



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

**INSTRUCTIONS FOR SUBMITTING AIR QUALITY
EMISSION INVENTORY REPORTS**

Commonwealth of Pennsylvania
Department of Environmental Protection
Bureau of Air Quality

Tom Wolf, Governor
Commonwealth of Pennsylvania

Patrick McDonnell, Secretary
Department of Environmental Protection

Table of Contents

1. Background	1
1.1 Annual Emission Reporting Background	1
1.2 Paper Reporting – Discontinued	1
1.3 Electronic Reporting	1
1.3.1 Web-based Reporting Forms	2
1.3.2 eXtensible Markup Language (XML).....	3
2. Determining Which Facilities Belong in the Emissions Inventory.....	3
2.1 Title V Facilities.....	4
2.2 Non-Title V Facilities	4
2.2.1 Synthetic Minor Facilities	4
2.2.2 Facilities Inventoried for Permit Cap Compliance Certification	4
2.2.3 Oil and Gas Facilities	4
2.2.4 All Other Non-Title V Facilities.....	5
3. Completing AES*Online and AES*XML Submittals.....	5
3.1 Throughputs For Each Source	5
3.2 Operating Schedules For Each Source.....	5
3.3 Emission Estimates.....	6
3.4 Fuel Analysis	6
3.5 Surface Coating (Paint, Glue, Ink) Analysis.....	6
3.6 Control Devices	7
3.7 Stacks	7
3.8 Hazardous Air Pollutants – Clean Air Act 112(b) Pollutants	7
3.9 Accidental Release Pollutants – Clean Air Act 112(r) Pollutants	8
3.10 Site Pollutant Summary	8
4. Helpful Resources	8
4.1 Check-Lists for Common Errors	8
4.1.1 Facility Information	9
4.1.2 Subfacility Information	9
4.1.3 Hazardous Air Pollutants (HAPs).....	9
4.2 AP-42 and WebFIRE.....	9
4.3 Industry-Specific Emission Factors	10
4.4 Standard Industrial Classification and North American Industry Classification System	10
4.5 Small Business Assistance.....	10
5. Confidentiality	10
6. Certification of Data Accuracy for Emission Statement.....	11
7. Extensions Beyond March 1	11

8. DEP Contact Listings 11

9. Codes and Tables 12

9.1 Calculation Method Codes for Emissions12

9.2 Reliability Codes for Emissions13

9.3 Abbreviations/Acronyms.....14

9.4 Table A: Hazardous Air Pollutants (112(b)) Sorted Alphabetically by Pollutant Name15

9.5 Table B: Hazardous Air Pollutants (112(b)) Sorted by Chemical Abstract Service Registry Number (CAS RN).....20

9.6 Table C: Compounds as Listed In 112(b)25

9.7 Table D: Sample Polycyclic Organic Matter (POM) Sorted by Pollutant Name27

9.8 Table E: Sample Polycyclic Organic Matter (POM) Sorted by CAS RN28

9.9 Table F: Risk Management Plan (RMP) Compounds (112(r)) Sorted by Name29

9.10 Table G: RMP Compounds (112(r)) Sorted by CAS RN32

These instructions were prepared by:

Mark Houser
Pennsylvania Department of Environmental Protection
Bureau of Air Quality, Harrisburg
717-783-9241
mahouser@pa.gov

Note: This booklet contains the instructions for completing emission inventory report submittals. These instructions have been prepared to assist the owners/operators in reporting their emissions data. These instructions are not regulations. The Department reserves the right to modify these instructions as needed. *Please save this booklet for future reference.* If you have questions about the Annual Emission Statement (AES) Online system, please contact your Regional Air Quality (RAQ) program staff.

This booklet is available electronically via the Internet. You may access it at <http://www.dep.pa.gov/Business/Air/BAQ/BusinessTopics/Emission>.

1. Background

1.1 Annual Emission Reporting Background

In accordance with 40 CFR Part 51, Subpart A, states are required to report state-wide air emissions to the United States Environmental Protection Agency (EPA) every year. This annual air quality emission inventory is submitted in accordance with EPA's Air Emissions Reporting Requirements (AERR) promulgated on December 17, 2008 ([73 FR 76539](#)) and amended on February 19, 2015 ([80 FR 8787](#)). The AERR details specific reporting requirements and intervals for various types of inventories and air emissions reported. Every year states are required to report point sources meeting certain thresholds for large emitters. Every third year, states are required to submit a complete inventory for all point, nonpoint, mobile, and non-road sources.

In accordance with Section 4.3 of the Pennsylvania Air Pollution Control Act (APCA), 35 P.S. § 4004.3 and 25 Pa. Code § 135.3 (relating to reporting sources), the Pennsylvania Department of Environmental Protection (DEP or Department) is authorized to collect air quality emissions inventories. Pollutants to be reported are identified in 25 Pa. Code § 121.1: "Title V regulated air pollutant." The purpose of the Chapter 135 reporting requirement is to, among other things, provide a means of obtaining data to evaluate the effectiveness of regulations, to maintain an accurate inventory of air contaminant emissions for air quality assessment and planning, and to provide a means of determining Title V emissions fees.

The emissions inventory information reported through the Annual Emission Statement (AES) system satisfies one or more of several regulatory requirements. These requirements include Title V permitting (25 Pa. Code Chapter 127), the Annual Inventory and Emission Statements (25 Pa. Code §§ 135.1-135.21), as well as other regulations that are part of the State Implementation Plan (SIP). The Annual Inventory and Emission Statement information is due March 1 for the previous calendar year or within 60 days of the date the facility's owner/operator is notified by the Department that the facility is subject, whichever is later.

These instructions are primarily for the purpose of providing guidance on emissions reporting requirements. Two electronic reporting applications are available to submit the emission inventory data. These systems are AES*Online and AES*XML (see Section 1.3 below).

Refer to Section 2, below, for detailed guidance. Regional Air Quality (RAQ) program staff ultimately determine which facilities will be placed in the Air Information Management System (AIMS) and be included in the stationary point source emissions inventory.

1.2 Paper Reporting – Discontinued

Starting with the 2018 Emission Inventory, the Department is requiring all facilities subject to reporting requirements under 25 Pa. Code § 135.3 to report their emission inventory electronically through either the AES*Online or AES*XML applications (see Section 1.3 – Electronic Reporting). This change was published in the *Pennsylvania Bulletin*, [[47 Pa. B. 3435](#)], on June 17, 2017.

1.3 Electronic Reporting

When RAQ program staff determine a facility is subject to the requirement to submit annual emissions inventory reports, RAQ program staff create the facility in AIMS and build connections

for fuel material locations, subfacilities (emission sources), control devices, and stacks. Source Classification Codes (SCC) are assigned to each subfacility. These subfacilities and connections are regenerated each inventory year. If subfacilities change or are added, please notify the RAQ program staff to update AIMS, which will subsequently update AES*Online and AES*XML submittal pages.

Facilities starting to report will be provided with instructions for registering for access to the electronic submittal portal. This registration remains in effect for subsequent years.

After the facility submits data through AES*Online or AES*XML, RAQ program staff review the submission for incorrect or missing data before the data are accepted into AIMS/eFACTS. After the data have been accepted, QA/QC reports are run to look for additional questionable data.

After the operating schedules, throughputs, and facility emission estimates have been transferred into the database, AIMS/eFACTS calculates the emissions using SCC factors. If the AIMS/eFACTS and facility estimates do not match, RAQ program staff may work with the facility's owner/operator to determine if corrections are needed. AIMS/eFACTS may contain multiple emission estimates for a specific pollutant from a specific subfacility. Acceptable calculation methods include stack tests, Continuous Emission Monitoring (CEM) data, material balance calculations, industry-specific emission factors, and AP-42 emission factors (See Section 4.2), to list some examples. CEM and stack test data are usually the most reliable and should be used before any other method.

Some uses for AIMS/eFACTS data include Emissions Reductions Credits (ERC), Open Market Trading, regulation evaluation, SIP development and modeling. DEP staff can generate a variety of standard and custom reports from the AIMS/eFACTS data. AIMS/eFACTS data are provided to the federal Emissions Inventory System (EIS) database. These data are also available to other state agencies and the public upon request (See Section 5 Confidentiality).

Electronic reporting information such as upcoming training (when scheduled) and registration forms are available from the DEP website at <http://www.dep.pa.gov/Business/Air/BAQ/BusinessTopics/Emission/pages/default.aspx>.

Contact Robert Bihl at 717-772-3950 or through electronic mail at rbihl@pa.gov to request electronic reporting information, including registration forms to request access to the services.

1.3.1 Web-based Reporting Forms

The Bureau of Air Quality's (BAQ) web-based reporting application is called **AES*Online**. **AES*Online** allows a facility's owner/operator to enter data on an Internet website through an ordinary web browser. Facility users log in to a series of secure screens and enter their facility's inventory data. **AES*Online** automatically fills in fields, where applicable, from the inventory map and from previous years' submissions. It also checks the data as it is entered to ensure accuracy. Additionally, **AES*Online** includes the ability to add notes to the data and exchange correspondence with RAQ program staff. **AES*Online** provides a unique navigation system to allow the user to move between screen forms with ease. After RAQ program staff review the submission, entries that need clarification are highlighted by the system so that the facility user can immediately verify the data without having to scroll through unnecessary screens. Data are automatically saved as each screen form is completed to prevent loss of data if the Internet connection is broken.

