



Illinois  
Environmental  
Protection Agency

Bureau of Air  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, IL 62794-9276

January 2008

# 2007



# Annual Emission Report Instructions

**WHEN COMPLETED, MAIL THE ANNUAL EMISSION REPORT TO:**

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY  
DIVISION OF AIR POLLUTION CONTROL  
AIR QUALITY PLANNING SECTION (#39)  
1021 NORTH GRAND AVENUE EAST  
P.O. BOX 19276  
SPRINGFIELD, IL 62794-9276**

**ATTN: ANNUAL EMISSION REPORT**

**[www.epa.state.il.us/air/aer](http://www.epa.state.il.us/air/aer)**

**217-524-4343**

**Due Date  
May 1, 2008**

# Table of Contents

---

<b><u>SECTION</u></b>		<b><u>PAGE</u></b>
Section 1	General Instructions and Questions	1
Section 2	IEPA Supplied Reports	5
Section 3	Emission Summary Report	6
Section 4	Common Data Fields.	10
Section 5	Fuel Combustion Data Report	15
Section 6	Process Data Report	17
Section 7	Storage Tank Data Report	18
Section 8	Other Emission Unit Data Report	20
Section 9	Control Device Data Report	21
Section 10	Stack Data Report	23
Section 11	Coating and Solvent Use Data Report	24
Section 12	Startup/Shutdown/Malfunction Data Report	25
Appendix A	Abbreviations	A-1
Appendix B	Definitions	B-1
Appendix C	Conversion Factors	C-1
Appendix D	Control Device Codes	D-1
Appendix E	Addresses and Web Sites	E-1
Appendix F	Emission Factors and Equations	F-1
Appendix G	Hazardous Air Pollutants (HAPs)	G-1

---

## Section 1. General Instructions and Questions

### INTRODUCTION

The Clean Air Act as amended in 1990 (CAA) requires increased reporting and tracking of emissions by both industry and the state. Under one of the provisions of these amendments, Section 182(a)(3)(B), emission sources in ozone nonattainment areas are required to submit annual stationary source emission reports (Emission Statements) to the state in which they operate. The State of Illinois has had an Annual Emission Reporting requirement for a number of years which applies to all sources required to have an operating permit in accordance with 35 Ill. Adm. Code Sections 201.302(a) and 201.302(b). The Illinois Environmental Protection Agency (IEPA) has integrated the reporting requirement of Section 182(a)(3)(B) into its existing Annual Emission Reporting requirement and codified this requirement in 35 Ill. Adm. Code Part 254.

### Types of reports

“Long” - Report plant-wide emissions plus emissions for each individual emission point plus control device and stack information. This type applies to:

- Sources permitted to emit 25 tons per year or more of any combination of regulated air pollutant.
- Sources required to have a CAAPP permit
- Sources in ozone nonattainment areas that have a potential to emit 25 tons per year or more of either VOM or NOx. These sources used to report under a “medium” report.

“Short” - Plant-wide emissions. These are sources that do not fall into the “long” category.

### DO I HAVE TO FILE?

If you have, or are required to have, a State of Illinois air pollution operating permit, you are required to file an Annual Emission Report. This requirement has been in effect since April 15, 1971 but has been modified to incorporate some of the provisions contained in Section 182(a)(3)(B) of the Clean Air Act as amended in 1990 (CAA). The original provisions

requiring the filing of Annual Emission Reports are contained in 35 Ill. Adm. Code Sections 201.302(a) and 201.302(b). These requirements as well as those required by the Clean Air Act as amended in 1990 are contained in 35 Ill. Adm. Code Part 254. A copy of this rule may be obtained from the IEPA, Division of Air Pollution Control (DAPC).

### WHY ARE CO<sub>2</sub>, METHANE AND N<sub>2</sub>O NOW SHOWING UP ON THE REPORT?

With issues of global warming becoming more and more prevalent, the Illinois EPA is undertaking the compilation of a greenhouse gas emission inventory for carbon dioxide (CO<sub>2</sub>), methane and nitrous oxide (N<sub>2</sub>O).

