

# ALLEGHENY COUNTY HEALTH DEPARTMENT

## AIR QUALITY PROGRAM

### Policy for Air Toxics Review of Installation Permit Applications

ACHD Draft of October 26, 2012

#### I. PURPOSE

This document establishes the policy the Allegheny County Health Department Air Quality Program (the Department), will use for evaluating the human health impacts of new or significantly modified sources emitting toxic air emissions into the ambient air. This policy document is effective until modified by the Department or until formal rules are promulgated.

This policy does not change any federal, state or County requirements including, but not limited to, all Best Available Control Technology (BACT), New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAPS), New Source Review (NSR), Prevention of Significant Deterioration (PSD) and Allegheny County Health Department Rules and Regulations, Article XXI, Air Pollution Control (Article XXI).

There is no intent on the part of the Department to give this policy the weight or deference of a regulation. This document establishes the framework for the Department to exercise its administrative discretion in the future. The Department reserves the discretion to deviate from this policy statement if circumstances warrant.

#### II. APPLICABILITY

This policy applies to applications for an Installation Permit (IP) required under the provisions of Article XXI, including new facilities, modifications to existing facilities, or addition of new equipment, that are expected to increase the net potential air toxics emissions from the facility into the ambient air and do not belong to any one or more of the following categories:

- a. Projects that result in an emissions increase less than the de minimis levels stated below. For the purposes of this policy, “de minimis levels” are “*emission increases of specific air toxics which are not expected significantly affect public health.*” For Polychlorobiphenols, Polycyclic Organic Matter, and Mercury the de minimis level is 20 lbs. per year. For Dioxins and Furans the de minimis level is 0.020 lbs. per year. For Hazardous Air Pollutant (HAP) Metals the de minimis level is 20 lbs per year total for all HAP metals combined. For all other air toxics the de minimis level is 0.25 tons per year total for all air toxics combined..
- b. Projects that are solely for the installation or in-kind replacement of pollution control device.

- c. Activities included on the Allegheny County Installation Permit Exemptions list (Article XXI 2102.04.a.5) or otherwise exempt under Article XXI.
- d. Projects that include equipment where EPA has published risk assessment guidance (e.g. Municipal Waste Combustors). The Department will implement the EPA procedures in place of this guideline when appropriate.

For the purpose of this policy, “air toxics” are those pollutants defined as “*air-borne pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, respiratory illness, neurological effects, or to cause adverse environmental effects that are predictive of adverse human health consequences.*” This definition only includes compounds that have toxicity information in the references cited in Section VI of this policy, but does not include criteria pollutants.

### III. AUTHORITY

With few exceptions, any person installing, modifying, replacing, reconstructing, or reactivating a source of air pollution or air pollution control equipment within the County must first obtain an IP from the Department. Article XXI § 2102.04.b.7 states, “*The Department shall not issue any Installation Permit unless it has . . . received a complete application meeting the requirements of this Part, which application includes or demonstrates that: . . . Emissions from the proposed source will not endanger the public health, safety, or welfare. . .*”

This policy specifies the guidelines which the Department will use, along with other relevant information, to determine whether the application sufficiently demonstrates that the proposed installation will not endanger the public health, safety and welfare of Allegheny County.

### IV. GUIDELINES

For IP applications covered by this policy, the Department will require the applicant to perform: a) an analysis of the carcinogenic health effects of air toxic emissions; and b) an analysis of the non-carcinogenic health effects of air toxic emissions, and include such analysis as part of the IP application.

#### a. Analysis of Carcinogenic Health Effects

The IP application should contain an analysis demonstrating to the Department’s satisfaction that the combined impact of the proposed increased potential air toxic emissions with known or possible carcinogenic health effects does not result in an aggregated Maximum Individual Carcinogenic Risk (MICR) that poses an undue human health risk at or beyond the public exposure boundary. For the purposes of this policy, the “public exposure boundary” is “the point of the nearest regularly occupied or likely to be regularly occupied (at least six hours per

---

day for a minimum of 30 days per calendar year) structure beyond the applicant's property line." MICR is defined as the probability of developing cancer by an individual exposed to the expected concentrations of all substances in the ambient air over a 70-year period aggregated over the proposed increased potential air toxic emissions. The aggregated MICR for a mixture of substances is equal to the sum of the MICRs for each individual substance.

If the MICR due solely to the net potential increase in air toxics emissions from the proposed IP is less than  $1 \times 10^{-5}$  at or beyond the public exposure boundary, taking into account both the IP and offsets from the facility and offsets from nearby existing sources, no further assessment for carcinogenic effects will be required. The offsets should be modeled at their specific locations and conditions.