AES*Online requires Internet access. A GreenPort account with access to **AES*Online** must be created (see contact information in 1.3, above) to gain access to the specific application for your facility. If your data management system is maintained in spreadsheets or databases, you may want to explore the entirely automated eXtensible Markup Language (XML) option instead of **AES*Online**.

1.3.2 eXtensible Markup Language (XML)

AES*XML requires Internet access. A GreenPort account with access to **AES*XML** must be created (see contact in 1.3, above) to gain access to the specific application for your facility. XML provides a common language that allows dissimilar computer systems to share data. XML surrounds each piece of data with tags, similar to the way a web browser displays a page from the Internet. Software, called a parser, uses these tags to interpret the data. Many different software companies offer parsers for a variety of prices. An XML parser is bundled into Microsoft Office tools. XML uses a Document Type Definition (DTD) to establish the data content and tags for a specific file or document. BAQ has developed a DTD that defines the AES data and tags. A company that wishes to submit XML data to BAQ must request a copy of the DTD and configure their parser to translate the BAQ DTD. Files in XML format are transferred to DEP over the Internet using DEP's AES*XML application. The XML standards and sample files are available for download by going to the DEP emissions website <http://www.dep.pa.gov/Business/Air/BAQ/BusinessTopics/Emission>.

Useful links for more information on XML:

<http://www.w3.org>

<http://msdn.Microsoft.com/xml/>

2. Determining Which Facilities Belong in the Emissions Inventory

These guidelines address the inventory requirements of Title V, the Annual Inventory, Annual Emission Statements and other regulations that are part of the approved SIP. The regulations can be found at <http://www.pacodeandbulletin.gov>. The Title V regulation is found in 25 Pa. Code Chapter 127. The Annual Inventory regulation is found in 25 Pa. Code §§135.1-135.5. The Annual Emission Statement regulation is found in 25 Pa. Code § 135.21. The definition of the term "Title V Facility" can be found in 25 Pa. Code § 121.1. Exemptions from state operating permits can be found at: <http://www.depgreenport.state.pa.us/elibrary/GetFolder?FolderID=4564>. For information on permitting, contact BAQ Division of Permits at 717-787-4325.

Owners/operators of facilities that wish to generate or trade ERC will need to document emissions. The AES is one way to do this. All owners/operators of facilities have the option of submitting the AES for ERC purposes. If the facility's owner/operator does not submit the AES, the facility's owner/operator should at least maintain sufficient production records to be able to reconstruct emissions for ERC purposes and for audits.

The emissions from any facility that is not required to submit an annual emission inventory report are captured in the Nonpoint Source inventory, which is calculated using demographics and emission factors. For information on nonpoint source inventory, contact Bob Bonner at 717-772-3429 or through email at rbonner@pa.gov.

At facilities subject to annual emission inventory reporting requirements, BAQ will calculate emissions using emission factors for subfacilities for which no emissions were reported.

Alternatively, owners/operators of facilities have the option of submitting emission estimates for emissions if the facility's estimate is better than the factor-generated numbers.

Submission of an annual emission inventory report will fulfill the requirement to submit an emission statement as required by 25 Pa. Code § 135.21.

Refer to Section 3 for operating information and emissions that must be reported.

2.1 Title V Facilities

All owners/operators of Title V facilities must submit an annual emission inventory report and have their information put into AIMS/eFACTS. Owners/operators of Title V facilities are subject to the annual emission inventory reporting because, by definition, they exceed the reporting thresholds in the Emission Statement and SIP regulations. Inventory information from Title V facilities is used for emission fee purposes and, in combination with other information, to demonstrate compliance with permit emission limits and other operating limits. RAQ program staff determines which subfacilities will appear on the AIMS/eFACTS reporting forms. In some cases, the facility's owner/operator and RAQ program staff may agree to treat multiple pieces of related equipment as one subfacility in the Title V permit.

2.2 Non-Title V Facilities

2.2.1 Synthetic Minor Facilities

All Synthetic Minor facilities are required to submit an annual emission inventory report.

2.2.2 Facilities Inventoried for Permit Cap Compliance Certification

Some owners/operators of facilities have taken permit restrictions in order to avoid major status. Also, a facility may have a subfacility cap for other reasons. The method of demonstrating cap compliance is addressed in the permit. The annual emissions inventory report submittal may be used to demonstrate cap compliance.

2.2.3 Oil and Gas Facilities

All owners and operators of companies involved in natural gas related activities, as specified below, are subject to the inventory and must submit electronically through AES*Online. All criteria pollutants, Greenhouse Gas (GHG) emissions, and any Hazardous Air Pollutant (HAP) emissions must be reported.

While the AES*Online reporting screen will pre-populate with the following HAPs for oil and gas facilities, any other HAPs emitted must also be reported:

- 2,2,4-Trimethylpentane
- Benzene
- Ethylbenzene
- Formaldehyde
- Methanol
- Toluene
- Hexane
- Xylene

Oil and gas facilities that are subject to emissions reporting include those engaged in the following: coal bed methane gas compressing, processing and related activities; unconventional Midstream natural gas development, production, transmission, processing and related activities; and conventional Midstream natural gas compressing, processing and related activities. The sources and activities that the Department has identified as subject to the emissions reporting requirements include, but are not limited to: drill rigs, well heads and well completions (unconventional natural gas activities); compressor stations; dehydration units; fugitive emissions from equipment and sources such as connectors, flanges, pump lines, pump seals and valves; heaters and reboilers; pneumatic controllers and pumps; stationary engines; tanks, pressurized vessels and impoundments; venting; blow down systems; and pigging operations. Emissions from midstream operations are reported through the AES system. Emissions from all unconventional natural gas production activities are reported in the Oil and Gas Reporting Electronic (OGRE) system.

2.2.4 All Other Non-Title V Facilities

Any other facility may be subject to the emissions reporting requirement upon request by the Department to submit emissions inventory reports per 25 Pa. Code Chapter 135.

3. Completing AES*Online and AES*XML Submittals

3.1 Throughputs For Each Source

Throughputs must be tracked and reported in monthly increments for each subfacility. **If an operating schedule changes during a month, you must provide a throughput for each operating schedule in effect that month.** Monthly throughputs are required to accommodate various data reports generated from AIMS/eFACTS, such as quarterly reporting with a December start date or quarterly percentages.

3.2 Operating Schedules For Each Source

DEP recognizes that owners/operators of facilities may change operating schedules during the year. Owners/operators of primary facilities must provide at least one operating schedule for each subfacility. Owners/operators of primary facilities may provide multiple operating schedules per subfacility if an operating schedule changes significantly during the year. Examples of significant changes could be a piece of equipment shut down for more than two weeks or a change from one shift to two or three (and vice versa). Consult with RAQ staff for guidance. Keep in mind that worst-case production numbers will yield worst-case emissions numbers when emissions are calculated in AIMS/eFACTS using SCCs.

For each subfacility operating schedule, the facility's owner/operator must provide:

1. Start date of the operating schedule and
2. End date of the operating schedule.

Additionally, for each operating schedule, two of the following three listed items must be provided:

1. Total hours the subfacility operated during that particular operating schedule;
2. Total days the subfacility operated during that particular operating schedule;
- and

3. Average days per week the subfacility operated during that particular operating schedule.

If you are trying to report a shutdown period for a subfacility, you end the current operating schedule when the shutdown occurs, and start a new operating schedule when the shutdown is over. For example, if your plant were shut down from July 1 to July 15, you would have:

Operating schedule 1: Date effective = January 1
 Date end = June 30
Operating schedule 2: Date effective = July 16
 Date end = December 31

3.3 Emission Estimates

Owners/operators of facilities must provide emissions estimates of the following pollutants: Ammonia (NH₃), carbon monoxide (CO), nitrogen oxides (NO_x), PM₁₀ (filterable), PM_{2.5} (filterable), PM-Con (condensable), sulfur oxides (SO_x), and volatile organic compounds (VOC). All GHG emissions must be reported.

All HAPs must be reported and must be reported individually (speciated). They may not be reported together under the pollutant “HAPs”. Please refer to Section 3.8 of this document for specific instructions on thresholds and reporting requirements for HAPs.

Report emissions for each subfacility to the nearest hundredth (0.00) of a ton, unless otherwise specified in these instructions. Emissions from sources not listed as a subfacility should be reported on the Miscellaneous Emissions screen. See Section 9.1 for further information about miscellaneous emissions.

Owners/operators of facilities must also indicate the method used to calculate the emissions. Calculation Method Codes are listed in the back of the instructions. CEM data is the most reliable for emission estimates and should be used when available. **If calculation method “See Comment” is used, a comment containing calculation methodology must be included by using the “New Note” function.** Calculation worksheets should be attached to the submittal for any calculation method other than use of AP-42 emission factors.

3.4 Fuel Analysis

Percent sulfur, percent ash, and BTU content must be reported for all fuels. Report zeros where appropriate. Check with RAQ staff to determine the analytical results that must be reported.