Emissions for these pollutants have been precalculated for you based on other information you have previously submitted. Emission factors for these pollutants for common equipment can be found in Appendix F. **Reporting these emissions (other than those sources already required to report methane emissions) is completely optional.** Your help in compiling an accurate greenhouse gas inventory is appreciated.

### WHAT IF I FAIL TO FILE OR I FILE LATE?

Failure to file a complete Annual Emission Report by the required deadline is a violation of 35 Ill. Adm. Code 201.302(a) and is subject to the penalties prescribed in Section 42 of the Illinois Environmental Protection Act. The IEPA intends to ensure compliance with this reporting requirement through careful review of noncomplying sources. Furthermore, the United States Environmental Protection Agency is requiring the IEPA to provide quarterly reports of all noncomplying sources in ozone nonattainment areas continuing each quarter until there is full compliance.

## Section 1. General Instructions and Questions

---

### WHAT IF I DO NOT RECEIVE MY FORMS BY FEBRUARY 1?

Failure to receive the Source Inventory Report forms from the IEPA does not relieve you of the obligation to file a timely report. Contact the IEPA to request the proper forms.

### HOW DO I CONTACT THE IEPA?

Questions regarding the Annual Emission Report should be directed to Marie Mealman at 217-524-4343. Please have your Id Number (see Section 3) before you call.

Questions about permits and allowable emissions should be directed to the Permit Section or the permit analyst listed on your permit at 217-782-2113.

### WHAT IF I DO NOT RECEIVE THE CORRECT FORMS?

Immediately contact the IEPA if you receive the forms for the wrong company, or if you receive the Summary Annual Emission Report and you must file the Detailed Annual Emission Report. If you received the Detailed Annual Emission Report and you need only file the Summary Annual Emission Report, you do NOT need to contact the IEPA. Simply fill out the Emissions Summary part of the Annual Emission Report and return it with a statement that your source does not meet the requirements for the more detailed emission reporting. **NOTE:** If the IEPA has identified your source as having to complete the detailed report, you will likely be required to substantiate a claim that your source does not meet the requirements for detailed reporting.

### HOW DO I REQUEST CONFIDENTIALITY?

Certain information requested in the Annual Emission Report forms may be claimed as trade secret, privileged information, or confidential only if the information does not represent "emissions data" as described in 40 CFR 56.7042 (1991). All claims of trade secret must comply with 35 Ill. Adm. Code 130,

**Procedures for Claiming and Determining Trade Secrets.** A claim of trade secret for data contained in an Annual Emission Report applies only to that report and must accompany the report. Any information which is claimed as a trade secret in the Annual Emission Report which also appears in other documents submitted to the IEPA (such as permit applications), must be claimed under separate letter. A separate, edited version of the Annual Emission Report, omitting the confidential information, must be submitted to the IEPA to provide a version of the report which may be inspected by the public.

### WHAT POLLUTANTS MUST BE REPORTED?

All sources must report annual emissions for regulated pollutants. This includes criteria pollutants and HAPs. For sources that emit HAPs, a HAP is to be reported only if there is a specific regulation (NESHAP or MACT) that applies to the source. For example, if your source is subject to the MACT for halogenated solvent cleaning. Emissions of the HAPs used in that solvent cleaning must be reported. Please note: Your permit may require you to report emissions of HAPs.

#### Criteria Pollutants

- CO - CARBON MONOXIDE
- LEAD – Lead
- NH3-Ammonia
- NOX - Nitrogen Oxides
- PART - Particulate Matter
- PM10 - Particulate Matter < 10 microns
- PM2.5 - Particulate Matter < 2.5 microns
- SO2 - Sulfur Dioxide
- VOM - Volatile Organic Material

#### Hazardous Air Pollutants (HAPs)

- Individual HAPs regulated at your source by NESHAP, MACT or other regulations

### MUST I REPORT FUGITIVE EMISSIONS?

Yes. Fugitive VOM emissions from permitted emission units must be reported by all

## Section 1. General Instructions and Questions

---

facilities. Fugitive VOM emission sources include valves, pumps, seals, flanges, leaks, and solvent clean-up operations. Annual source totals of fugitive Particulate and PM10 emissions must also be reported by facilities involved in mining operations (SIC groups 10 - 14), manufacturing operations (SIC groups 20 - 39), and electrical generating operations (SIC group 491) **AND** which are located in the following counties and townships:

