

Development of a Metabolism Factor for Polycyclic Aromatic Hydrocarbons for Use in Multipathway Risk Assessments of Hazardous Waste Combustion Facilities

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As a state authorized to permit hazardous waste combustion facilities, the Texas Natural Resource Conservation Commission (TNRCC) has conducted several site-specific, multipathway risk assessments in support of permitting actions. These risk assessments were carried out in accordance with guidance provided in U.S. Environmental Protection Agency's *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities, Peer Review Draft (HHRAP)*. This protocol uses a prospective, screening-level, risk assessment paradigm and incorporates conservative default assumptions. In conducting such risk assessments, staff of the Toxicology and Risk Assessment Section have found that modeled emissions of polycyclic aromatic hydrocarbons (PAHs) at concentrations near or below detectable levels can produce unacceptable risk in the "farmer" exposure scenario. In accordance with recommendations in HHRAP, the TNRCC followed a tiered approach, whereby additional site-specific information is incorporated in place of standard default assumptions in cases where the initial screening-level risk assessment yielded unacceptable risk or hazard. Sensitivity analyses indicated that one of the key parameters affecting the risk estimates for PAHs in the farmer exposure scenario was the way in which PAHs were modeled up through the food chain. Therefore, refinement of the model focused on the development of a PAH-specific metabolism factor, as described in the article.

Key Words: metabolism; polycyclic aromatic hydrocarbons (PAHs); risk assessment; hazardous waste combustion; RCRA, indirect exposure; food chain.