3.5 Surface Coating (Paint, Glue, Ink) Analysis

Percent water, coating density, and total volatile content must be reported for all water- and solvent-based coatings used. Include a list of all coatings and their associated analyses with your submission. Contact your RAQ staff for the preferred reporting format.

3.6 Control Devices

The owners/operators of new facilities and existing facilities with previously unreported subfacilities must report control efficiencies for every pollutant controlled by a control device. These pollutants may include VOCs, NO_x, SO_x, CO, PM10 (filterable), PM2.5 (filterable), PM-Con (condensable), and NH₃. **Control and capture are not the same.** Control is defined as the amount of the specific pollutant's emissions that a control device is capable of destroying or removing. Capture is defined as the amount of the pollutant's emissions that actually reach the control device. Capture can degrade through holes in ductwork, inefficient negative pressure systems, and other issues occurring between the pollutant source and the control device. If the primary control system does not capture 100 percent of the subfacility emissions, emissions will be allocated to both a fugitive emission point and a stack.

The owner/operator of a facility planning to add, modify or remove control devices, *should notify RAQ program staff several months prior to the change.* A new or modified permit may need to be issued if control devices are changed. No modifications or additions may be initiated before a plan approval has been issued by the Department, unless a Request for Determination of Minor Significance has been approved, indicating no permit is required or the change is specifically exempt from plan approval under 25 Pa. Code § 127.14.

3.7 Stacks

The owners/operators of new facilities and existing facilities with previously unreported subfacilities must provide RAQ staff with stack inside diameter, height, exhaust flow in actual cubic feet per minute (ACFM), exhaust velocity in meters or feet per second, exhaust temperature, exhaust percent moisture, and the direction of stack discharge. The owner/operator of a facility planning to add, modify or remove stacks, should notify RAQ program staff prior to the change. Make certain that changes do not require a new or modified permit prior to beginning work.

3.8 Hazardous Air Pollutants – Clean Air Act 112(b) Pollutants

HAP emission estimates are required to be reported for all pollutants listed in CAA 112(b). The tables in Section 9.4 through 9.8. contain the list of CAA 112(b) pollutants, as of January 2020. A calculation method is required with the HAP estimates. Refer to Section 9.1, Calculation Method Codes For Emissions. Additional information/definition can be found in 25 Pa. Code § 121.1, under "Title V regulated air pollutant."

HAPs must be reported individually (speciated). They may not be reported together under the pollutant "HAPs". Subfacility by subfacility speciated reporting of HAPs is required for Maximum Achievable Control Technology (MACT) purposes.

In some cases, HAPs are also VOCs or particulates, such as trichloroethylene. Do not subtract the HAP emission estimates from the VOC or particulate emission estimates. The subtraction will be dealt with by BAQ AIMS/eFACTS database.

For these HAPs of special concern, owners/operators of facilities should report any emissions above the following thresholds:

Polychlorinated biphenyls (PCB)	0.01 TPY per subfacility
Lead (Pb)	0.01 TPY per subfacility
Polycyclic Organic Matter (POM)	0.01 TPY per subfacility
Dioxins**	0.02 pounds/yr per subfacility
Furans**	0.02 pounds/yr per subfacility

** Submit only in pounds per year

For Mercury (Hg), also a HAP of special concern, the reporting thresholds are:

0.0005 TPY per subfacility for non-coal-fired electric generating units (EGU)
 0.0002 TPY per subfacility for coal-fired and oil-fired EGUs
 0.01 TPY per subfacility for all other types of subfacilities

EPA's Mercury and Air Toxics Standards (MATS) regulation applies to coal-fired and oil-fired electric generating units and will establish new emission limits beginning in 2015. MATS eReporting to EPA does not take the place of reporting these emissions to the Department.

As all HAPs must be reported and as some subfacilities are considered insignificant and not included on the reporting forms, use the "Miscellaneous Emissions" sections of the reporting applications to reconcile the facility totals with individual subfacility estimates.

3.9 Accidental Release Pollutants – Clean Air Act 112(r) Pollutants

All CAA 112(r) pollutants must be reported and speciated. The tables in Sections 9.9 and 9.10 contain the list of CAA 112(r) pollutants. Additional information, including the definition, can be found in 25 Pa. Code § 121.1, "Title V regulated air pollutant."

3.10 Site Pollutant Summary

This page summarizes the annual emissions of NO_x, SO_x, VOC, PM₁₀ (filterable), PM_{2.5} (filterable), PM-Con (condensable), NH₃, CO, GHGs, and HAPs for the facility. Facility emissions totals cannot be less than the sum of all subfacility and miscellaneous emissions.

4. Helpful Resources

4.1 Check-Lists for Common Errors

Some errors have a way of being repetitious. Please complete this checklist before submitting your AIMS/eFACTS data.

Questions regarding specific facilities should be directed to the appropriate RAQ program staff. General questions about access and use of the AES applications can be directed to Robert Bihl at 717-772-3950 or rbihl@pa.gov.

4.1.1 Facility Information

- Is your tax ID (IRS #) valid?
- Are all the contacts on the Facility Details screen correct?
- Is BAQ's map of your subfacilities correct?
- Do you have any subfacilities not included in the map?

4.1.2 Subfacility Information

- Are your units of measure correct? (AES automatically defaults to the units used the previous year.)
- Does your Source Classification Code (SCC) match BAQ's?
- Have you submitted throughput data by month for each subfacility?
- Have you included date effective (start date) and date end for your operating schedules?
- Have you included days per week, total days and total hours for your operating schedules?
- If you have manually calculated your emissions, **have you explained your calculation procedure?** (Please provide as many details as possible.) **PLEASE NOTE THAT, IF YOU USE "SEE COMMENTS", YOU MUST INCLUDE COMMENTS.**
- Does the Pollutant Summary page include all emissions?
- Does the summary page include all the source/miscellaneous emissions you have entered?

4.1.3 Hazardous Air Pollutants (HAPs)

- Have you speciated your HAPs emissions by subfacility?

4.2 AP-42 and WebFIRE

AP-42 is a compilation of air pollutant emission factors containing the same factors used for SCCs and is issued by the U.S. Environmental Protection Agency. AP-42 uses factors for general subfacility categories. AP-42 contains a variety of methods for calculating emissions for any given subfacility type. The AP-42 series is available in several media. AP-42 is available free online at <https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors>

WebFIRE is the EPA's online database that contains emissions factors for criteria emissions and HAPs for industrial and non-industrial processes. The WebFIRE factors are very specific for subfacility type. More information about WebFIRE may be obtained at <https://www3.epa.gov/ttn/chief/webfire/index.html>

Please note: If comparing factors in WebFIRE against AP-42, the most recent factors published should take precedence.

4.3 Industry-Specific Emission Factors

Industry groups have also developed emission factors. You may want to contact the appropriate industry trade organization to obtain any factors that exist.

4.4 Standard Industrial Classification and North American Industry Classification System

The U.S. Bureau of Census has replaced its Standard Industrial Classification (SIC) system with the North American Industry Classification System (NAICS). SICs have been converted to the 2017 version of the NAICS codes in AIMS/eFACTS. Please confirm that the proper NAICS is applied to your facility. The NAICS is also required by the IRS, and your financial department may have this information for you.

NAICS information is available from the United States Census Bureau at:
<http://www.census.gov/eos/www/naics/>

4.5 Small Business Assistance

The Environmental Management Assistance Program (EMAP) is a program in Pennsylvania designed to help small businesses understand and comply with environmental regulations. There are four ways to request assistance from EMAP: call 877-ask-emap, visit the website at www.askemap.org, send an e-mail to questions@askemap.org or contact your local Small Business Development Center (check www.pasbdc.org for the center nearest you). Services such as site visits and permit reviews are confidential and provided at no charge. Business names and addresses will not be released to any regulatory agency.

The DEP Small Business Ombudsman (SBO) helps businesses locate sources of funding to install equipment and implement process changes that result in pollution prevention or energy efficiency. The SBO can also represent small business interests to DEP. The DEP SBO can be reached by telephone at 717-783-0909 or you can visit the website at:
<http://www.dep.pa.gov/Business/Air/BAQ/BusinessTopics/BusinessAssistance>

5. Confidentiality

Confidential status must be requested in a letter to the DEP regional office annually. The letter must specify the subfacilities and information that are affected and the reasons for needing confidentiality. Confidentiality is discussed in Section 13.2 of the Pennsylvania APCA. Only throughputs and operating schedules can be treated as confidential in AIMS/eFACTS. Emissions cannot be kept confidential. Confidential throughputs and operating schedules are not provided in basic reports requested by the public and agencies other than EPA. Confidential throughputs and operating schedules are provided to EPA.

6. Certification of Data Accuracy for Emission Statement

The emission report must be submitted by the Responsible Official, or a properly designated representative. Only a user with Submitter clearance can submit the report. Upon hitting the Submit button in AES*Online or AES*XML, the Responsible Official is certifying that all data are complete and accurate.

The definition of a Responsible Official is in Pa. Code Chapter 121 (Definitions). This can be found at <http://www.pacodeandbulletin.gov/Display/pacode?file=/secure/pacode/data/025/chapter121/s121.1.html&d=reduce>.