- Cook - All
- Lake - Shields, Waukegan, Warren
- DuPage - Addison, Winfield, York
- Will - Dupage, Plainfield, Lockport, Channahon, Peotone, Florence, Joliet
- Peoria - Richwoods, Limestone, Hollis, Peoria, City of Peoria
- Tazewell - Fondulac, Pekin, Cincinnati, Groveland, Washington
- Macon - Decatur, Hickory Point
- Rock Island - Blackhawk, Coal Valley, Hampton, Moline, South Moline, Rock Island, South Rock Island
- LaSalle - LaSalle, Utica
- Madison - Alton, Chouteau, Collinsville, Edwardsville, Fort Russell, Godfrey, Granite City, Nameoki, Venice, Wood River
- St. Clair - Canteen, Caseyville, Centerville, St. Clair, Stites, Stookey, Sugar Loaf, Millstadt

The types of particulate and PM10 fugitive emissions that must be reported include (but are not limited to) emissions from storage piles, loading and unloading operations, and traffic areas.

The source-wide totals of fugitive VOM, PART, and PM10 emissions must be identified and reported on the ANNUAL SOURCE EMISSIONS page. The total VOM, PART, and PM10 emission values are to include both the fugitive and non-fugitive values. For example, if a source had 95 tons per year of non-fugitive PART emissions and 20 tons per year of fugitive emissions, 115 tons per year of PART emissions would be reported on the ANNUAL SOURCE EMISSIONS page, along with 20 tons per year identified as fugitive PART emissions.

### WHAT OTHER INFORMATION MUST BE REPORTED?

Title V (CAAAP) permits, Federally Enforceable State Operating Permits (FESOP's), and Operating permits commonly contain conditions specifying additional data or certification requirements that must be provided with the annual emission report. For example, issued Title V permits require annual compliance certifications to be completed and filed with the detailed annual emission report. You should review your permit before completing the annual emission report to insure you are providing all the necessary information.

### THE REPORT YOU SENT ME DOES NOT INCLUDE SOME OF MY EMISSION UNITS. WHAT SHOULD I DO?

Blank forms may be obtained by downloading them from the Illinois EPA website at [www.epa.state.il.us/air/aer](http://www.epa.state.il.us/air/aer) or contact Marie Mealman at the IEPA at 217-524-4343 Please complete the appropriate form for the type of emission unit that was omitted. NOTE: If you are adding an emission unit that is not currently covered by a permit, please contact the Permit Section to determine if a permit is needed.

### I NEED ADDITIONAL HELP. WHAT SHOULD I DO?

Persons knowledgeable about the Annual Emission Report can be reached at 217-524-4343. Please ask for someone dealing with the Annual Emission Report. It will be helpful if you have your facility identification number available. During busy periods, you may not be able to receive help immediately. In this event, please leave your name, telephone number, and facility ID number. A staff member will return your call as soon as possible. **This may be several days during peak periods, so please be patient.**

## Section 1. General Instructions and Questions

---

### WHERE DO I SEND THE EMISSION REPORT?

After the Annual Emission Report has been completed and signed, mail it to the address below:

Illinois EPA  
Division of Air Pollution Control  
Air Quality Planning Section (#39)  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, IL 62794-9276

ATTN: Annual Emission Report

### WHEN SHOULD I CONTACT THE PERMIT SECTION?

You should contact the Permit Section for any of the following reasons:

- You have a question about your allowable or estimated emissions.
- To add an emission unit.
- To delete an emission unit that has been permanently shut down or dismantled.
- The facility has closed or ownership has changed.
- If you feel a permit is no longer needed or equipment is exempt from permit requirements.

### HOW CAN I CONTACT THE PERMIT SECTION?

The Permit Section mailing address and telephone number is listed below:

Illinois EPA  
Division of Air Pollution Control  
Permit Section (#11)  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, IL 62794-9276

Telephone: 217-782-2113

When calling the Permit Section, please inform the person answering the telephone of the county in which your source is located, as well

as the type of activity in which your source is involved, i.e., chemical manufacturing, printing, petroleum, etc. This will aid the receptionist in directing your call to the proper permit analyst.

