

**REPORT ON PUBLIC HEARING HELD ON AUGUST 10, 2022, BY
THE AIR POLLUTION CONTROL BOARD OF THE CITY OF PHILADELPHIA
REGARDING PROPOSED AMENDMENTS TO
AIR MANAGEMENT REGULATION VI**

Dated: _____

Air Pollution Control Board
Eddie R. Battle
Chair of the Board

Dated: _____

Approved: _____

City of Philadelphia Law Department
NAME
TITLE
UNIT

DRAFT

A. Legal Authority

The Air Pollution Control Board (“APCB”) was created via an ordinance of the City of Philadelphia (“City”) on June 25, 1948, and is empowered to promulgate regulations regarding, *inter alia*, the substances to be considered toxic air contaminants under the City’s Air Management Code and reporting emissions of these toxic air contaminants to the Philadelphia Department of Public Health, Air Management Services (“AMS”). *See* Philadelphia Home Rule Charter § 3-902; *see also* Philadelphia Code §§ 3-302, 3-401.

B. Procedural Summary

The APCB followed the procedures set forth in Home Rule Charter Section 8-407 when promulgating these amendments to Air Management Regulation (“AMR”) VI (Control of Emissions of Toxic Air Contaminants). On April 28, 2022, the APCB voted to approve the posting of the proposed amendments to AMR VI at the City of Philadelphia Department of Records. The Law Department approved the proposed amendments to AMR VI for public comment posting, and on May 2, 2022, the APCB filed the proposed amendments to AMR VI with the Department of Records. The APCB scheduled a public hearing via Zoom on the proposed amendments to AMR VI for August 10, 2022. Notice of the public hearing was posted on the Department of Records’ website on June 8, 2022; on June 20, 2022, notice of the public hearing was advertised in the Philadelphia Inquirer, the Daily News, and the Legal Intelligencer; and notice of the public hearing was posted prominently on the APCB’s website and the social media channels of the Philadelphia Department of Public Health. Additionally, as part of the above public notice, the APCB accepted written testimony regarding the amendments to AMR VI through September 9, 2022.

Through this report on the August 10, 2022, public hearing and the written testimony received through September 9, 2022, the APCB modifies the proposed amendment to AMR VI and adopts it as modified. A clean copy of AMR VI as amended is attached hereto as Exhibit 1 and shall become law eleven (11) days after the filing of this Report with the Department of Records. A markup showing all changes made to AMR VI by the regulatory process initiated on May 2, 2022, and being approved by the APCB through this Report, is attached hereto as Exhibit 2.

C. Summary of Modifications to AMR VI and its Exhibits

In summary, the following modifications have been made to AMR VI and its exhibits in response to public comment:

- The Department removed Appendix B – Emission Sources That Do Not Require a Risk Analysis from the Technical Guidelines for Air Management Regulation VI. For additional information, please see Response to Comment 1.
- The Department modified the Technical Guidelines to clarify that the risk assessment process applies to both initial and renewal Title V operating permit applications. For additional information, please see Response to Comment 7.

- The Department modified how background risk is analyzed. The Department modified AMR VI Section III.B(3) to apply only to Title V Operating Permits. The Department modified Section III.D. of the Technical Guidelines to explain how background risk is calculated. The Department removed reference to AirToxScreen and added a new process for measuring background emissions surrounding the facility. Additional explanation was added regarding how the Department will use this data in the permitting process for Title V facilities. Please see Response to Comment 8 for additional information.
- The Department modified Section III.C and III.D of the Technical Guidelines to state that a mitigation plan is not required if the source in a construction permit application itself has an air toxics cancer risk below 1 in a million or a Title V facility-wide risk that is less than 10 in a million.
- The Department modified Section III.A.1. of the Technical Guidelines to clarify that stack height means the height above grade. Please see Response to Comment 9 for additional information.
- The Department modified the Technical Guidelines at Section III.C. and Section III.D to use 50 in-a-million as the upper limit for cancer risks. Please see Response to Comment 12.
- The Department expanded Section IV of the Technical Guidelines to provide more information about Risk Mitigation Plans. For additional information, please see Response to Comment 22.
- The Department modified the Technical Guidelines at Section III.C and Section III.D to reflect that a mitigation plan is not required if the source in a construction permit application itself has an air toxics risk below 1 in a million or if a Title V facility itself has a risk of less than 10 in a million. For additional information, please see Response to Comment 8.
- The Department modified the effective date of AMR VI from immediately upon passage to January 1, 2024.

D. The August 10, 2022, Hearing

The public hearing was conducted by Eddie R. Battle, Chair of the Air Pollution Control Board, along with APCB members Cheryl Bettigole, Arthur Frank, CarolAnn Gross-Davis, Richard Pepino, and Terry Soule. India McGhee, Deputy City Solicitor, attended on behalf of the Law Department. The hearing transcript is attached hereto as Exhibit 3.

Additionally, written testimony was submitted to the APCB through September 9, 2022. All written testimony is attached hereto as Exhibit 4.

The combined list of commenters is as follows:

Commenter Number	Commenter Name / Organization	Type of Comment
1	Amani Reid on behalf of Pennsylvania Interfaith Power & Light	Written/Oral
2	The Chamber of Commerce for Greater Philadelphia	Written
3	Joseph Otis Minott, Esq. on behalf of Clean Air Council Amani Reid on behalf of Pennsylvania Interfaith Power & Light Jessica R. O'Neill & Adam Nagel on behalf of Citizens for Pennsylvania's Future Charles McPhedran, Emma Cheuse, Michelle Mabson, Ebony Griffin, & Robyn Winz on behalf of Earth Justice	Written
4	Elise Kucirka Salahub	Written
5	Katlyn Connor	Written/Oral
6	Lisa Hastings on behalf of PA League of Women Voters	Written/Oral
7	Lynn Robinson on behalf of Neighbors Against the Gas Plant	Written/Oral
8	Matthew Page on behalf of Eco Energy Distribution Services - Philadelphia	Written/Oral
9	Peter Furcht	Written/Oral
10	Sierra Club of Southeastern Pennsylvania	Written
11	Temple University	Written
12	Vicinity Energy	Written
13	Abha Saini	Written
14	Adam Nagel on behalf of Citizens for Pennsylvania's Future	Oral
15	Allison Saft	Written
16	Alston on behalf of ASEYOGA	Written
17	André Dhondt	Written
18	Anne Bonn	Written
19	Barb Segura	Written
20	Brendan K. Collins on behalf of Constellation Energy	Written
21	Brent Groce	Written