7. Extensions Beyond March 1

As per 25 Pa. Code, §135.3(c), a facility's owner/operator may request an extension of time from DEP for the filing of the annual emission inventory report, and DEP may grant the extension for reasonable cause. Extension requests should be made in writing to the RAQ contact listed in these instructions. Include the reason for the request and the expected date by which the inventory report will be submitted.

8. DEP Contact Listings

DEP BAQ Central Office contacts:

Mark Houser 717-783-9241 mahouser@pa.gov

Robert Bihl 717-772-3950 rbihl@pa.gov

Bob Bonner 717-772-3429 rbonner@pa.gov

In addition to the DEP BAQ Central Office staff listed above and referenced throughout this document, each facility report displays the regional reviewer assigned to the facility. This is generally the inspector responsible for the facility. When you open a report, along the bottom footer is a line of links. Look for "Contacts," and you will find the reviewer, his or her supervisor, and a central office contact.

General office numbers are found on the DEP's website, on the page "Regional Resources" at <https://www.dep.pa.gov/About/Regional/Pages/default.aspx#.VfxOz99VhBc>.

In addition, Philadelphia and Allegheny counties have independent programs, which also use our AES reporting systems. You can learn more here:

Philadelphia Air Management Services Emission Inventory Guidelines at <https://www.phila.gov/departments/departments-of-public-health/air-management-resources/>

Allegheny County Health Department Air Quality Permitting Information at <https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/About-Air-Quality.aspx>

9. Codes and Tables

9.1 Calculation Method Codes for Emissions

These codes are assigned by the facility's owner/operator and describe the method used to calculate the emission estimates. **Please note that, if using Code 9 (See Comment), a comment containing the calculation methodology must be included. This code cannot be used otherwise.** When entering site emissions, the total for each pollutant must be within tolerance limits of the total of all subfacility emissions for each pollutant. Site emissions may be no more than ten percent or ten tons larger or 1 ton less than the total of all subfacility emissions. If you need to enter miscellaneous emissions beyond these limits, please contact the RAQ program staff to discuss the need for an additional subfacility to cover the higher emissions.

CODE	AIMS DESCRIPTION
1	DEP Stack Test
2	Company Stack Test Approved by DEP
3	Other Company Test Approved by DEP
9	See Comment
10	Company SCC Factor
11	Company Material Balance
12	Company Efficiency of Control Device
14	Continuous Emission Monitoring
15	AP-42 Latest Available
16	Company-Calculated Site Emission

9.2 Reliability Codes for Emissions

Reliability codes are assigned by the RAQ program staff or AIMS/eFACTS. **The codes are provided in the instructions for informational purposes only.** The following list is arranged in order of most reliable method of calculation to least reliable. Codes A, B, C, D, E and U are assigned by AIMS/eFACTS and describe the reliability of the SCC emission factor used. Please note that the code “COM” must include comments.

CODE	DESCRIPTION
CEM	Continuous Emission Monitoring
BST	Best Stack Test
ST	Stack Test
DVC	DEP VOC Calculation
CVC	Company VOC Calculation
MMB	Measured Material Balance
ME	Measured Efficiency
RE	Rated Efficiency
EMB	Estimated Material Balance
COM	See Comment
A	A Rated Factor
B	B Rated Factor
C	C Rated Factor
D	D Rated Factor
E	E Rated Factor
SITE	Site-Level Manual Emission
U	U Unrated Factor
NA	N/A For Plant Total

9.3 Abbreviations/Acronyms

Abbreviation/Acronym	Definition
ACFM	Actual cubic feet per minute
ACT	Actual
AIMS	Air Information Management System (BAQ's database module of eFACTS)
BAQ	Bureau of Air Quality
BTU	British thermal units
CAS	Chemical abstract service
CD	Control device
CO	Carbon monoxide
CU	Combustion unit
DEP	Pennsylvania Department of Environmental Protection
eFACTS	environment, Facility, Application, Compliance Tracking System
EGU	electric generation unit
EHS	Extremely Hazardous Substance
EPA	United States Environmental Protection Agency
EIS	Emission Inventory System (EPA Database)
FML	Fuel material location
FUEL MAT LOC	Fuel material location
Hg	Mercury
IN	Incinerator
INC	Incinerator
MACT	Maximum Achievable Control Technology
MBTU	Thousand Btu
MMBTU	Million Btu
NAICS	North American Industrial Classification System
NO _x	Nitrogen oxides
Pb	Lead
PCB	Polychlorinated biphenyls
PM ₁₀ (filterable)	Filterable particulate matter < 10 microns in diameter
PM _{2.5} (filterable)	Filterable particulate matter < 2.5 microns in diameter
PM-Con(condensable)	Condensable particulate matter
POM	Polycyclic Organic Matter
PR	Process
PTE	Potential to Emit
RAQ	Regional Air Quality
SCC	Source Classification Code
SCFM	Standard cubic feet per minute
SIC	Standard Industrial Classification
SO _x	Sulfur oxides
TPY	Tons per Year
VOC	Volatile organic compounds

9.4 Table A: Hazardous Air Pollutants (112(b)) Sorted Alphabetically by Pollutant Name

CAS RN	POLLUTANT
75-07-0	Acetaldehyde
60-35-5	Acetamide
75-05-8	Acetonitrile
98-86-2	Acetophenone
53-96-3	2-Acetylaminofluorene
107-02-8	Acrolein
79-06-1	Acrylamide
79-10-7	Acrylic acid
107-13-1	Acrylonitrile
107-05-1	Allyl chloride
92-67-1	4-Aminobiphenyl
62-53-3	Aniline
90-04-0	<i>o</i> -Anisidine
1332-21-4	Asbestos
71-43-2	Benzene (including Benzene from gasoline)
92-87-5	Benzidine
98-07-7	Benzotrichloride
100-44-7	Benzyl chloride
92-52-4	Biphenyl
117-81-7	Bis(2-ethylhexyl)phthalate (DEHP)
542-88-1	Bis(chloromethyl)ether
75-25-2	Bromoform
106-99-0	1,3-Butadiene
156-62-7	Calcium cyanamide
133-06-2	Captan
63-25-2	Carbaryl
75-15-0	Carbon disulfide
56-23-5	Carbon tetrachloride
463-58-1	Carbonyl sulfide
120-80-9	Catechol
133-90-4	Chloramben
5-774-9	Chlordane
7782-50-5	Chlorine

CAS RN	POLLUTANT
79-11-8	Chloroacetic acid
532-27-4	2-Chloroacetophenone
108-90-7	Chlorobenzene
510-15-6	Chlorobenzilate
67-66-3	Chloroform
107-30-2	Chloromethyl methyl ether
126-99-8	Chloroprene (2-chloro-1,3-butadiene)
1319-77-3	Cresols/Cresylic acid (isomers and mixture)
95-48-7	<i>o</i> -Cresol
108-39-4	<i>m</i> -Cresol
106-44-5	<i>p</i> -Cresol
98-82-8	Cumene (Isopropylbenzene)
94-75-7	2,4-D, salts, esters (Dichlorophenoxyacetic acid)
72-55-9	DDE (<i>p,p'</i> -Dichlorodipenyldichloroethylene)
334-88-3	Diazomethane
132-64-9	Dibenzofuran
96-12-8	1,2-Dibromo-3-chloropropane
84-74-2	Dibutylphthalate
106-46-7	1,4-Dichlorobenzene
91-94-1	3,3'-Dichlorobenzidine
111-44-4	Dichloroethyl ether (Bis(2-chloroethyl)ether)
542-75-6	1,3-Dichloropropene (mixture)
62-73-7	Dichlorvos
111-42-2	Diethanolamine
121-69-7	<i>N,N</i> -Dimethylaniline
64-67-5	Diethyl sulfate
119-90-4	3,3'-Dimethoxybenzidine
60-11-7	Dimethyl aminoazobenzene
119-93-7	3,3'-Dimethyl benzidine
79-44-7	Dimethylcarbamoyl chloride
68-12-2	<i>N,N</i> -Dimethylformamide
57-14-7	1,1-Dimethylhydrazine
131-11-3	Dimethyl phthalate
77-78-1	Dimethyl sulfate
534-52-1	4,6-Dinitro- <i>o</i> -cresol, and salts
51-28-5	2,4-Dinitrophenol

CAS RN	POLLUTANT
121-14-2	2,4-Dinitrotoluene
123-91-1	1,4-Dioxane (1,4-Diethyleneoxide)
122-66-7	1,2-Diphenylhydrazine
106-89-8	Epichlorohydrin (1-chloro-2,3-epoxypropane)
106-88-7	1,2-Epoxybutane (1,2-Butylene oxide)
140-88-5	Ethyl acrylate
100-41-4	Ethylbenzene
51-79-6	Ethyl carbamate (Urethane)
75-00-3	Ethyl chloride (Chloroethane)
106-93-4	Ethylene dibromide (1,2-Dibromoethane)
107-06-2	Ethylene dichloride (1,2-Dichloroethane)
107-21-1	Ethylene glycol
151-56-4	Ethyleneimine (Aziridine)
75-21-8	Ethylene oxide
96-45-7	Ethylene thiourea
75-34-3	Ethylidene dichloride (1,1-Dichloroethane)
50-00-0	Formaldehyde
76-44-8	Heptachlor
118-74-1	Hexachlorobenzene
87-68-3	Hexachlorobutadiene
77-47-4	Hexachlorocyclopentadiene
67-72-1	Hexachloroethane
822-06-0	Hexamethylene-1,6-diisocyanate
680-31-9	Hexamethylphosphoramide
110-54-3	Hexane
302-01-2	Hydrazine
7647-01-0	Hydrochloric acid
7664-39-3	Hydrogen fluoride (Hydrofluoric acid)
123-31-9	Hydroquinone
78-59-1	Isophorone
58-89-9	Lindane (<i>gamma</i> -hexachlorocyclohexane) (all isomers)
108-31-6	Maleic anhydride
67-56-1	Methanol
72-43-5	Methoxychlor
74-83-9	Methyl bromide (Bromomethane)
74-87-3	Methyl chloride (Chloromethane)