## SECTION 2. IEPA Supplied Reports

This section provides a general description of the various reports which are associated with the annual emission reporting process. Detailed instructions regarding their use are provided in following sections.

### SOURCE INVENTORY REPORT

The IEPA provides each source with a preprinted "Source Inventory Report" (Annual Emission Report). The report forms contain data fields the source is required to verify or complete to fulfill its annual reporting requirements. The composition of the report will vary, depending upon whether the source is required to file a Summary or Detailed Annual Emission Report (see explanation on page 2).

### EMISSION SUMMARY

Each and every Annual Emission Report has a common element called the Emission Summary. All sources are required to complete this part of the Annual Emission Report, as described in more detail in Section 3. Within the Emission Summary portion of the Annual Emission Report are the Source Data form, the Annual Source Emissions form and the Permit Listing form.

### SOURCE DATA FORM

The Source Data form provides data fields for the verification and correction of information such as addresses, contact names, geographical location data, and provides space for the certification of the report.

### ANNUAL SOURCE EMISSIONS FORM

This portion of the Emission Summary deals with the verification and/or correction of regulated pollutant emissions. Annual source totals of all regulated pollutants emitted by your source (in tons per year) must be provided or verified on this form. Fugitive VOM, PART, and PM10 must also be reported on this form.

### PERMIT LISTING FORM

A report listing permit information for the source is included as part of the Emission Summary. You should check the permit(s) listed on this report to see if they are up to date and accurate. In addition, permits will often require sources to provide supplemental data with the annual emission report.

If there are any errors present, such as incorrect permit status or expiration date, contact the Division of Air Pollution Control, Permit Section, in writing, to have the discrepancies corrected. The Permit Section's address may be found in Section 1 of this booklet or in Appendix E.

### DETAILED ANNUAL EMISSION REPORT

Sources required to file the Detailed Annual Emission Report may have one or more of the following forms in their Source Inventory Report, depending upon the particular configuration of the facility:

- Fuel Combustion Data form
- Process Unit Data form
- Storage Tank Data form
- Other Emission Units Data form
- Control Device Data form
- Stack Data form
- Coating and Solvent Use Data form
- Startup/Shutdown/Malfunction Data form

Each of the above forms and the data fields contained therein are described in detail in Sections 4 through 12 of the detailed annual emission report instructions.

## SECTION 3. Emission Summary Report

This section provides a description of the Emission Summary Report forms that all sources are required to submit. The Emission Summary Report includes the Source Data Form, Annual Source Emissions Form and Permit Listing Form.

### GENERAL INSTRUCTIONS

Each person reporting should carefully follow the instructions contained herein and complete the appropriate sections of the Annual Emission Report as required. Every effort should be made to accurately determine the required data and guessing should be avoided. Make sure your report is signed and dated by the proper authority before submitting it to the IEPA. Unsigned reports will be considered incomplete and will not be accepted by the IEPA. Unsigned reports also may be subject to other penalties.

In completing the Annual Emission Report forms, you will find that space has been provided for you to add, change, correct or update information in some but not all data fields. **NOTE:** If a data field (such as the Permit Number field) does not have space provided to add or correct information, it is provided for your reference only and cannot be changed.

When making entries, please distinguish between data values that are "zero" and those that are unknown or blank. If an item has a zero value, be certain to write "0" in the appropriate space. If a data field does not apply to your situation, indicate this by entering "N/A" for Not Applicable.

If all the data for a given section of the report cannot be listed on the form provided, use additional copies of the required forms that are available on the IEPA website. In the upper right-hand corner of each sheet, indicate page numbers as "Page X of Y," where X is the number of the page being added and Y is the total number of pages in that particular section.

Often, the reports and instructions request that data be provided in specific units of measure. Please adhere to these specified units. See Appendix C for often-used conversion factors.

### EMISSION SUMMARY REPORT

This report contains information and data fields related to source location and description, total annual source-wide emissions for all regulated pollutants emitted by the source, permit information, and the certification block, which provides space for the signature of the certifying individual. These data fields are located on the SOURCE DATA, ANNUAL SOURCE EMISSIONS, and PERMIT LISTING forms.