22	Charles Best	Written
23	Cheryl Haeberlein	Written
24	Christina Rosan	Written
25	Thomas P. Hogan on behalf of Cocoa Merchants' Association of America	Written
26	Coryn Wolk	Oral
27	Courtney Bragg	Written
28	Dakota	Written
29	Deborah James	Written
30	Douglas Kingsbury	Written
31	Eileen Ryan	Written
32	Ellen Fleishman	Written
33	Emily Davis	Written
34	Epsilon Associates	Written
35	Eric Gjertsen	Written
36	Florence Buckley	Written
37	Jared Krueger	Written
38	Jason Puglionesi	Written
39	Jeff Theobald on behalf of PhilaPort	Written
40	Jonathan Chase	Oral
41	Jonathan Leibovic	Written
42	Karen Melton	Written
43	Kevin Esposito	Written
44	Kimberly Allen	Written
45	Kristina Littell	Written
46	Kyle Rosato on behalf of University of Pennsylvania	Written
47	Lauren Powers	Written
48	Lindsay Christinees	Oral

49	Loretta Dunne	Written
50	Mara Baileys	Written
51	Marcus Ferreiras	Written
52	Marilyn V. Howarth on behalf of Philadelphia Regional Center for Children's Environmental Health	Written
53	Marlena Santoyos	Written
54	Mary Fox	Written
55	Matt Vrazo	Written
56	Matt Walker on behalf of Clean Air Council	Oral
57	Maurice Sampson (No comment; observing the hearing)	N/A
58	Michelle Mabson on behalf of Earth Justice	Oral
59	Mike Ewall on behalf of Energy Justice	Written
60	Mitch Chanin	Oral
61	Neely Tang	Written
62	Pamela Roy	Written
63	POWER	Written
64	Rachael Salahub	Written
65	Roberta Camp	Written
66	Rosemary A. Barbera	Written
67	Russell Hicks	Oral
68	Sage Lincoln	Oral
69	Philip Giles on behalf of Philadelphia Ship Repair	Written
70	Aaron Lockhart on behalf of Ship Repair Workers Union	Written
71	Steve Kratz	Oral
72	Tom Volkert	Written
73	Walter Tsou on behalf of Physicians for Social Responsibility Pennsylvania	Written
74	David Schogel	Written

75	Max Ojserkis	Written
76	Francis Fedoroff	Written
77	Jason Volpe	Written
78	Paul Hagedorn	Written
79	Sheila Erlbaum	Written
80	Alicia Clifton	Written
81	Alan Ankeny	Written
82	Timothy Duncan	Written
83	Tamara Cohen	Written
84	Serena Levingston	Written
85	Mark Barbash	Written
86	David Szczepanik	Written
87	Karen Spanton	Written
88	Anna Tangi	Written
89	Jada Ackley	Written
90	Bonnie Eisenfeld	Written
91	Dana Weidig	Written
92	Daniel Adair	Written
93	Megan LeCluyse	Written
94	William Haegele	Written
95	Camille Orman	Written
96	Vicki Jenkins	Written
97	Robert DuPlessis	Written
98	Jim Black	Written
99	Henry Frank	Written
100	Daniel Safer	Written
101	Deirdre DeVine	Written
102	Brandon Robilotti	Written

103	Susan Morris	Written
104	Joanna Ward	Written
105	Spencer Koelle	Written
106	Mary Ann Leitch	Written
107	Michael Miller Jr.	Written
108	Patricia Libbey	Written
109	Rose Paddison	Written
110	Jessica Krow	Written
111	Annette Ballard	Written
112	Mary McKenna	Written
113	Vincent Prudente	Written
114	John Johnson	Written
115	Boris Dirnbach	Written
116	Linda Granato	Written
117	Susan Babbitt	Written
118	Cindy Dutka	Written
119	Harrison Mace	Written
120	Meagan Cusack	Written
121	Michael Bourg	Written
122	Brandon Tubby	Written
123	Gail Mershon	Written
124	Will Fraser	Written
125	Jessica Bellwoar	Written
126	Heather Knizhnik	Written
127	Richard Johnson	Written
128	Amanda Ruffner	Written
129	Rebecca Ackley	Written
130	Claire Byrnes	Written

131	Marta Guttenberg	Written
132	Sheila Siegl	Written
133	Charles Reeves	Written
134	William Piccinni	Written
135	Jill Turco	Written
136	Marlene Adkins	Written
137	Susan Saltzman	Written
138	Cody Cowper	Written
139	Gayle Cowper	Written
140	Steven Denisevich	Written
141	Robert Artez	Written
142	Sheldon Issac	Written
143	Dana Dentice	Written
144	Kathleen Card	Written
145	Jennifer Parkhurst	Written
146	Beatice Zovich	Written
147	Morgan Doyle	Written
148	Derek Menaldino	Written
149	Julia Koprak	Written
150	Ana Montalban	Written
151	Laura Herndon	Written
152	Ellen Franzen	Written
153	Jennifer Valentine	Written
154	K Danowski	Written
155	Deborah Fexis	Written
156	Fern Hagedorn	Written
157	Barabara Hoffman	Written
158	Sandra Folzer	Written

159	Walter Bilderback	Written
160	Joyce Packer	Written
161	Julie Shapiro	Written
162	Alexis Brzuchalski	Written
163	William Ewing	Written
164	Johnny Buckley	Written
165	Gretchen Lohse	Written
166	Marielle Lerner	Written
167	C Day	Written
168	Susan Bloch	Written
169	Paul Wade	Written
170	Vaughn Campbell	Written
171	Norman Koerner	Written
172	Judith Parker	Written
173	Claudia Salcedo	Written
174	Meredith Jones	Written
175	Louis Kyle	Written
176	Michael Zuckerman	Written
177	Susan Patrone	Written
178	Wesley Merkle	Written
179	Margaret Sayvetz	Written
180	Jay Tarler	Written
181	Tina Horowitz	Written
182	Susanna Martin	Written
183	Howard Spodek	Written
184	Theresa Heinsler	Written
185	Ben Levin	Written
186	Robert Cohen	Written

E. Response to Testimony and Comments Received

Comment 1: Twenty-seven commenters (3, 4, 6, 7, 9, 16, 22, 26, 27, 28, 29, 30, 31, 35, 36, 38, 41, 43, 49, 53, 54, 55, 59, 61, 62, 64, 66) stated that the proposed amendments to AMR VI have too many exemptions for risk assessments and/or requested that the APCB remove all exemptions.