If the MICR due solely to the net potential increase in air toxics emissions from the proposed IP is greater than  $1 \times 10^{-5}$  at or beyond the public exposure boundary taking into account both the IP and offsets from the facility and offsets from other nearby existing sources, the Department will require an emissions modeling analysis that includes the increase in potential emissions from the proposed IP, emission offsets from the facility and other nearby existing sources, actual emissions from all other sources in applicant's entire facility, and actual emissions from other nearby existing permitted sources that are expected to have a significant effect to the extent that such data is available. The Department will assess the public health risk, taking into consideration the assumptions and uncertainties inherent in the risk characterization, and the public health significance of the estimated risk. Based on this assessment, the Department may require additional actions to reduce risk. Such actions may include, but are not limited to: ambient air monitoring, more stringent emission controls, controls at other sources within the facility, or additional offsets.

A MICR due solely to the net potential increase in air toxics emissions from the proposed IP that is greater than  $1 \times 10^{-4}$  at or beyond the public exposure boundary taking into account both the IP and offsets from the facility and offsets from other nearby existing sources represents a public health risk of serious concern. This case should be considered a deviation subject to Section VIII of this policy.

b. Analysis of Non-Carcinogenic Health Effects

The IP application should contain an analysis demonstrating to the Department's satisfaction that the increased ambient concentration of any individual air toxic resulting from the proposed increase in potential air toxic emissions with known or possible non-carcinogenic health effects will not exceed the Reference Concentration (RfC) at or beyond the public exposure boundary. For the purposes of this policy, RfC is the continuous inhalation exposure concentration of a substance that is likely to be without an appreciable risk of adverse health effects to the human population (including susceptible subgroups) over a lifetime.

If the proposed installation results in potential increases of multiple air toxics, the IP application should contain an analysis calculating the cumulative Hazard Index (HI). For the purposes for this policy, the HI is defined as the sum of the Hazard Quotients (HQ) for

substances that affect the same target organ or organ system. The HQ is defined as the ratio of the expected air toxic concentration to its corresponding RfC.

If the HQ of each emitted air toxic is less than 1.0 and the HI is less than 2.0 at or beyond the public exposure boundary due solely to the net potential increase in the air toxics emissions from the proposed IP, taking into account both the IP and offsets from the facility and offsets from other nearby existing sources, the Department will approve the non-carcinogenic risk analysis and no further assessment of non-carcinogenic effects will be required.

If the HQ of any emitted air toxic is greater than 1.0 or the HI is greater than 2.0 at or beyond the public exposure boundary due solely to the net potential increase in the air toxics emissions from the proposed IP, taking into account both the IP and offsets from the facility and offsets from other nearby existing sources, the Department will require an emissions modeling analysis that includes the increase in potential emissions from the proposed IP, emission offsets from the facility and other nearby existing sources, actual emissions from all other sources in applicant's entire facility, and actual emissions from other nearby existing permitted sources that are expected to have a significant effect to the extent that such data is available. The Department will then assess the public health risk and, taking into consideration the assumptions and uncertainties inherent in the risk characterization, and the public health significance of the estimated risk. Based on this assessment, the Department may require additional actions to reduce risk. Such actions may include, but are not limited to: ambient air monitoring, more stringent emission controls, controls at other sources within the facility, or additional offsets.

## V. EMISSIONS MODELING ANALYSIS

### a. Selection of Models

Any appropriate model, including but not limited to those listed in 40 CFR 51 Appendix W, may be used in the emissions modeling analysis required by this policy. The applicant may use an appropriate screening or refined model. These models include but are not limited to:

SCREEN3	TSCREEN	RTDM3.2
AERSCREEN	COMPLEX1	CALPUFF
CTSCREEN	VALLEY	AERMOD

The Department will review the choice of model and model inputs to determine appropriateness and accuracy. The applicant will correct any deficiencies. Any appropriate and properly implemented model which produces results meeting the guidelines of Section IV will satisfy the requirements of this policy, the results of any other model notwithstanding.

### b. Meteorological Data

Applicants should use available meteorological data most representative of the site, including but not limited to available site-specific data, data maintained by ACHD, data from Pittsburgh

---

International Airport, or data from the Allegheny County Airport. The Department will review the appropriateness of the data selected.

c. Modeling Protocols

Applicants are not required to submit modeling protocols as part of the emissions modeling analysis. However ACHD encourages applicants to develop a modeling protocol for review by ACHD staff, especially when using a refined model, such as AERMOD or CALPUFF.