### SOURCE DATA FORM

The Source Data Form contains data fields for source identification, source location, and Annual Emission Report certification. In completing this form, the following information **MUST** be provided (or verified):

- Source address
- Source contact information
- Mailing address
- E-Mail address (optional)
- Mailing address
- Contact person information
- SIC Code or NAICS (including additional codes, if necessary)
- Completion of the Certification Block to include the signature, date, Title, and telephone number of the certifying individual.

**Optional** information on this form includes:

- FEIN number
- Dun & Bradstreet Number
- Latitude
- Longitude

Any optional data you provide will be included on subsequent Annual Emission Reports.

**ID NUMBER** - Your source identification number is the 9-digit code that immediately precedes your facility name on the SOURCE DATA form. This number has been assigned by the IEPA Division of Air Pollution Control

## SECTION 3. Emission Summary Report

---

(DAPC). The ID Number is based upon the Federal Information Processing Standards (FIPS) code. The first three digits represent the county in which your source is located. The second three digits represent the city/township in which your source is located. The last three digits uniquely identify your source within that city/township. The ID Number must **not** be changed on the SOURCE DATA form. If you feel your ID Number is incorrect for any reason, contact the DAPC.

### **SOURCE IDENTIFICATION AND LOCATION**

- Several data fields are used to identify and locate your source. The **AIRS** (Aerometric Information Retrieval System) and **FINDS** (Facilities Index System) are the USEPA standard identification codes for your source. These codes are for IEPA use only and are **not** to be changed.

**FEIN** - The **FEIN** number (Federal Employers Identification Number) is a nine-digit number that is required for business transactions. This number may be obtained from or verified with your firm's business or accounting department.

**D & B** - The Dun and Bradstreet number is a 9 digit number that is often referred to as the DUNS number (Data Universal Numbering System). You may find your DUNS number by calling Dun and Bradstreet in Bethlehem, PA at (610) 882-7000.

**LATITUDE and LONGITUDE** - The latitude and longitude parameters are the locational coordinates of your source.

**NAICS CODES** - North American Industry System (NAICS) codes are the replacement to the old SIC codes. Like SIC, these codes represent the economic activity at a source, but are six digits long. A source may have up to six separate NAICS codes. The Bureau of Air has prepopulated the NAICS code based upon your SIC. If corrections or additions are necessary, please do so in the spaces provided on the annual emission report forms.

The Bureau of Air is currently undertaking a task to determine coordinates based upon aerial photography. Update this value only if you know the coordinates are wrong.

**SIC CODES** - Standard Industrial Classification (SIC) codes are four-digit numbers that classify sources according to their economic activity. SIC codes are listed in the *Industrial Classification Manual* published by the Office of Management and Budget. Depending upon its operation, a source may have more than one SIC code. Up to three separate codes may be used. If corrections or additions are necessary in the SIC codes, please do so in the spaces provided on the form.

**SOURCE ADDRESS** - This is the address of the physical location of your source according to DAPC records. **Post office box numbers must not be used.** The contact information is for the source environmental contact person who could answer technical questions regarding the contents of the Annual Emission Report. If corrections are necessary in the Source Address, please do so in the space provided on the form.

### **ANNUAL EMISSION REPORT MAILING ADDRESS**

- This is the address of the location to which the Annual Emission Report should be sent. This address may or may not be different from the Source Address. Post Office box numbers may be used. The contact person should be the person to whom correspondence should be directed. If corrections are necessary in the Annual Emission Report Mailing Address, please do so in the space provided on the form to the right.

**CERTIFICATION BLOCK** - The Certification Block provides space for the signature of the certifying individual. All submittals must be signed and dated. This certification applies to all information submitted or verified in an Annual Emission Report. Annual Emission Reports without an authorized signature will be considered incomplete and will not be accepted by the IEPA.

## SECTION 3. Emission Summary Report

---

### ANNUAL SOURCE EMISSIONS FORM

Total emissions (in tons per year) of all regulated pollutants from your source during the reporting year must be listed on this form. Some of the pollutants may already be preprinted on the form, along with their associated allowable and estimated values. Space has been provided for adding any pollutants your source emitted that are not preprinted on the form. Preprinted, IEPA estimated values must be verified before submittal to the IEPA.