APCB Response:

Since AMS receives around 800 pre-construction permit applications per year, AMS planned to pre-determine risk for certain common source categories. For example, if calculations show that the risk is low for one new 10 MMBTU/hr gas-fired boiler with a 10-foot stack that is 20 feet from the property boundary and has no operating limits, the risk will be low for any other new boiler with the same parameters. AMS also wanted to remove the burden from many smaller facilities that submit applications to install or operate air pollution sources with predictable risk and operative parameters. However, the APCB believes that AMS can achieve the goal of reducing the burden on small businesses using model spreadsheets and templates for performing the risk assessment. Therefore, the APCB has removed Appendix B – Emission Sources That Do Not Require a Risk Analysis from the Technical Guidelines for Air Management Regulation VI.

Exemptions are based on such pre-performed risk assessments that satisfy the risk benchmarks.

Pre-construction permits allow a facility to install new equipment or modify existing equipment (ex. increase the capacity of an existing process). All pre-construction permit applications must include Toxic Air Contaminant (TAC) emissions and all with the potential to emit a TAC at or above the listed reporting threshold must include risk analysis. This applies to minor facilities as well as Title V facilities. For example, a pre-construction permit application for an engine at a facility with a Synthetic Minor operating permit and a boiler for a facility below operating permit requirements would both require risk analysis if the potential emissions for a TAC were at or above the threshold.

Operating permits cover the operation of all existing equipment at a facility. They must be renewed every 5 years. Only Title V operating permit (TVOP) applications, which cover facilities that are considered major sources of emissions by EPA definitions, must include a risk analysis for the entire facility. This includes both the initial operating permit application and the following renewal applications. Synthetic Minor and Natural Minor operating permit applications, which cover facilities that are considered minor under EPA definitions, are not required to include a risk assessment at renewal. Facility-wide risk analysis requires complex modeling that is very time-consuming and expensive for facilities. Requiring this for minor operating permits would be burdensome for facilities that have lower emissions, which includes some small businesses and schools. The APCB believes this requirement should be limited to large-emitting facilities with the biggest impact on the environment.

Dust Control permits required under Air Management Regulation (AMR) II cover the potential dust emission from certain construction and demolition projects. Since these are short-term projects, it is not very relevant to conduct a cancer risk analysis, which evaluates the health impact from exposure over a person's lifetime (assumed 70 years). Additionally, it is difficult to accurately calculate the potential TACs from a construction or demolition project.

Complex Source permits required under AMR X cover the traffic emissions from a project that increases the number of parking spots by a certain amount. The added traffic emissions are evaluated to make sure they will not create a new exceedance in a National Ambient Air Quality Standard. These permits do not cover stationary air pollution sources like boilers and engines and do not cover TAC emissions.

Installation permits and licenses are issued under AMR XII to certain enclosed or partially enclosed automotive facilities to make sure that they do not have Carbon Monoxide build-up to dangerous levels. These permits do not cover stationary sources or TAC emissions.

Exemptions (4) and (5) apply to operating permits and air pollution licenses to operate equipment, not pre-construction permits to install new equipment. Pre-construction permit applications with the potential to emit one or more TAC at the reporting threshold level require risk assessment, regardless of whether the facility is a Title V. Only Title V operating permit applications are required to contain facility-wide risk analysis. These are the largest emitting facilities. There are over 200 facilities with operating permits and over 1000 air pollution licenses. The majority of these are considered minor-emitting facilities under EPA definitions. As is mentioned above, requiring facility-wide risk analysis for all of these would result in a large financial burden for many small facilities that do not have a big environmental impact.

Comment 2: Eight commenters (8, 11, 20, 25, 34, 40, 46, 71) requested that the exemptions in the unamended version of AMR VI be retained. Two commenters (11, 46) requested that research laboratories be exempted from having to perform a risk assessment.

APCB Response:

The exemptions in the prior version of AMR VI are mostly about notification regarding what is being emitted, and these exemptions do not make sense for the amendments to AMR VI, which are more stringent and require a risk assessment in many cases. Some of these sources can potentially emit TACs that are higher than some of the reporting threshold levels in the proposed amendments. For example, under the current exemptions, a large boiler that burns commercial fuel is exempt and does not need to report TACs under the regulation, since the current regulation is mostly a reporting requirement and Department can look up the types of TACs the boiler emits. But these large boilers will typically have potential TAC emissions well above some of the thresholds and could have a negative risk impact on the surrounding community. The Philadelphia Department of Public Health (the Department) believes they should be applicable to the risk analysis requirements and has therefore decided to remove these exemptions.

Some commenters particularly want to keep the exemption for laboratory-scale operations. Laboratory-scale operations typically do not require a pre-construction permit, and the Department believes their TAC emissions are typically below the reporting threshold levels as described in the amendments to AMR VI. Therefore, the Department does not believe that a risk assessment will be required under most circumstances for laboratory-scale operations. However, if a facility does install a laboratory-scale operation that can emit a TAC in excess of the reporting thresholds, it is appropriate to require the facility to apply for a permit and perform a risk analysis.

Comment 3: Nineteen commenters (4, 7, 22, 27, 28, 29, 30, 31, 35, 38, 41, 53, 54, 55, 59, 61, 62, 64, 66) opposed removing Section III.C(3) in the existing AMR VI and requested that this paragraph be reinstated.