CAS RN	POLLUTANT
71-55-6	Methyl chloroform (1,1,1-Trichloroethane)
60-34-4	Methyl-hydrazine
74-88-4	Methyl iodide (Iodomethane)
108-10-1	Methyl isobutyl ketone (4-methyl-2-pentanone) (Hexone)
624-83-9	Methyl isocyanate
80-62-6	Methyl methacrylate
1634-04-4	Methyl tert butyl ether
101-14-4	4,4'-Methylenebis (2-chloroaniline)
75-09-2	Methylene chloride (Dichloromethane)
101-68-8	Methylenediphenyl diisocyanate (MDI)
101-77-9	4,4'-Methylenedianiline
91-20-3	Naphthalene
98-95-3	Nitrobenzene
92-93-3	4-Nitrobiphenyl
100-02-7	4-Nitrophenol
79-46-9	2-Nitropropane
684-93-5	<i>N</i> -Nitroso- <i>N</i> -methylurea
62-75-9	<i>N</i> -Nitrosodimethylamine
59-89-2	<i>N</i> -Nitrosomorpholine
56-38-2	Parathion
82-68-8	Pentachloronitrobenzene (Quintobenzene)
87-86-5	Pentachlorophenol
108-95-2	Phenol
106-50-3	<i>p</i> -Phenylenediamine
75-44-5	Phosgene
7803-51-2	Phosphine
7723-14-0	Phosphorus
85-44-9	Phthalic anhydride
1336-36-3	Polychlorinated biphenyls (PCB) (Aroclors)
1120-71-4	1,3-Propane sultone
57-57-8	<i>beta</i> -Propiolactone
123-38-6	Propionaldehyde
114-26-1	Propoxur (Baygon)
78-87-5	Propylene dichloride (1,2-Dichloropropane)
75-56-9	Propylene oxide
75-55-8	1,2-Propyleneimine (2-Methylaziridine)

CAS RN	POLLUTANT
91-22-5	Quinoline
106-51-4	Quinone (1,4-benzoquinone)
100-42-5	Styrene
96-09-3	Styrene oxide
1746-01-6	2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin
79-34-5	1,1,2,2-Tetrachloroethane
127-18-4	Tetrachloroethylene (Perchloroethylene)
7550-45-0	Titanium tetrachloride
108-88-3	Toluene
95-80-7	2,4-Toluenediamine
584-84-9	2,4-Toluene diisocyanate
95-53-4	<i>o</i> -Toluidine
8001-35-2	Toxaphene (chlorinated camphene)
120-82-1	1,2,4-Trichlorobenzene
79-00-5	1,1,2-Trichloroethane
79-01-6	Trichloroethylene
95-95-4	2,4,5-Trichlorophenol
88-06-2	2,4,6-Trichlorophenol
121-44-8	Triethylamine
1582-09-8	Trifluralin
540-84-1	2,2,4-Trimethylpentane
108-05-4	Vinyl acetate
593-60-2	Vinyl bromide (bromoethene)
75-01-4	Vinyl chloride
75-35-4	Vinylidene chloride (1,1-Dichloroethylene)
1330-20-7	Xylenes (isomers and mixture)
95-47-6	<i>o</i> -Xylene
108-38-3	<i>m</i> -Xylene
106-42-3	<i>p</i> -Xylene

9.5 Table B: Hazardous Air Pollutants (112(b)) Sorted by Chemical Abstract Service Registry Number (CAS RN).

CAS RN	POLLUTANT
50-00-0	Formaldehyde
51-28-5	2,4-Dinitrophenol
51-79-6	Ethyl carbamate (Urethane)
53-96-3	2-Acetylaminofluorene
56-23-5	Carbon tetrachloride
56-38-2	Parathion
57-14-7	1,1-Dimethylhydrazine
57-57-8	<i>beta</i> -Propiolactone
57-74-9	Chlordane
58-89-9	Lindane (<i>gamma</i> -hexachlorocyclohexane) (all isomers)
59-89-2	<i>N</i> -Nitrosomorpholine
60-11-7	Dimethyl aminoazobenzene
60-34-4	Methylhydrazine
60-35-5	Acetamide
62-53-3	Aniline
62-73-7	Dichlorvos
62-75-9	<i>N</i> -Nitrosodimethylamine
63-25-2	Carbaryl
64-67-5	Diethyl sulfate
67-56-1	Methanol
67-66-3	Chloroform
67-72-1	Hexachloroethane
68-12-2	<i>N,N</i> -Dimethyl formamide
71-43-2	Benzene (including Benzene from gasoline)
71-55-6	Methyl chloroform (1,1,1-Trichloroethane)
72-43-5	Methoxychlor
72-55-9	DDE (<i>p,p'</i> -Dichlorodiphenyldichloroethylene)
74-83-9	Methyl bromide (Bromomethane)
74-87-3	Methyl chloride (Chloromethane)
74-88-4	Methyl iodide (Iodomethane)
75-00-3	Ethyl chloride (Chloroethane)
75-01-4	Vinyl chloride
75-05-8	Acetonitrile

CAS	POLLUTANT
75-07-0	Acetaldehyde
75-09-2	Methylene chloride (Dichloromethane)
75-15-0	Carbon disulfide
75-21-8	Ethylene oxide
75-25-2	Bromoform
75-34-3	Ethylidene dichloride (1,1-Dichloroethane)
75-35-4	Vinylidene chloride (1,1-Dichloroethylene)
75-44-5	Phosgene
75-55-8	1,2-Propyleneimine (2-Methylaziridine)
75-56-9	Propylene oxide
76-44-8	Heptachlor
77-47-4	Hexachlorocyclopentadiene
77-78-1	Dimethyl sulfate
78-59-1	Isophorone
78-87-5	Propylene dichloride (1,2-Dichloropropane)
79-00-5	1,1,2-Trichloroethane
79-01-6	Trichloroethylene
79-06-1	Acrylamide
79-10-7	Acrylic acid
79-11-8	Chloroacetic acid
79-34-5	1,1,2,2-Tetrachloroethane
79-44-7	Dimethylcarbamoyl chloride
79-46-9	2-Nitropropane
80-62-6	Methyl methacrylate
82-68-8	Pentachloronitrobenzene (Quintobenzene)
84-74-2	Dibutylphthalate
85-44-9	Phthalic anhydride
87-68-3	Hexachlorobutadiene
87-86-5	Pentachlorophenol
88-06-2	2,4,6-Trichlorophenol
90-04-0	<i>o</i> -Anisidine
91-20-3	Naphthalene
91-22-5	Quinoline
91-94-1	3,3'-Dichlorobenzidine
92-52-4	Biphenyl
92-67-1	4-Aminobiphenyl
92-87-5	Benzidine
92-93-3	4-Nitrobiphenyl
94-75-7	2,4-D, salts, esters (Dichlorophenoxyacetic acid)
95-47-6	<i>o</i> -Xylene
95-48-7	<i>o</i> -Cresol

CAS	POLLUTANT
95-53-4	<i>o</i> -Toluidine
95-80-7	2,4-Toluenediamine
95-95-4	2,4,5-Trichlorophenol
96-09-3	Styrene oxide
96-12-8	1,2-Dibromo-3-chloropropane
96-45-7	Ethylene thiourea
98-07-7	Benzotrichloride
98-82-8	Cumene (Isopropylbenzene)
98-86-2	Acetophenone
98-95-3	Nitrobenzene
100-02-7	4-Nitrophenol
100-41-4	Ethylbenzene
100-42-5	Styrene
100-44-7	Benzyl chloride
101-14-4	4,4'-Methylenebis (2-chloroaniline)
101-68-8	Methylenediphenyl diisocyanate (MDI)
101-77-9	4,4'-Methylenedianiline
106-42-3	<i>p</i> -Xylene
106-44-5	<i>p</i> -Cresol
106-46-7	1,4-Dichlorobenzene
106-50-3	<i>p</i> -Phenylenediamine
106-51-4	Quinone (1,4-benzoquinone)
106-88-7	1,2-Epoxybutane (1,2-Butylene oxide)
106-89-8	Epichlorohydrin (1-chloro-2,3-epoxypropane)
106-93-4	Ethylene dibromide (1,2-Dibromoethane)
106-99-0	1,3-Butadiene
107-02-8	Acrolein
107-05-1	Allyl chloride
107-06-2	Ethylene dichloride (1,2-Dichloroethane)
107-13-1	Acrylonitrile
107-21-1	Ethylene glycol
107-30-2	Chloromethyl methyl ether
108-05-4	Vinyl acetate
108-10-1	Methyl isobutyl ketone (4-methyl-2-pentanone) (Hexone)
108-31-6	Maleic anhydride
108-38-3	<i>m</i> -Xylene
108-39-4	<i>m</i> -Cresol
108-88-3	Toluene
108-90-7	Chlorobenzene