Regulated pollutants are defined and listed in these instructions (see pages 3 and B-3, 4). Appendix G also provides a list of regulated hazardous air pollutants.

**ALLOWABLE EMISSIONS** - The allowable emissions (permitted emissions) of the pollutant, in tons per year for the entire source, are shown for your reference. Your certification of the accuracy of the data in the Annual Emission Report **does not** include this item. Allowable emissions are calculated by taking the sum of all the allowable emission rates times the maximum hours of operation for each applicable emission unit within the source. Allowable emissions are determined by 35 Ill. Adm. Code Subchapter B, or special conditions on operating permits that limit emissions to totals other than that allowed by the regulations. For emission units that do not have a rule limiting emissions, e.g., NOx from small gas boilers, the allowable emission rate is assumed to be the maximum emission rate.

### EMISSIONS REPORTED FOR 2006

The emissions (in tons per year) reported by your facility for calendar year 2005.

**IEPA ESTIMATED EMISSIONS** - The emissions of the pollutant, in tons per year, for the entire source, as estimated by the IEPA. This value is calculated by taking the sum of all the average emission rates times the average hours of operation for all emission units within the source. Average emission rate data is typically obtained from permit applications.

### SOURCE REPORTED EMISSIONS FOR 2007

- Space has been provided for you to report emissions for each pollutant, in tons per year. Enter a figure in the space for each pollutant, even if the figure is the same as the IEPA estimated emissions. If there were zero emissions of a pollutant, enter a zero in the space. **DO NOT** leave any spaces blank.

You may report pollutants that are not listed on the form by simply writing the pollutant name and the reported emissions on the blank, unused portion of the form. Fugitive VOM, PART, and PM10 emissions, as well as hazardous air pollutants, may be listed separately, in a similar manner. Appendix F contains emission factors and equations that may be helpful in estimating your source reported emissions.

When completing the Detailed Annual Emission Report, the annual, source-reported emissions of individual pollutants should be reflective of the hourly emission rates reported for individual points that emit those pollutants. For example, if you are reporting that your facility emitted 20 tons of NOx as the annual source total, the total hourly emissions of NOx (from all emission points capable of emitting NOx) times the total operating hours (of all such emission points) divided by 2000 should equal 20 tons of NOx.

### PERMIT LISTING FORM

This report provides a list of all the permits issued from the IEPA to your source. If additions, corrections, or deletions to the permit list are necessary, please contact the Permit Section of the DAPC **in writing** to have the error corrected. The Permit Section's address may be found in Appendix E. Please **do not** make additions or deletions on the Permit Listing Form - they will be ignored. It is not necessary to return the permit listing form to the IEPA.

**PERMIT NUMBER** - The permit number (for both the operating and construction permit) is an eight-digit number that identifies a group of related emission units and control devices at your source.

## **SECTION 3. Emission Summary Report**

---

**TYPE OF PERMIT** - The type of permit for the source. Types of permits will be "Operating," "Construction," "FESOP," (Federally Enforceable State Operating Permit), "Title V," "Lifetime", or "Simple". Permit applications submitted as "Joint" will be denoted as "Operating."

**OPERATION NAME** - The Operation Name is a description of the equipment covered by the permit

**PERMIT STATUS** - The current status of a permit. Permit status is indicated by one of the following:

- Granted -The permit application has been granted.
- Denied - The permit application has been denied.
- Rejected - The permit application has been rejected.
- Blank - No status assigned. Permit application under review.

**STATUS DATE** - The effective date the permit status was assigned.

**EXPIRATION DATE** - The expiration date of the operating permit. Construction and Lifetime permits do not have expiration dates.

## SECTION 4. Common Data Fields

This section provides a description of those data fields in detailed annual emission reports that are common to all types of emission units, whether they be fuel combustion, processes, or storage tanks. Refer to this section, as needed, when completing the detailed report.