## VI. SOURCES OF TOXICITY INFORMATION

The best available recognized and peer reviewed science should be used to conduct risk assessments required by this policy. In general, if risk assessment information is available in EPA's Integrated Risk Information System (IRIS) for the air toxics under evaluation, there is no need to search further for additional sources of information. If such information is not available in IRIS, the applicant should use other sources of available information based on the hierarchy presented below:

Tier 1 - EPA's Integrated Risk Information System (IRIS)

Tier 2 - EPA's Provisional Peer Reviewed Toxicity Values (PPRTVs)

Tier 3 - Other Toxicity Values

Sources of Tier 3 values include: California Environmental Protection Agency (Cal EPA) Reference Exposure Levels (RELs), Agency for Toxic Substances and Disease Registry (ATSDR) Minimal Risk Levels (MRLs), and Health Effects Assessment Summary Tables (HEAST) toxicity values.

The hierarchy defined in this Section may be altered for specific air toxics if it can be demonstrated to the Department's satisfaction that the information obtained by following the hierarchy does not represent the best available science.

For those air toxics for which the toxicity information is presented as a range of values within the database, the mid-range value should be used in calculations in the absence of relevant site specific factors that would recommend the use of a value elsewhere in the range.

## VII. EMISSION OFFSETS

If the applicant for an IP is unable to demonstrate to the Department's satisfaction that emissions from the proposed installation meet the guidelines defined in this policy, the IP may still be approved if the applicant secures a sufficient amount of Emission Offsets (Offsets) as defined in this policy. However, IPs utilizing offsets that result in a MICR greater than  $1 \times 10^{-4}$  should be considered a deviation subject to Section VIII of this policy.

For the purposes of this policy, Offsets are defined as reductions in air toxics emissions at existing sources (including mobile sources) within Allegheny County that may be used to compensate for the emissions resulting from the installation proposed in the IP. Unless specified differently in this policy,

Offsets will be subject to similar offset requirements contained in 25 Pa. Code §127.207(1), as applicable. Generally, Offsets must be made legally binding by a Department order or permit condition and actually occur no later than the date on which the IP's proposed installation commences operation (exclusive of any Department approved shakedown period for replacement units). The reductions must be maintained throughout the operating life of the sources for which the IP was issued. Offsets cannot be created from emissions reductions required by Federal, State, or Article XXI requirements or reductions made more than five years prior to the date of the IP application. In addition, credit for Offsets cannot be taken for potential emissions which were never achieved or emitted, or for reductions that have been used for previous IP's.

a. Required Offsets for Emissions with Carcinogenic Health Effects

The ratio of actual air toxics emission reductions to new emissions must be greater than or equal to the applicable ratio specified in Table I. It is not necessary that the emission reductions be the same air toxics pollutant as the new emissions. However, when different pollutants are involved, each Offset Ratio must be calculated for each offsetting pollutant using the following equation:

$$OR = OR_{TI} \times (URF_e/URF_r)$$

Where:

OR = Required Offset Ratio

OR<sub>TI</sub> = Offset Ratio from Table II

URF<sub>e</sub> = Unit Risk Factor of the pollutant in the new emissions (from data sources in Section V)

URF<sub>r</sub> = Unit Risk Factor of the pollutant in the reduction (from data sources in Section V)

Table II Offset Ratios

<b>Location of Emission Reduction</b>	<b>Ratio or Emission Reduction to New Emissions</b>
Within the Same Facility as the IP	1 to 1
Other Locations in Allegheny County	1.15 to 1
Mobile Sources in Allegheny County	1.5 to 1

b. Required Offsets for Emissions with Non-Carcinogenic Health Effects

Applicants may offset air toxics emissions with non-carcinogenic health effects at the ratios specified in Table I. However, the emission reductions must be the same air toxics pollutant as the new emissions.

---

## VIII. DEVIATIONS

The Director of the Allegheny County Health Department may approve deviations from this policy if it is determined that the proposed increase in potential emissions of air toxics has been controlled to the maximum practical amount and does not pose an unacceptable human health risk. Any deviations must be approved in writing and documented in the Technical Support Document of the applicable IP.

## IX. EFFECTIVE DATE

This policy will replace the existing air toxics review policy 90 days after approval by the Allegheny County Board of Health. Unless requested by the applicant, this policy will not be applied retroactively to any complete IP application filed before the effective date.