# Air Management Regulation VI – Control of Emissions of Toxic Air Contaminants

## Plain Language Summary of Current Regulation and Proposed Changes

### Overview

The Philadelphia Department of Public Health's (PDPH) mission is to protect and promote the health of all Philadelphians and provide a safety net for the city's most vulnerable. PDPH's Division of Air Management Services (AMS) monitors air pollutants; enforces city, state, and federal air quality regulations; issues permits and licenses to install or operate equipment that emits or controls air pollution; regulates asbestos-related activities; and works with individuals and businesses to help them comply with the legal requirements for construction and demolition projects.

As part of the Department's work to improve air quality in Philadelphia, Air Management Regulation VI (AMR VI) was established to reduce the emission of toxic air contaminants within the City. Toxic air contaminants are chemical substances, which when released into the atmosphere, are known or suspected to cause cancer or other serious health effects. The Philadelphia Department of Public Health and the Division of Air Management Services are proposing the following changes to further reduce toxic air emissions and enhance air quality in our community.

### Current Regulation

Created in 1981, Air Management Regulation (AMR) VI established a list of 99 toxic air contaminants which may increase the risk of health effects in the community. The list includes asbestos, benzene, lead, and mercury. Facilities in the city that emit one or more of these contaminants into the atmosphere are required to report it. Certain processes such as combustion units and commercial dry cleaning are exempt from the reporting requirement since the toxic air contaminants emitted from the processes are known.

The regulation also created air concentration guidelines for toxic air contaminants. When a permit application for a project that will emit a toxic air contaminant is submitted, the Division of Air Management Services (AMS) regulates the amount of the pollutant the project can release to ensure it does not pose a health hazard to our community.

### Proposed Modifications

Since AMR VI was created in 1981, additional air pollutants have been found to also increase the risk of serious health problems in people. The proposed modifications to AMR VI would update the current list of toxic air contaminants from 99 chemicals to 217 chemical

compounds and compound groups. This includes all chemicals designated as a Hazardous Air Pollutant (HAP) by the U.S. Environmental Protection Agency (EPA).

The proposed change would also establish threshold levels for each toxic air contaminant and require a risk assessment for permit applications for projects that have the potential to emit at least one toxic air contaminant beyond their threshold limit. The threshold limit of each toxic air contaminant was calculated based on each pollutant's potential to cause cancer or other serious health effects and the overall concentration of the contaminant in the ambient atmosphere. A risk assessment would also be required for new and renewal Title V operating permit applications. Title V operating permit applications are required for facilities with the potential to emit pollutants above levels defined as major by the EPA.

Health Risk Assessments

A health risk assessment is a scientific process used to estimate the probability of adverse health effects resulting from human exposure to a hazardous substance. AMS utilizes health risk assessments to evaluate any remaining health risk, known as residual health risk, posed by toxic air emissions from certain air pollution sources that have otherwise implemented emission controls, work practices, and other requirements specified by applicable City, Commonwealth, and Federal authorities. The proposed risk assessments would include:

1. Risk Screening

An initial risk screening analysis would be performed for any new or modified air pollution source that emits at least one toxic air contaminant in-excess of the reporting threshold. The risk screening analysis can be completed using either: 1) AMS's Risk Screening Workbook, or 2) the EPA air quality screening model, AERSCREEN. The Risk Screening Workbook is an easy-to-use, Excel-based tool that estimates worst-case scenario cancer and non-cancer risks of toxic air contaminants. Similarly, the EPA's AERSCREEN model can be used to estimate worst-case scenario cancer and non-cancer health risks.

If the potential risk of cancer for each toxic air contaminant from a source is $\leq$ 1 in a million ($1 \times 10^{-6}$) AND the applicable non-cancer Hazard Quotient $\leq$ 1, the health risk for the source is considered "negligible" and no further evaluation is required. Otherwise, a refined risk assessment must be performed.

2. Refined Risk Assessment

A refined risk assessment consists of a refined atmospheric dispersion modeling analysis for air pollution sources. Utilizing the EPA's AERMOD air quality dispersion model, the refined assessment uses stack- and source-specific data as well as representative meteorological data. This process provides a more detailed estimate of ambient air concentrations of emitted air toxics than the initial screening analysis.

If the cancer risk and non-cancer Hazard Quotient calculated in the refined assessment for each toxic air contaminant from a source are found to be “negligible” no further action will be required. If toxic air emissions are determined to be above safe levels, the permit application is subject to further case-by-case review, risk mitigation plan requirements, or denial.

3. Title V Facility-wide Risk Assessment

A facility-wide heath risk assessment is required for all toxins emitted from air pollution sources operated as part of a Title V facility. Applicants performing a facility-wide risk assessment are required to follow procedures outlined in the EPA’s air quality dispersion modeling guidelines. This assessment must estimate, for each toxic air contaminant, the combined impact from all stacks / emission points within the facility. The proposed regulation changes would limit the cancer risk to 10 in a million and the non-cancer hazard quotient to 1 for a toxic air contaminant considering all sources of a facility. If the facility exceeds either of these maximum levels, the permit application is subject to risk mitigation plan requirements or denial.