APCB Response:

The existing language in Section III.C(3) was originally written in 1981, when installation permits did not always include permit conditions such as allowable emissions rates. The “maximum allowable emission rates” described in Section III.C(3) was based on guidelines applicable in 1981. Since 1981, permit applications have developed over time to include specific permit conditions. These days, any emission rate that is considered relevant when determining the applicable requirements for a permit application will be established as an emission limit in the permit itself. This will include any TAC emission rates used in risk assessments under the amendments to AMR VI. As a result, a facility will need to apply for a permit modification if it wants to increase the allowable emission rate. In other words, the new risk assessment requirement provides higher levels of stringency and public health protection than the removed clause in the 1981 AMR VI. It does not make sense to keep both.

Comment 4: One commenter (7) stated that the regulation is not in compliance with Chapter 127.45(a) of the Pennsylvania Code and that the removed paragraph, Section II.A(4), in the existing regulation be reinstated.

APCB Response:

AMS’s programs, including the amendments to AMR VI, are in compliance with Chapter 127.45(a) of the Pennsylvania Code. AMS enforces federal and state statutes and regulations through delegations of authority from the Environmental Protection Agency and the Pennsylvania Department of Environmental Protection. Through these delegations of authority, AMS “steps into the shoes” of the EPA and/or PADEP to enforce such requirements. Therefore, elements of federal and state regulations, including elements of Chapter 127.45(a) of the Pennsylvania Code, need not be restated in AMR VI. Rather, AMR VI sets standards that are more stringent than the floors set by federal and state regulations regarding risk assessments.

Please note that the amendments require facilities to submit potential TAC emissions as part of most pre-construction permit applications. They do not have any impact on existing requirements for facilities to submit TAC emissions, such as the requirement for Title V and Synthetic Minor facilities to submit an emission inventory each year. Permit applications and emission inventory data are publicly available.

Comment 5: Eight commenters (2, 12, 13, 25, 34, 39, 46, 71) stated that there was not enough time or opportunities for them to provide input.

APCB Response:

The proposal for an air toxics risk assessment was first presented during a public meeting of the APCB on January 24, 2019. The APCB held additional meetings that included presentations and discussions on AMR VI and risk assessments between the APCB and the public on August 29, 2019; November 14, 2019; October 22, 2020; January 28, 2021; October 21, 2021; and April 28, 2022. APCB meetings are open to the public, and their schedules and agendas are advertised publicly in advance. E-mails about the proposed amendments were sent to each facility with an operating permit on December 20, 2021 and April 18, 2022. E-mails were also sent to these facilities on May 11, 2022, notifying them that the amendments were passed and with information about the comment period.

Following adoption of the amendments on April 28, 2022, the APCB provided notice of the amendments and the opportunity to comment in accordance with the City's Home Rule Charter. The public comment period was extended from August 10, 2022 to September 9, 2022, at the request of stakeholders. All written and oral comments were taken into consideration.

Comment 6: Three commenters (34, 69, 71) stated that facilities subject to AMR VI are already regulated under federal and state regulations and asked the APCB to explain its rationale for implementing the new requirements under AMR VI. The commenters also asked how these new requirements will result in added reductions beyond what is already required under federal and state regulations.

APCB Response:

It is necessary for Philadelphia to implement air toxics control measures beyond what is required by federal and Pennsylvania regulations such as MACT, NESHAP and Pennsylvania RACT rules. Applicability to one of these regulations does not mean a source cannot potentially emit high levels of TACs. Only NESHAP and MACT deal directly with HAPs/TACs. The amendments will cover many sources that are not covered by either of these regulations. While NESHAP and MACT often require measures that reduce emissions, it is possible for a source to be applicable to one of these regulations and still emit TACs above the thresholds in the amendments. As a result, AMS does not believe they should automatically be exempt from the requirements of this amendment.

Philadelphia is a densely populated city with large portions of its population living in overburdened and disadvantaged areas according to EPA's EJSCREEN tool. Data in EPA's AirToxScreen (formerly NATA) tool indicates that cancer risks attributed to air toxics in the ambient air in Philadelphia are higher than the Pennsylvania and national averages.

The air toxics reporting thresholds and risk assessment requirements, which do not exist in current federal or Pennsylvania regulations, will help reduce the health risks from air toxics emissions from stationary sources in Philadelphia.

Comment 7: Three commenters (8, 12, 34) asked for clarification about Title V permit renewal requirements.

APCB Response:

The risk assessment requirement applies to both initial and renewal Title V operating permit applications. For renewals, a new risk assessment is required if there are changes in sources or emission amounts. If there is no change, the facility may submit the same assessment as in the previous application. This has been clarified in the Technical Guidelines to AMR VI.

Comment 8: Four commenters (8, 11, 20, 69) a) asked for clarification about background air toxics cancer risk, b) asked about the intent of adding background or opposed adding background in the risk assessment, and/or c) stated that the assessment would always result in a risk level above the negligible level after adding the background even if the source itself has a negligible impact.

APCB Response:

- a) Risks are collectively known as the background risk, meaning the sum of the risks to which we are exposed excluding the risks of additional activities being evaluated. The Department

is conducting further research to create and improve processes for determining background air toxics cancer risk.

- b) There is a lot of public interest in the cumulative impact of air pollutants, particularly HAPs/TACs. Measuring background risk is important because the public are exposed to the total risk, not only the incremental risk from the source. In response to comments regarding the Department's methodology for calculating background risk using EPA's AirToxScreen, the Department has modified its methodology for calculating background risk. These changes are reflected in the Technical Guidance Document in Section III.D. Instead of using AirToxScreen to identify the background cancer risk surrounding a facility, AMS will instead use EPA TO-15 methodology to take representative, 24-hour, ambient air canister samples in the area surrounding the facility. AMS maintains a Standard Operating Procedure (SOP) for TO-15 sampling and analysis and finds the method effective in measuring common air toxics in urban areas. The Department will then analyze the samples for existing air toxics concentrations using Gas Chromatography/Mass Spectrometry (GC/MS). The Department will estimate an annual average concentration of each TAC based on the measured 24-hour concentrations. The background cancer and noncancer risk for each TAC will be calculated using the measured air pollutant concentration, cancer Unit Risk Factors (URFs), and noncancer reference concentration (RfC).