### **EMISSION UNIT (POINT) NUMBER**

Each emission unit (point) is identified by a unique, four-digit number assigned by the DAPC. **Emission unit numbers are not to be changed.**

### **EMISSION UNIT DESCRIPTION**

- A short description follows each Emission Unit Number. Each Emission Unit (point) Number must have an accompanying description. Space is provided to correct the Emission Unit Description, however, please do not change the description to a different type of emission unit. For example, do not change a boiler to a storage tank. Changes to the Emission Unit Description should only be made to better describe the emission unit, e.g., "KEWANEE GAS FIRED BOILER" instead of "BOILER."

### **POINT BEGAN OPERATION**

- The date the emission unit began operation, stated in month and year. This field has been initially filled with the month and year the permit for the emission unit was first applied for.

### **POINT CEASED OPERATION**

- The date the emission unit was removed (if applicable), stated in month and year.

### **MODE NUMBER**

- A unique identification number is assigned to each mode of operation of an emission unit. These numbers are assigned sequentially from 01 up to a maximum of 99. Mode Numbers are **not** to be changed. A mode of operation can be thought of as a "method" of operation of an emission unit. For example, consider a boiler that operates on natural gas part of the year and fuel oil the other part of the year. A Mode Number of 01 could represent operating parameters during natural gas usage, while a Mode Number of 02 could represent operating parameters during fuel oil usage. For storage tanks, a Mode Number of 01 could represent breathing loss emissions, while a Mode Number of 02 could

represent emissions during filling of the tank (working loss). For process emission units, consider a reactor, for example. A Mode Number of 01 could represent operating parameters during loading of raw materials, while a Mode Number of 02 could represent operating parameters during the reaction phase of the process. If you have emission units with more than one mode of operation, a separate form will be printed and supplied to you for each mode. The Emission Unit number will be repeated (remain the same) for each mode of operation.

### **MODE DESCRIPTION**

- A short description of the mode of operation follows the Mode Number. A Mode Number may or may not have an accompanying Mode Description. Emission units that have only one mode of operation do not require a mode description. However, a mode description is required for each mode of operation for emission units that have multiple modes of operation. Space is provided to correct the mode description. Please do not change the description to a different type of mode. Changes to the Mode Description should only be made to better describe the mode of operation, e.g., "REACTOR LOADING" instead of "REACTOR."

### **PERMIT NUMBER**

- This is the operating permit number that includes the emission unit. Please do not make changes to this field. If it is suspected that an emission unit has been included in the wrong permit, a request must be made in writing to the DAPC Permit Section to correct the error (See Section 1 or Appendix E for address information).

### **SCC NUMBER**

- Source Classification Codes (SCC) provide a means for identifying a process or function logically associated with a source of air pollution emissions. SCC numbers are used to uniformly identify similar emission units or processes. Emission units with multiple modes of operation may have

## SECTION 4. Common Data Fields

---

different SCC numbers for each mode. Each SCC number has specific units for operating rates and emission factors. SCC numbers are assigned by the Agency and should not be changed on the form unless an alternative SCC number with more appropriate units can be substituted. **Please clear any SCC number changes with IEPA staff.**

**SIC NUMBER** - Standard Industrial Classification (SIC) codes are included with emission unit data to provide a means of identifying emission units by the type of activity in which a source is engaged. This information is necessary for identifying sources that may fall under regulations governing New Source Review.

**PERCENT THROUGHPUTS** - The weighted percentage of yearly activity of the mode of operation for the four seasonal periods. The sum of the four periods must total 100%.

**MODE BEGAN OPERATION** - The date the mode of operation unit began operation stated in month and year. This field has been initially filled with the month and year the permit for the emission unit was first applied for.

**MODE CEASED OPERATION** - The date the mode of operation ceased to operate, if applicable, stated in month and year.

**UNITS** - The units in which the operating rate data are provided. These units are specified by the Source Classification Code (SCC) assigned to the emission point and should not be changed on the form before consulting with the IEPA. Often, you must apply conversion factors to convert your rate data to units that conform to the SCC units. Typical conversion factors are provided in Appendix C. When completing blank forms, select one of the following units for the type of emission point you are adding:

Fuel Combustion - Million cubic feet burned  
1000 gallons burned  
Tons burned

Processes - Tons Input  
Tons Processed  
Tons Product  
Storage Tank - 1000 gallons of capacity  
1000 gallons throughput

If the above units are not suitable, please consult with IEPA staff.

