Setlock, EPA Region 6

ABSTRACT

There are mounting concerns that health risks from exposures to environmental agents in the United States are greater (relative to the general population) for residents living in heavily industrialized counties. Such concerns can be promptly confirmed or denied via community-based risk assessments. The validity of such screening assessments relies heavily on the quality of available emission inventories. Most, if not all, available emissions databases are not designed to support risk analysis. Additionally, facility-reported air emission data are frequently reported grouped into general categories (e.g., non-methane volatile organic chemicals (NMVOC), gasoline, fuel oil #2, etc). Emissions then require chemical speciation estimates prior to implementing risk assessments of hazardous air pollutants (HAPs) to assess potential impacts to residents living in close proximity to industrialized areas.

Three estimation methods were employed for independently speciating NMVOC grouped emissions (Oklahoma Point Source Emissions Database) as part of a recently completed air toxics study assessing community-based risks in a heavily industrialized county. Chemical profiles published for a wide variety of U.S. industrial sources (Speciate 3.2) were fit to individual facility emission points and speciation results were compared with two different quick-screening approaches (utilizing the facility's EPCRA (Emergency Planning & Community Right-To-Know Act) Section 313 chemical data). These three speciation approaches were used to bound HAP emissions and subsequently evaluate potential community-risks for over 2,000 tons of unspeciated NMVOC emissions originating from a large petroleum refinery operating in the study area. The relative usability and utility of each of the three chemical speciation approaches was evaluated relative to eight data quality objectives (DQOs) for the regional air toxics project.

REFERENCES

U.S. EPA Region 6 – Oklahoma Department of Environmental Quality (ODEQ) Joint Study – Ponca City Air Toxics Project (February, 2004) - Project details and final summary report are available on the Internet at:
http://www.deq.state.ok.us/AQDNew/resources/reports/Ponca%20City%20assesment.doc

SPECIATE 3.2 – Speciate is EPA's repository of Total Organic Compound (TOC) and Particulate Matter (PM) speciated profiles for a wide variety of sources. Speciate (Version) 3.2 is a 32-bit, 3 MB EXE Windows program that was posted to the CHIEF (Clearinghouse for Inventories and Emission Factors) Web Site in November, 2002. *(http://www.epa.gov/ttn/chief/speciate)*

RAIMI – **R**egional **A**ir **I**mpact **M**odeling **I**nitiative. U.S. EPA Region 6 MultiMedia Planning & Permitting Division, Facility Assessment Section, Dallas, TX. *(http://www.epa.gov/earth/r6/6pd/rcra_c/raimi/raimi.htm)*