The Department will use a similar equation as initially proposed to calculate a facility's total risk. For a specific toxic air contaminant, the total risk is the combined risk of background risk and incremental risk by an emission source or a facility that applies for permitting:

$$\text{Total Risk} = \text{Background Risk}_{\text{ambient air}} + \text{Incremental Risk}_{\text{facility}}$$

This method will apply only to Title V facility-wide risk assessments, so the Department is modifying AMR VI Section III.B(3) to remove reference to plan approvals. The Department made this change in response to public comment and because Title V facilities pose the greatest risk to public health. The Department believes that the risk mitigation process for plan approvals will adequately protect the environment and the public health without incorporating a background risk analysis at this time.

A Title V permit application is unacceptable if the total cancer risk is above 100 in a million, based on EPA cancer risk upper limit guidelines, unless the facility reduces the total cancer risk to no more than 100 in a million using mitigation measures. For a Title V facility itself, an upper limit of 50-in-a-million incremental cancer risk is used (see Response to Comment 12 and the AMR VI Technical Guidelines).

When calculating a facility's Incremental Risk, the Department will only consider sources that are not captured in the existing Background Risk at the facility. Therefore, Incremental Risk would only encompass newly planned sources at the facility for TVOP renewals and applications.

As the technology and EPA guidance evolve, AMS may adopt new methods to determine the background risk.

- c) The Technical Guidelines have been modified at Section III.C and III.D to state that a mitigation plan is not required if the source in a construction permit application itself has an air toxics cancer risk below 1 in a million or a Title V facility itself has a facility-wide risk less than 10 in a million.

Comment 9: One commenter (8) raised the following detailed questions and suggestions about performing air quality modeling and calculating health risks: a) whether a permit applicant can skip the risk screening step and go directly to refined AERMOD air modeling; b) whether an applicant can use alternative toxicity standards; c) requesting that an applicant should be able to modify the toxicity data in the Risk Screening Workbook; d) requesting clarification about the stack height.

APCB Response:

- a) This can be discussed with AMS prior to submitting the application or in the permit review process with the principle that the stringency of the risk assessment and other permitting requirements stays the same.
- b) Periodically, the Department will review the latest scientific findings and update the cancer URFs and the noncancer RfCs as well as the reporting thresholds accordingly. Significant changes may need APCB approval.
- c) The reference data (cancer URFs and noncancer RfCs) and the calculation methods for risk assessments must be kept uniform for all permit applications. See (b) above.
- d) The stack height means the height above grade. This has been clarified in the Technical Guidelines at Section III.A.1.

Comment 10: One commenter (46) raised concerns about: a) permitting backlog and delays when the new requirements take effect, b) not having a phased-in implementation schedule, and c) inconsistency with New Jersey regulation Title 7, 27-17.8(a)3 on overall exemptions levels.

APCB Response:

- a) The Department has the capacity to implement this regulation.
- b) The Department intends to start the regulation implementation in a timely manner. The amendments will be applicable to applications received on or after January 1, 2024.
- c) While the amendments are similar to New Jersey's regulation, they are not intended to be the exact same.

Comment 11: One commenter (34) stated that it is unclear whether the risk assessment is based on potential or actual emissions.

APCB Response:

Risk assessments must be based on the potential emissions. Facilities can take new mitigation measures to their potential emissions during the permitting process and factor them into the risk analysis.

Comment 12: One-hundred-forty-eight commenters (3, 4, 7, 9, 15, 16, 21, 24, 27, 28, 29, 30, 35, 36, 37, 38, 41, 42, 44, 47, 49, 51, 53, 54, 55, 56, 58, 59, 61, 62, 64, 65, 66, 68, 72, 74 through 186) requested that the APCB change the upper limit of cancer risk benchmarks from 100-in-a-million to 25-in-a-million.

APCB Response:

The 50 in-a-million upper limit for cancer risks will be used, and AMS has modified the Technical Guidelines at Section III.C and III.D to reflect this change. The determination of whether the proposed risk mitigation plan is sufficiently protective of public health will be based on case-by-case considerations, including the presence of overburdened communities, emission sources, and cancer/non cancer risks at the area of the facility.

Comment 13: One-hundred-thirty-eight commenters (1, 3, 5, 6, 13, 14, 15, 16, 17, 18, 19, 21, 23, 24, 36, 37, 42, 44, 45, 47, 48, 49, 51, 65, 72, 74 through 186) requested that the AMR VI amendment be strengthened and made more stringent in general.

APCB Response:

The amended AMR VI significantly improves and strengthens the current version of AMR VI, which was established in 1981. It includes some of the most stringent measures to protect public health in the State. The number of regulated air toxics increases from 99 to 217 chemical compounds/compound groups. It is the first regulation in Pennsylvania that requires air toxics health risk assessments based on worst-case scenario screening, source emission conditions, air dispersion modeling and air toxics cancer and noncancer risk factors. The new requirements for pollutants reporting, reporting thresholds, and health risk assessments, which are based on recent scientific findings and methods, will decrease the health risks of air toxics emitted into the ambient air. These requirements do not exist in the current 1981 AMR VI. Permit review requirements have been enhanced to account for existing burdens in communities.

Table 4 in AMR VI Technical Support Document contains such examples as:

<i>TAC:</i>	<i>Recommended Ambient Air Concentration Limit (1981)</i>	<i>Ambient Concentration based on 1-in-a-million risk</i>
Benzene:	76.6 $\mu\text{g}/\text{m}^3$	0.13 $\mu\text{g}/\text{m}^3$
Chromium (VI):	0.12 $\mu\text{g}/\text{m}^3$	0.00008 $\mu\text{g}/\text{m}^3$

For further information, see the Amended AMR VI and Exhibits A, B, and C here: <http://regulations.phila-records.com/>

Comment 14: One-hundred-twenty-seven commenters (15, 21, 24, 26, 36, 37, 42, 44, 47, 49, 51, 59, 65, 72, 74 through 186) requested that requirements for ambient air monitoring, fence line monitoring, record keeping, and additional reporting be added.

APCB Response:

Routine ambient air monitoring is outside of the scope of these amendments.

Fence line monitoring, stack tests, and continuous emission monitors (CEMS) are included as permitting conditions when appropriate. These are very expensive to install and maintain. They have been required by certain regulations and/or permits, but only for the largest emission units and facilities. Record keeping and reporting requirements are included as permitting conditions when appropriate, and consider such factors as overburdened communities, emission source types and magnitude, maximum pollutant concentrations, downwind directions, etc. where necessary and appropriate. AMS routinely inspects operational records and reporting from permitted facilities.