CAS	POLLUTANT
108-95-2	Phenol
110-54-3	Hexane
111-42-2	Diethanolamine
111-44-4	Dichloroethyl ether (Bis(2-chloroethyl)ether)
114-26-1	Propoxur (Baygon)
117-81-7	Bis(2-ethylhexyl)phthalate (DEHP)
118-74-1	Hexachlorobenzene
119-90-4	3,3'-Dimethoxybenzidine
119-93-7	3,3'-Dimethyl benzidine
120-80-9	Catechol
120-82-1	1,2,4-Trichlorobenzene
121-14-2	2,4-Dinitrotoluene
121-44-8	Triethylamine
121-69-7	<i>N,N</i> -Dimethylaniline
122-66-7	1,2-Diphenylhydrazine
123-31-9	Hydroquinone
123-38-6	Propionaldehyde
123-91-1	1,4-Dioxane (1,4-Diethyleneoxide)
126-99-8	Chloroprene (2-chloro-1,3-butadiene)
127-18-4	Tetrachloroethylene (Perchloroethylene)
131-11-3	Dimethyl phthalate
132-64-9	Dibenzofuran
133-06-2	Captan
133-90-4	Chloramben
140-88-5	Ethyl acrylate
151-56-4	Ethyleneimine (Aziridine)
156-62-7	Calcium cyanamide
302-01-2	Hydrazine
334-88-3	Diazomethane
463-58-1	Carbonyl sulfide
510-15-6	Chlorobenzilate
532-27-4	2-Chloroacetophenone
534-52-1	4,6-Dinitro- <i>o</i> -cresol, and salts
540-84-1	2,2,4-Trimethylpentane
542-75-6	1,3-Dichloropropene (mixture)
542-88-1	Bis(chloromethyl)ether
584-84-9	2,4-Toluene diisocyanate
593-60-2	Vinyl bromide (bromoethene)
624-83-9	Methyl isocyanate

CAS	POLLUTANT
680-31-9	Hexamethylphosphoramide
684-93-5	N-Nitroso-N-methylurea
822-06-0	Hexamethylene-1,6-diisocyanate
1120-71-4	1,3-Propane sultone
1319-77-3	Cresols/Cresylic acid (isomers and mixture)
1330-20-7	Xylenes (isomers and mixture)
1332-21-4	Asbestos
1336-36-3	Polychlorinated biphenyls (PCB) (Aroclors)
1582-09-8	Trifluralin
1634-04-4	Methyl tert butyl ether
1746-01-6	2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin
7550-45-0	Titanium tetrachloride
7647-01-0	Hydrochloric acid
7664-39-3	Hydrogen fluoride (Hydrofluoric acid)
7723-14-0	Phosphorus
7782-50-5	Chlorine
7803-51-2	Phosphine
8001-35-2	Toxaphene (chlorinated camphene)

9.6 Table C: Compounds as Listed In 112(b)

HAP Group	HAP Group Description
Cyanide Compounds	X'CN where X' = H or any other group where a formal dissociation may occur. For example KCN or Ca(CN) ₂ . Includes any unique chemical substance that contains the cyanide group (C≡N) as part of that chemical's infrastructure. <i>Note that cyanides are usually inorganic. Organic molecules containing the -C≡N functional group are called nitriles and are typically not as toxic.</i>
Fine Mineral Fibers	Includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.
Polycyclic Organic Matter	Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 °C. <i>In general, POMs are considered to have two or more fused rings.</i>
Radionuclides	A type of atom which spontaneously undergoes radioactive decay. Radon is explicitly included.
Glycol Ethers	Includes mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-(OCH ₂ CH ₂) _n -OR', where: n = 1, 2, or 3; R = alkyl C7 or less; or R = phenyl or alkyl substituted phenyl; R' = H or alkyl C7 or less; or OR' consisting of carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate. Includes any unique chemical substance that contains any so-defined glycol ethers as part of that chemical's infrastructure.
Antimony Compounds	Includes any unique chemical substance that contains <i>antimony</i> as part of that chemical's infrastructure.
Beryllium Compounds	Includes any unique chemical substance that contains <i>beryllium</i> as part of that chemical's infrastructure.
Cadmium Compounds	Includes any unique chemical substance that contains <i>cadmium</i> as part of that chemical's infrastructure.
Chromium Compounds	Includes any unique chemical substance that contains <i>chromium</i> as part of that chemical's infrastructure.
Cobalt Compounds	Includes any unique chemical substance that contains <i>cobalt</i> as part of that chemical's infrastructure.
Lead Compounds	Includes any unique chemical substance that contains <i>lead</i> as part of that chemical's infrastructure.
Manganese Compounds	Includes any unique chemical substance that contains <i>manganese</i> as part of that chemical's infrastructure.
Mercury Compounds	Includes any unique chemical substance that contains <i>mercury</i> as part of that chemical's infrastructure.

HAP Group	HAP Group Description
Nickel Compounds	Includes any unique chemical substance that contains <i>nickel</i> as part of that chemical's infrastructure.
Selenium Compounds	Includes any unique chemical substance that contains <i>selenium</i> as part of that chemical's infrastructure.
Arsenic Compounds	Includes any unique inorganic chemical substance that contains <i>arsenic</i> as part of that chemical's infrastructure. Arsine (AsH ₃) is explicitly included.
Coke Oven Emissions	Emissions, from coke ovens.

9.7 Table D: Sample Polycyclic Organic Matter (POM) Sorted by Pollutant Name

Note that 112b defines POMs by rules and not by a list. Consequently, this list is NOT all-inclusive. POMs were defined in the original list of HAPs to include "...organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100° C." But in its Technology Transfer Network (TTN) page for POM (www.epa.gov/ttn/atw/hlthef/polycycl.html), "The term polycyclic organic matter (POM) defines a broad class of compounds that generally includes all organic structures having two or more fused aromatic rings (i.e. rings that share a common border), and that have a boiling point greater than or equal to 212° F (100° C)."

CAS RN	POLLUTANT
83-32-9	Acenaphthene
208-96-8	Acenaphthylene
120-12-7	Anthracene
56-55-3	Benz[<i>a</i>]anthracene
50-32-8	Benzo[<i>a</i>]pyrene
205-99-2	Benzo[<i>b</i>]fluoranthene
191-24-2	Benzo[<i>g,h,i</i>]perylene
207-08-9	Benzo[<i>k</i>]fluoranthene
63-25-2	Carbaryl
91-58-7	2-Chloronaphthalene
218-01-9	Chrysene
53-70-3	Dibenz[<i>a,h</i>]anthracene
57-97-6	7,12-Dimethylbenz[<i>a</i>]anthracene
206-44-0	Fluoranthene
86-73-7	Fluorene
193-39-5	Indeno[1,2,3- <i>cd</i>]pyrene
56-49-5	3-Methylcholanthrene
91-57-6	2-Methylnaphthalene
91-20-3	Naphthalene
90-15-3	1-Naphthol
134-32-7	1-Naphthylamine
15299-99-7	Napropamide
85-01-8	Phenanthrene
129-00-0	Pyrene

9.8 Table E: Sample Polycyclic Organic Matter (POM) Sorted by CAS RN

Note that 112b defines POMs by rules and not by a list. Consequently, this list is NOT all-inclusive. POMs were defined in the original list of HAPs to include "...organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100° C." But in its Technology Transfer Network (TTN) page for POM (www.epa.gov/ttn/atw/hlthef/polycycl.html), "The term polycyclic organic matter (POM) defines a broad class of compounds that generally includes all organic structures having two or more fused aromatic rings (i.e., rings that share a common border), and that have a boiling point greater than or equal to 212° F (100° C)."

CAS RN	POLLUTANT
50-32-8	Benzo[a]pyrene
53-70-3	Dibenz[a,h]anthracene
56-49-5	3-Methylcholanthrene
56-55-3	Benz[a]anthracene
57-97-6	7,12-Dimethylbenz[a]anthracene
63-25-2	Carbaryl
83-32-9	Acenaphthene
85-01-8	Phenanthrene
86-73-7	Fluorene
90-15-3	1-Naphthol
91-20-3	Naphthalene
91-57-6	2-Methylnaphthalene
91-58-7	2-Chloronaphthalene
120-12-7	Anthracene
129-00-0	Pyrene
134-32-7	1-Naphthylamine
191-24-2	Benzo[g,h,i]perylene
193-39-5	Indeno[1,2,3-cd]pyrene
205-99-2	Benzo[b]fluoranthene
206-44-0	Fluoranthene
207-08-9	Benzo[k]fluoranthene
208-96-8	Acenaphthylene
218-01-9	Chrysene
15299-99-7	Napropamide

9.9 Table F: Risk Management Plan (RMP) Compounds (112(r)) Sorted by Name

CAS RN	RMP Chemical Name
75-07-0	Acetaldehyde
74-86-2	Acetylene (Ethyne)
107-02-8	Acrolein (2-Propenal)
107-13-1	Acrylonitrile (2-Propenenitrile)
814-68-6	Acrylyl chloride (2-Propenoyl chloride)
107-18-6	Allyl alcohol (2-Propen-1-ol)
107-11-9	Allylamine (2-Propen-1-amine)
7664-41-7	Ammonia (anhydrous) (Ammonia (conc 20% or greater))
7784-34-1	Arsenous trichloride
7784-42-1	Arsine
10294-34-5	Boron trichloride (Trichloroborane)
7637-07-2	Boron trifluoride (Trifluoroborane)
353-42-4	Boron trifluoride compound with methyl ether (1:1) (Boron, trifluoro[oxybis [methane]]-, (T-4))
7726-95-6	Bromine
598-73-2	Bromotrifluoroethylene (Bromotrifluoroethene)
106-99-0	1,3-Butadiene
106-97-8	Butane
25167-67-3	Butene
106-98-9	1-Butene
107-01-7	2-Butene
590-18-1	<i>cis</i> -2-Butene
624-64-6	<i>trans</i> -2-Butene ((<i>E</i>)-2-Butene)
75-15-0	Carbon disulfide
463-58-1	Carbonyl sulfide (Carbon oxide sulfide (COS))
7782-50-5	Chlorine
10049-04-4	Chlorine dioxide (Chlorine oxide (ClO ₂))
7791-21-1	Chlorine monoxide (Chlorine oxide)
67-66-3	Chloroform (Trichloromethane)
74-87-3	Chloromethane (Methyl chloride)
542-88-1	Chloromethyl ether (Dichloromethyl ether; Bis(chloromethyl) ether; Oxybis[chloro]methane)
107-30-2	Chloromethyl methyl ether (Chloromethoxymethane)
590-21-6	1-Chloropropylene (1-Chloro-1-propene)
557-98-2	2-Chloropropylene (2-Chloro-1-propene)
4170-30-3	Crotonaldehyde (2-Butenal)
123-73-9	(<i>E</i>)-Crotonaldehyde ((<i>E</i>)-2-Butenal)
506-77-4	Cyanogen chloride (Cyanogen chloride ((CN)Cl))
460-19-5	Cyanogen (Ethanedinitrile)
108-91-8	Cyclohexylamine (Cyclohexanamine)

CAS RN	RMP Chemical Name
75-19-4	Cyclopropane
19287-45-7	Diborane (Diborane(6))
4109-96-0	Dichlorosilane
75-37-6	Difluoroethane (1,1-Difluoroethane)
124-40-3	Dimethylamine (N-Methylmethanamine)
75-78-5	Dimethyldichlorosilane (Dichlorodimethylsilane)
57-14-7	Dimethylhydrazine (1,1-Dimethyl hydrazine)
463-82-1	2,2-Dimethylpropane
106-89-8	Epichlorohydrin ((Chloromethyl)oxirane)
74-84-0	Ethane
107-00-6	Ethyl acetylene (1-Butyne)
75-00-3	Ethyl chloride (Chloroethane)
107-12-0	Ethyl cyanide (Propanenitrile)
60-29-7	Ethyl ether (1,1'-Oxybisethane)
75-08-1	Ethyl mercaptan (Ethanethiol)
109-95-5	Ethyl nitrite (Nitrous acid, ethyl ester)
74-85-1	Ethylene (Ethene)
75-21-8	Ethylene oxide (Oxirane)
107-15-3	Ethylenediamine (1,2-Ethanediamine)
151-56-4	Ethyleneimine (Aziridine)
7782-41-4	Fluorine
50-00-0	Formaldehyde (Formaldehyde (solution))
110-00-9	Furan
302-01-2	Hydrazine
7647-01-0	Hydrogen chloride (gas only) (Hydrogen chloride (anhydrous); Hydrochloric acid (conc 37% or greater))
74-90-8	Hydrogen cyanide (Hydrocyanic acid)
7664-39-3	Hydrogen fluoride (anhydrous) (Hydrofluoric acid (conc. 50% or greater))
7783-07-5	Hydrogen selenide
7783-06-4	Hydrogen sulfide
1333-74-0	Hydrogen
13463-40-6	Iron, pentacarbonyl- ((TB-5-11)-Iron carbonyl (Fe(CO) ₅))
75-28-5	Isobutane (2-Methylpropane)
78-82-0	Isobutyronitrile (2-Methylpropanenitrile)
78-78-4	Isopentane (2-Methylbutane)
78-79-5	Isoprene (2-Methyl-1,3-butadiene)
75-29-6	Isopropyl chloride (2-Chloropropane)
108-23-6	Isopropyl chloroformate (Carbonochloridic acid, 1-methylethyl ester)
75-31-0	Isopropylamine (2-Propanamine)
126-98-7	Methacrylonitrile (2-Methyl-2-propenenitrile)
74-82-8	Methane
79-22-1	Methyl chloroformate (Methyl chlorocarbonate; Carbonochloridic acid, methylester)

CAS RN	RMP Chemical Name
115-10-6	Methyl ether (Oxybismethane)
107-31-3	Methyl formate (Formic acid, methyl ester)
60-34-4	Methyl hydrazine
624-83-9	Methyl isocyanate (Isocyanatomethane)
74-93-1	Methyl mercaptan (Methanethiol; Thiomethanol)
556-64-9	Methyl thiocyanate (Thiocyanic acid, methyl ester)
563-46-2	2-Methyl-1-butene
563-45-1	3-Methyl-1-butene
115-11-7	2-Methylpropene (2-Methyl-1-propene)
75-79-6	Methyltrichlorosilane (Trichloromethylsilane)
75-04-7	Monoethylamine (Ethanamine)
74-89-5	Monomethylamine (Methanamine)
13463-39-3	Nickel carbonyl
7697-37-2	Nitric acid (conc 80% or greater)
10102-43-9	Nitric oxide (Nitrogen oxide (NO))
504-60-9	1,3-Pentadiene
109-66-0	Pentane
646-04-8	(E)-2-Pentene
627-20-3	(Z)-2-Pentene
109-67-1	1-Pentene
79-21-0	Peracetic acid (Ethaneperoxoic acid)
594-42-3	Perchloromethyl mercaptan (Trichloromethanesulphenyl chloride)
75-44-5	Phosgene (Carbonic dichloride)
7803-51-2	Phosphine
10025-87-3	Phosphorus oxychloride (Phosphoryl chloride)
7719-12-2	Phosphorus trichloride (Phosphorous trichloride)
110-89-4	Piperidine
463-49-0	Propadiene (1,2-Propadiene)
74-98-6	Propane
107-12-0	Propionitrile
109-61-5	Propyl chloroformate (Carbonochloridic acid, propylester)
115-07-1	Propylene (Propene; 1-Propene)
75-56-9	Propylene oxide (Methyloxirane)
75-55-8	Propyleneimine (2-Methyl-aziridine)
74-99-7	Propyne (1-Propyne)
7803-62-5	Silane
7446-09-5	Sulfur dioxide (anhydrous)
7783-60-0	Sulfur tetrafluoride (Sulfur fluoride (SF ₄), (T-4))
7446-11-9	Sulfur trioxide
8014-95-7	Sulfuric acid (fuming) (Oleum (fuming sulfuric acid); Sulfuric acid, mixture with sulfur trioxide)
116-14-3	Tetrafluoroethylene (Tetrafluoroethene)
75-74-1	Tetramethyllead (Tetramethylplumbane)

CAS RN	RMP Chemical Name
75-76-3	Tetramethylsilane
509-14-8	Tetranitromethane
7550-45-0	Titanium tetrachloride (Titanium chloride (TiCl ₄) (T-4))
584-84-9	Toluene-2,4-diisocyanate (2,4-Diisocyanato-1-methyl-benzene)
91-08-7	Toluene-2,6-diisocyanate (1,3-Diisocyanato-2-methyl-benzene)
26471-62-5	Toluenediisocyanate (mixed isomers) (Toluene diisocyanate (unspecified isomer); 1,3-Diisocyanatomethylbenzene)
10025-78-2	Trichlorosilane
79-38-9	Trifluorochloroethylene (Chlorotrifluoroethene)
75-50-3	Trimethylamine (N,N-Dimethylmethanamine)
75-77-4	Trimethylchlorosilane (Chlorotrimethylsilane)
108-05-4	Vinyl acetate (Vinyl acetate monomer; Acetic acid ethenyl ester)
689-97-4	Vinyl acetylene (1-Buten-3-yne)
75-01-4	Vinyl chloride (Chloroethene)
109-92-2	Vinyl ethyl ether (Ethoxyethene)
75-02-5	Vinyl fluoride (Fluoroethene)
107-25-5	Vinyl methyl ether (Methoxyethene)
75-35-4	Vinylidene chloride (1,1-Dichloroethylene; 1,1-Dichloroethene)
75-38-7	Vinylidene fluoride (1,1-Difluoroethene)