Comment 15: One commenter (32) expressed general support for the AMR VI amendments.

APCB Response:

Thank you for your support!

Comment 16: One-hundred-fifty-five commenters (1, 3, 4, 6, 7, 9, 14, 15, 21, 24, 27, 28, 29, 30, 31, 33, 35, 36, 37, 38, 42, 47, 48, 49, 51, 52, 53, 54, 55, 56, 58, 59, 60, 62, 63, 64, 65, 66, 67, 68, 72, 73, 74 through 186) stated that a cumulative impact analysis should be required as part of the risk assessment.

APCB Response:

The Department is conducting research to create processes for calculating cumulative background risk. These risk data would include estimates of existing air toxics cancer risks contributed by over 70 pollutants in the ambient air, from not only existing stationary point sources but also mobile sources, non-point sources, secondary formation, and biogenic sources. Currently facility-wide assessments are required to account for emissions from all release points of the facility for each regulated TAC.

A highly comprehensive cumulative impact assessment would involve many health stressors, environmental media (air, water, solid waste, etc.) and factors, and exposure pathways, which would require joint efforts by multiple jurisdictions and disciplines. Such an undertaking is beyond the scope of these amendments and the capability of AMS alone.

For the risks contributed by a facility (aggregating risk), currently we do not add up the risk values of different TACs because:

- We calculated the worst-case scenario for each TAC by using the maximum potential TAC emissions and worst-case air dispersion conditions. During risk assessments, the TAC with the highest risk value often dominates the total risk.
- In Title V facility-wide risk assessments, AMS will determine the total risk of each TAC including the background. This is a significant step towards a comprehensive cumulative impact analysis. See Response to Comment 8.
- Different chemicals affect different organs. It would be difficult to agree on an accurate total risk value contributed by the facility by simple addition without sufficient and clear scientific conclusions. It is not scientifically accurate to add up the risk levels of all pollutants.
- EPA does not have complete data about which chemicals attack which organs.

- EPA does not have complete data for most chemicals for slope factors (SF) and RfC.
- EPA currently does not have detailed guidance on integrated assessment with various toxics considering multiple exposure pathways and other factors. This level of comprehensive and accurate assessments is out of the current scope of AMR VI.

The Department has used the most recent scientific findings in available literature. However, it is beyond the Department's capacity to conduct its own studies of toxicological thresholds for humans and animal species. Nevertheless, the Department intends to move towards more comprehensive risk analysis as more scientific evidence and more resources become available.

Comment 17: Two commenters (25, 39) stated that sulfuryl fluoride, a fumigant, is not a HAP and should not be included in the TAC list of AMR VI.

APCB Response:

Sulfuryl Fluoride is an odorless gas that targets the nervous system. It has been identified by a number of governmental, regulatory, and health research entities as having toxic effects in humans. In cases of overexposure, sulfuryl fluoride may cause respiratory irritation, nausea, abdominal pain, vomiting, numbness of extremities, seizures, and death. See references below^{1,2,3,4,5}.

Based on these and other references, the Department has decided to add Sulfuryl Fluoride to the list of Toxic Air Contaminants in AMR VI. With the same references, the Department also decided to use a long-term noncancer RfC of 60 µg/m³ and a short-term noncancer RfC of 1700 µg/m³. The reporting threshold of 2000 lbs/year was established based on such data. No data of cancer risk factors was found available. Also see Response to Comment 24.

Comment 18: One commenter (73) stated that sulfuryl fluoride is highly toxic, and its reporting threshold should be lowered. The commenter also suggested that the reporting thresholds of several other TACs should be lowered.

APCB Response:

See Responses to Comments 17 and 24.

Comment 19: Nine commenters (6, 13, 16, 17, 45, 43, 48, 52, 73) requested that the Department include TAC information and emission data in public notices for permits, publicize such information on the Department website, and maintain high levels of transparency regarding TAC emissions.

APCB Response:

The Department will maintain high levels of transparency regarding TAC emissions. Public notices for pre-construction permits include emission information and will include TACs when

¹. <https://www.nj.gov/dep/aqm/currentrules/Sub%2017.pdf>

². https://www.state.nj.us/dep/aqpp/archived/RSWorksheet/Risk%20Screening%20Worksheet%20Fact%20Sheet_June%202022.pdf

³. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6603922/>

⁴. https://www.cdpr.ca.gov/docs/risk/red/establishing_sulfuryl_fluoride.pdf

⁵. https://www3.epa.gov/pesticides/chem_search/ppls/062719-00004-20100609.pdf

significant. The pre-construction permit application and review memo will include more information about TAC emissions and are available to the public upon request. AMS has also put these documents on its website for some applications with high public interest and will continue to do this in the future.

Please note that while certain process information may be kept confidential if justified and protected by law, emissions cannot be kept confidential.

Title V and Synthetic Minor facilities submit annual emission inventories which include TAC emissions above a certain level. These emissions are available to the public online. For more information, please see <https://www.dep.pa.gov/DataandTools/Reports/Pages/Air-Quality-Reports.aspx>.

Comment 20: Seven commenters (6, 13, 18, 60, 63, 67, 73) stated that the Department should take into account such issues as mobile sources, ultrafine particles, greenhouse gases, electric buses, and renewable energy.

APCB Response:

Mobile sources will be considered indirectly as part of the background risk that the Department will measure for Title V facilities. See Section III.D. of the Technical Guidelines for details. Regarding ultrafine particles, there is no data available about emission factors to calculate the ultrafine particle emissions from processes or recommended ambient concentrations to stay below. This makes it impossible to regulate ultrafine particles at this time. Greenhouse gases, electric buses, and renewable energy are outside the scope of AMR VI.

Comment 21: One-hundred-twenty-nine commenters (3, 15, 21, 24, 36, 37, 42, 44, 47, 49, 51, 56, 58, 65, 68, 72, 74 through 186) requested that AMR VI be reviewed, and updated if needed, every five years.

APCB Response:

The APCB agrees and will review AMR VI every five years from the effective date of the relevant amendments.

Comment 22: One-hundred-thirty-one commenters (3, 6, 7, 9, 15, 21, 24, 36, 37, 42, 44, 47, 49, 51, 58, 65, 68, 72, 74 through 186) asked for more details about the risk mitigation requirements for facilities.

APCB Response:

A risk mitigation plan is required when the risk analysis for the application is higher than a negligible risk and lower than an unacceptable risk. Risk mitigation plans will be submitted by the facility owners and/or operators and are subject to Department review and approval. The risk mitigation plan must be well-defined and result in emissions reductions. This is a case-by-case determination because the situations can vary drastically, so there is no "one-size-fits-all" solution. Both an installation permit for a new small boiler at a school and a Title V operating permit application for a large chemical plant can require risk mitigation. The primary goal of a mitigation plan is to reduce emissions and health risks; the emission reductions can be quantified.

The Department has expanded Section IV of the Technical Guidelines to provide more information about Risk Mitigation Plans.

See also Response to Comments 14 and 31.

Comment 23: Six commenters (2, 25, 39, 69, 70, 71) expressed concerns regarding the economic impacts associated with AMR VI.

APCB Response:

The Department does not expect the amendments to AMR VI to have a significant adverse economic impact on jobs or a facility in general. The economic impact will vary depending on the permit application. Facilities may need to submit emissions data of potential air toxics that were not required in the past. This should not typically add significantly more time or cost when preparing an application. The Department intends to create spreadsheets that automatically perform emission calculations for certain common sources such as smaller boilers and emergency generators. Facilities may need to hire consultants to assist with more complicated projects or for Title V operating permit applications. Some facilities may need to modify their application for it to be approvable. The Department expects that in many cases, the facilities will be able to resolve this by installing a higher stack than originally planned, moving the project further from the property line, and/or implementing changes or restrictions on operation timings that can reduce ambient pollutant concentrations (most processes do not operate 8,760 hours per year). In these instances, the cost should be low. It is possible that a facility may need to install a control device to have an approvable application. The cost to install and operate control devices for air toxics will vary between facilities, industries, and specific air toxics.

The EPA has a webpage and a model dedicated to helping facilities estimate the cost of various control devices. This webpage also includes spreadsheets that calculate a cost estimate for installation and operation based on different input variables. The spreadsheets and guidelines can be found here: <https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution>. The EPA also has a cost analysis tool, CoST, available here: <https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-analysis-modelstools-air-pollution>. This tool is a free downloadable program that can model emission reductions and operating costs for various control devices and strategies.

In some cases, reducing air toxics emissions can save money for the industry. In a study of the furniture industry, for example, changing the design and manufacturing process reduced the use of materials emitting formaldehyde, resulting in lower emissions as well as a lower cost of materials.

Comment 24: Twenty-four commenters (4, 6, 7, 16, 25, 27, 28, 29, 30, 34, 35, 38, 39, 48, 53, 54, 55, 59, 61, 62, 66, 69, 71, 73) asked about the science, methodology, and determination of the reporting thresholds, or opposed the methodology used. In addition, four commenters (29, 34, 39, 69) expressed concerns about the conservative nature of the reporting thresholds or of the air modeling protocols.

APCB Response:

Details of the methodology for the risk assessment and reporting threshold establishment are described in Exhibit B of the AMR VI Amendments (Risk Assessment Technical Support Document). Air quality modeling utilizing the EPA designated model was performed to evaluate worst-case (98th percentile) atmospheric dispersion scenarios. The model input used highly conservative parameters to account for minimal dispersion (high concentration scenarios). The model's "urban" settings were used to account for surface conditions in Philadelphia. The latest scientific findings in air toxics cancer and non-cancer risk factors and the 98th percentile pollutant concentrations were used to derive the reporting thresholds. The cancer risk benchmark 1-in-a-million was used for the air toxic at issue in establishing reporting thresholds. The risk factors vary in great ranges, depending on the toxicity of the chemical compound. A chemical with very high toxicity will have an accordingly low reporting threshold and vice versa. For example, Chromium (VI) has a reporting threshold of 0.0045 lbs./year while benzene has a reporting threshold of 7 lbs./year. (See AMR VI Exhibit A). The air quality modeling followed the EPA protocols described in Appendix W of 40 CFR Part 51 – Guidance on Air Quality Models.

The reporting thresholds for Philadelphia may be slightly different from those in another city or state, even if the same methods were used. This is mainly because the atmospheric dispersion conditions differ between locations. Atmospheric dispersion is partly determined by local weather patterns, represented by 5-year meteorological statistics. Periodically, the Department will use recent meteorological data to update the air quality modeling, which may result in minor changes in reporting thresholds.

A small number of the listed air toxics have a reporting threshold of 2000 lbs./year. The reasons are:

- No cancer or non-cancer toxicology data were found available to establish a reporting threshold using the methods described in Exhibit B of the AMR VI Amendments. Therefore, 2000 lbs./year was used based on other references available; or
- The calculated allowable emission rate (under worst-case air dispersion conditions) would be higher than 2000 lbs./year (e.g., toluene). Then the reporting threshold is capped at 2000 lbs./year.

The Department will review the latest scientific findings periodically and update the reporting thresholds based on new data for cancer and non-cancer risk factors.

Regarding the conservative nature of the reporting thresholds, the thresholds are meant to be established in a very conservative manner, accounting for worst-case scenarios, because they will be used in the screening phase of the risk assessment. If a source cannot pass the screening, a refined air dispersion modeling can be performed using the actual emission conditions (such as exit gas velocity and temperatures) at the facility. Regarding the conservative nature of the air modeling protocols, AMS follows the EPA's Appendix W in the review of air modeling for permit applications. For evaluating impacts of surrounding sources or the background, see Response to Comment 8.

For further information, see AMR VI Amendments Exhibits A and B. See also Response to Comment 26.

Comment 25: Two commenters (23, 45) expressed general opposition to the AMR VI amendments.

APCB Response:

See Response to Comment 13.

Comment 26: Six commenters (3, 7, 26, 34, 63, 69) asked about the air quality modeling methods and the exclusion of background concentrations, or opposed the methodology used.