9.10 Table G: RMP Compounds (112(r)) Sorted by CAS RN

CAS RN	RMP Chemical Name
50-00-0	Formaldehyde (Formaldehyde (solution))
57-14-7	Dimethylhydrazine (1,1-Dimethyl hydrazine)
60-29-7	Ethyl ether (1,1'-Oxybisethane)
60-34-4	Methyl hydrazine
67-66-3	Chloroform (Trichloromethane)
74-82-8	Methane
74-84-0	Ethane
74-85-1	Ethylene (Ethene)
74-86-2	Acetylene (Ethyne)
74-87-3	Chloromethane (Methyl chloride)
74-89-5	Monomethylamine (Methanamine)
74-90-8	Hydrogen cyanide (Hydrocyanic acid)
74-93-1	Methyl mercaptan (Methanethiol; Thiomethanol)
74-98-6	Propane
74-99-7	Propyne (1-Propyne)
75-00-3	Ethyl chloride (Chloroethane)
75-01-4	Vinyl chloride (Chloroethene)
75-02-5	Vinyl fluoride (Fluoroethene)

CAS RN	RMP Chemical Name
75-04-7	Monoethylamine (Ethanamine)
75-07-0	Acetaldehyde
75-08-1	Ethyl mercaptan (Ethanethiol)
75-15-0	Carbon disulfide
75-19-4	Cyclopropane
75-21-8	Ethylene oxide (Oxirane)
75-28-5	Isobutane (2-Methylpropane)
75-29-6	Isopropyl chloride (2-Chloropropane)
75-31-0	Isopropylamine (2-Propanamine)
75-35-4	Vinylidene chloride (1,1-Dichloroethylene; 1,1-Dichloroethene)
75-37-6	Difluoroethane (1,1-Difluoroethane)
75-38-7	Vinylidene fluoride (1,1-Difluoroethene)
75-44-5	Phosgene (Carbonic dichloride)
75-50-3	Trimethylamine (N,N-Dimethylmethanamine)
75-55-8	Propyleneimine (2-Methyl-aziridine)
75-56-9	Propylene oxide (Methyloxirane)
75-74-1	Tetramethyllead (Tetramethylplumbane)
75-76-3	Tetramethylsilane
75-77-4	Trimethylchlorosilane (Chlorotrimethylsilane)
75-78-5	Dimethyldichlorosilane (Dichlorodimethylsilane)
75-79-6	Methyltrichlorosilane (Trichloromethylsilane)
78-78-4	Isopentane (2-Methylbutane)
78-79-5	Isoprene (2-Methyl-1,3-butadiene)
78-82-0	Isobutyronitrile (2-Methylpropanenitrile)
79-21-0	Peracetic acid (Ethaneperoxoic acid)
79-22-1	Methyl chloroformate (Methyl chlorocarbonate; Carbonochloridic acid, methylester)
79-38-9	Trifluorochloroethylene (Chlorotrifluoroethene)
91-08-7	Toluene-2,6-diisocyanate (1,3-Diisocyanato-2-methyl-benzene)
106-89-8	Epichlorohydrin ((Chloromethyl)oxirane)
106-97-8	Butane
106-98-9	1-Butene
106-99-0	1,3-Butadiene
107-00-6	Ethyl acetylene (1-Butyne)
107-01-7	2-Butene
107-02-8	Acrolein (2-Propenal)
107-11-9	Allylamine (2-Propen-1-amine)
107-12-0	Ethyl cyanide (Propanenitrile)
107-12-0	Propionitrile
107-13-1	Acrylonitrile (2-Propenenitrile)
107-15-3	Ethylenediamine (1,2-Ethanediamine)
107-18-6	Allyl alcohol (2-Propen-1-ol)
107-25-5	Vinyl methyl ether (Methoxyethene)

2020 Emissions Inventory Reporting Instructions

CAS RN	RMP Chemical Name
107-30-2	Chloromethyl methyl ether (Chloromethoxymethane)
107-31-3	Methyl formate (Formic acid, methyl ester)
108-05-4	Vinyl acetate (Vinyl acetate monomer; Acetic acid ethenyl ester)
108-23-6	Isopropyl chloroformate (Carbonochloridic acid, 1-methylethyl ester)
108-91-8	Cyclohexylamine (Cyclohexanamine)
109-61-5	Propyl chloroformate (Carbonochloridic acid, propylester)
109-66-0	Pentane
109-67-1	1-Pentene
109-92-2	Vinyl ethyl ether (Ethoxyethene)
109-95-5	Ethyl nitrite (Nitrous acid, ethyl ester)
110-00-9	Furan
110-89-4	Piperidine
115-07-1	Propylene (Propene; 1-Propene)
115-10-6	Methyl ether (Oxybismethane)
115-11-7	2-Methylpropene (2-Methyl-1-propene)
116-14-3	Tetrafluoroethylene (Tetrafluoroethene)
123-73-9	(<i>E</i>)-Crotonaldehyde ((<i>E</i>)-2-Butenal)
124-40-3	Dimethylamine (<i>N</i> -Methylmethanamine)
126-98-7	Methacrylonitrile (2-Methyl-2-propenenitrile)
151-56-4	Ethyleneimine (Aziridine)
302-01-2	Hydrazine
353-42-4	Boron trifluoride compound with methyl ether (1:1) (Boron, trifluoro[oxybis [methane]]-, (T-4)-)
460-19-5	Cyanogen (Ethanedinitrile)
463-49-0	Propadiene (1,2-Propadiene)
463-58-1	Carbonyl sulfide (Carbon oxide sulfide (COS))
463-82-1	2,2-Dimethylpropane
504-60-9	1,3-Pentadiene
506-77-4	Cyanogen chloride (Cyanogen chloride ((CN)Cl))
509-14-8	Tetranitromethane
542-88-1	Chloromethyl ether (Dichloromethyl ether; Bis(chloromethyl) ether; Oxybis[chloro)methane)
556-64-9	Methyl thiocyanate (Thiocyanic acid, methyl ester)
557-98-2	2-Chloropropylene (2-Chloro-1-propene)
563-45-1	3-Methyl-1-butene
563-46-2	2-Methyl-1-butene
584-84-9	Toluene-2,4-diisocyanate (2,4-Diisocyanato-1-methyl-benzene)
590-18-1	<i>cis</i> -2-Butene
590-21-6	1-Chloropropylene (1-Chloro-1-propene)
594-42-3	Perchloromethyl mercaptan (Trichloromethanesulfenyl chloride)
598-73-2	Bromotrifluoroethylene (Bromotrifluoroethene)
624-64-6	<i>trans</i> -2-Butene ((<i>E</i>)-2-Butene)

2020 Emissions Inventory Reporting Instructions

CAS RN	RMP Chemical Name
624-83-9	Methyl isocyanate (Isocyanatomethane)
627-20-3	(Z)-2-Pentene
646-04-8	(E)-2-Pentene
689-97-4	Vinyl acetylene (1-Buten-3-yne)
814-68-6	Acrylyl chloride (2-Propenoyl chloride)
1333-74-0	Hydrogen
4109-96-0	Dichlorosilane
4170-30-3	Crotonaldehyde (2-Butenal)
7446-09-5	Sulfur dioxide (anhydrous)
7446-11-9	Sulfur trioxide
7550-45-0	Titanium tetrachloride (Titanium chloride (TiCl ₄) (T-4)-)
7637-07-2	Boron trifluoride (Trifluoroborane)
7647-01-0	Hydrogen chloride (gas only) (Hydrogen chloride (anhydrous); Hydrochloric acid (conc 37% or greater))
7664-39-3	Hydrogen fluoride (anhydrous) (Hydrofluoric acid (conc. 50% or greater))
7664-41-7	Ammonia (anhydrous) (Ammonia (conc 20% or greater))
7697-37-2	Nitric acid (conc 80% or greater)
7719-12-2	Phosphorus trichloride (Phosphorous trichloride)
7726-95-6	Bromine
7782-41-4	Fluorine
7782-50-5	Chlorine
7783-06-4	Hydrogen sulfide
7783-07-5	Hydrogen selenide
7783-60-0	Sulfur tetrafluoride (Sulfur fluoride (SF ₄), (T-4)-)
7784-34-1	Arsenous trichloride
7784-42-1	Arsine
7791-21-1	Chlorine monoxide (Chlorine oxide)
7803-51-2	Phosphine
7803-62-5	Silane
8014-95-7	Sulfuric acid (fuming) (Oleum (fuming sulfuric acid); Sulfuric acid, mixture with sulfur trioxide)
10025-78-2	Trichlorosilane
10025-87-3	Phosphorus oxychloride (Phosphoryl chloride)
10049-04-4	Chlorine dioxide (Chlorine oxide (ClO ₂))
10102-43-9	Nitric oxide (Nitrogen oxide (NO))
10294-34-5	Boron trichloride (Trichloroborane)
13463-39-3	Nickel carbonyl
13463-40-6	Iron, pentacarbonyl- ((TB-5-11)-Iron carbonyl (Fe(CO) ₅)
19287-45-7	Diborane (Diborane(6))
25167-67-3	Butene
26471-62-5	Toluenediisocyanate (mixed isomers) (Toluene diisocyanate (unspecified isomer); 1,3-Diisocyanatomethylbenzene)