APCB Response:

During the establishment of the reporting thresholds and the Risk Screening Workbook, the Department's air quality modeling followed the EPA protocols described in Appendix W of 40 CFR Part 51 – Guidance on Air Quality Models. A protocol must be followed when a permit applicant is required to undergo a refined air quality modeling.

When establishing the reporting thresholds, the primary goal of the air quality modeling is to capture and examine the worst-case scenarios of atmospheric dispersion. Therefore, it is crucial to model shorter stacks using highly conservative input data – this does not mean only smaller facilities/stacks were considered. Adding the background in this context does not serve a purpose. When a specific facility's risk assessment is performed, then the actual stack height, the actual maximum emission rate, and other parameters are applied.

The air modeling examined both annual average and maximum short-term emission scenarios. Philadelphia-specific meteorological data and “urban” settings were used in the modeling. Periodically, the Department will use recent meteorological data to update the air quality modeling, which may result in minor changes in reporting thresholds.

For nonpoint sources or in the event where the Risk Screening Workbook cannot be used, the risk screening will be performed using the EPA AERSCREEN air quality model.

When appropriate, the Department may provide additional guidance in technical aspects of air quality modeling. For further information, see AMR VI amendments Exhibits A and B, as well as references on the EPA website: <https://www.epa.gov/scram/air-quality-dispersion-modeling>. See also Response to Comment 24.

Comment 27: Nineteen commenters (4, 7, 16, 27, 28, 29, 30, 31, 35, 38, 49, 53, 54, 55, 59, 61, 62, 64, 66) asked what entity performs the risk assessment or requested that the Department perform the assessment.

APCB Response:

The risk assessment is part of the permit application, which is prepared by the permit applicant (facility). The applicant will submit its initial risk assessment. This is subject to Department review, as are all other parts of the application. AMS, the Department's air management division, will provide guidance and feedback, verify emission quantities and risk calculations, correct errors, and ensure that the risk assessment is done following the regulation and the guidelines. AMS may require modifications where necessary, which is similar to requiring modifications to emission

calculations or other aspects of the permit application, before the application is approved. AMS does not have the resources to draft the initial application or assessment for applicants.

Comment 28: One-hundred-thirty-four commenters (1, 3, 6, 7, 9, 15, 21, 24, 36, 37, 42, 44, 47, 49, 51, 58, 65, 68, 72, 73, 74 through 186) asked about or requested further public involvement, specifically during the permit process.

APCB Response:

The Department currently issues approximately 800 pre-construction permits per year, many of which will include a risk analysis in the future. It is not practical to have public comment periods for all of them. The public will be able to review the risk assessments for Plan Approvals and Title V operating permits during the existing public notice and comment periods required under Pennsylvania regulations. These would include the installation of new processes with large emissions and the ongoing operation of facilities that are considered major emission sources. The public will not be able to review risk analyses associated with applications that do not have public notice and comment requirements, such as installation permit applications, which cover lower emitting sources. See also Responses to Comments 19 and 29.

Comment 29: Eleven commenters (1, 3, 6, 7, 14, 36, 45, 48, 52, 56, 73) expressed environmental justice concerns.

APCB Response:

The EPA's EJSCREEN tool will be used to screen for the most disadvantaged or overburdened communities in the City in various aspects of the work at AMS, Department of Public Health. Environmental Justice is a topic larger than the scope of AMR VI. The Department will need further guidance in light of the revised Pennsylvania Environmental Justice Policy being finalized. The Department will adjust our process based on the final guidelines.

Comment 30: Two commenters (6, 7) asked about the EPA HAPs not included on the AMR VI TAC list and requested that they be added to AMR VI.

APCB Response:

Two compound groups in the Clean Air Act HAP list are not included in AMR VI: Radionuclides and Fine Mineral Fibers. Note that "Fine Mineral Fibers" are separate from Asbestos, which is included in AMR VI. Philadelphia also has an asbestos control regulation that the Department enforces. For these two compound groups: 1) no reference data were found available to establish their reporting thresholds; 2) no ambient air emission sources currently exist in Philadelphia; and 3) radioactive materials are regulated by the U.S. Nuclear Regulatory Commission. Also note that additional chemical compounds and compound groups beyond the Clean Air Act HAP list are included in this AMR VI amendment where appropriate and reliable data exists.

Comment 31: One-hundred-thirty-five commenters (15, 21, 24, 36, 37, 42, 44, 47, 49, 51, 65, 72, 74 through 186) asked about emission control measures and stated that they should be included in the mitigation plan requirements.

APCB Response:

The regulation cannot specify control or monitoring requirements because the source and process of emissions vary too widely for a one-size-fits-all approach to be feasible. An application to install a large utility boiler and an application to install a small boiler at a school each could have potential emissions large enough to require risk analysis but will have drastically different risk impacts and should have different requirements. The measures taken can also be impacted by the surrounding area, such as if there is a sensitive facility like a daycare center nearby.

Comment 32: One commenter (3) requested risk assessments with full demographics, considering different demographic groups (e.g., use of age-dependent adjustment factors and child-specific reference concentrations).

APCB Response:

As described in the Technical Guidelines, air quality modeling will capture worst-case scenarios of air quality. These include the maximum pollutant ambient concentrations and where they occur. The Department will specifically assess risks at “sensitive receptors” within the modeling domain, especially those at or near the locations where the maximum concentrations occur. Sensitive receptors may include schools, daycare centers, nursing home, hospitals, etc. The Technical Guidelines contain more guidance on hazard quotient rounding near vulnerable receptors.

F. Approval

At a public meeting on April 27, 2023, the Board voted ##-## to approve the proposed amendments to AMR VI as modified and to approve this Hearing Report. AMR VI as amended is attached hereto as Exhibit 1.

***EXHIBIT 1 – Clean Version of AMR VI and its Exhibits as Approved by the
Air Pollution Control Board on April 27, 2023***

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***EXHIBIT 2 – Markup of All Changes Approved to AMR VI and its Exhibits
by Air Pollution Control Board on April 27, 2023***

Strikethrough indicates matter removed; underline indicates new matter.

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EXHIBIT 3 – Transcript of the August 10, 2022, Public Hearing

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EXHIBIT 4 – Written Comments to AMR VI and its Exhibits

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