**ANNUAL OPERATION** - This portion of the form provides data fields to record operating schedules, raw material usage, or fuel usage rates during the reporting year. Four data fields are provided to record the operating schedule for hours/day, days/week, weeks/year, and hours/year. Three data fields are provided to record the rate/hour, rate/day, and rate/year in the units expressed directly above the ANNUAL OPERATION box.

**HOURS/DAY** - The number of hours per day the emission unit operated. The values for hours/day can range from 0 to 24.

**DAYS/WEEK** - The number of days per week the emission unit operated. The value for days/week can be 0, 1, 2, 3, 4, 5, 6 or 7.

**WEEKS/YEAR** - The number of weeks per year the emission unit operated. The values for weeks/year can range from 0 to 52 and may not include fractional weeks.

**HOURS/YEAR** - The actual number of hours the emission unit's mode operated during the year. The sum of all total operating hours for all modes of an emission unit must not exceed 8760 hours/year and can be zero.

**RATE/HR** - The operating rate of the mode per hour, day and year, respectively, expressed in the units provided above the Annual Operation Box. Space has been provided on the form to change the rates, however, make sure the rates are expressed in the units provided. Use conversion factors as necessary to conform to the units.

## SECTION 4. Common Data Fields

---

**CONFIDENTIAL** - This field is an indicator which tells the IEPA if confidentiality is requested for the Annual Operation data. Only the annual operation rate/year may be claimed as confidential. If you wish to claim the rate/year trade secret or confidential, enter a "Y" in the **CONFIDENTIAL** field. If you do not wish to claim the rate/year as trade secret or confidential, enter an "N."

All claims of trade secret or confidential must be accompanied by a separate letter attached to the Annual Emission Report. In addition, two copies of the affected detailed annual emission report forms must be provided. One copy of the forms must contain the data being claimed as trade secret or confidential, and the other copy with blank spaces in the data fields requested to be trade secret or confidential. For more information, refer to 35 Ill. Adm. Code 130

### **PEAK OZONE SEASON OPERATION**

- These data fields are to be completed only by sources that are located in an ozone nonattainment area, as described on page 2. The data fields are provided to record the operating hours per day, days per week, weeks per year and total hours per year of the mode of operation during the peak ozone season. The peak ozone season for the region in which your source is located is the months of June, July, and August.

**HOURS/DAY** - The number of hours per day the emission unit operated during the peak ozone season. The values for hours/day can range from 0 to 24.

**DAYS/WEEK** - The number of days per week the emission unit operated during the peak ozone season. The value for days/week can be 0, 1, 2, 3, 4, 5, 6 or 7.

**WEEKS/SEASON** - The number of weeks the emission unit operated during the peak ozone season. The values for weeks/year can range from 0 to 13 and may not include fractional weeks.

**HOURS/SEASON** - The actual number of hours the emission unit operated during

the peak ozone season. The sum of all total operating hours for all modes for an emission unit must not exceed 2208 hours/season and can be zero

**START TIME** - The time at which the emission unit started operation during the day for the peak ozone season. The time is expressed in military time. For example, 3:00 p.m. is represented by 1500 and 2:00 a.m. is represented by 0200. If the emission unit operated on a continuous, 24-hour basis, the start time is 0000.

**END TIME** - The time at which the emission units ended operation during the day for the peak ozone season. The time is expressed in military time. For example, 3:00 p.m. is represented by 1500 and 2:00 a.m. is represented by 0200. If the emission unit operated on a continuous, 24-hour basis, the end time is 2359.

**RATE/HR** - The peak ozone season operating rate of the mode per hour expressed in the units provided above the Peak Ozone Season Operation Box. Space has been provided on the form to change the rates, however, make sure the rates are expressed in the units provided. Use conversion factors as necessary to conform to the units.

**CONFIDENTIAL** - This field is an indicator which tells the IEPA if confidentiality is requested for the Peak Ozone Season Operation data. If you wish to claim the ozone season data as trade secret or confidential, enter a "Y" in the **CONFIDENTIAL** field. All claims of trade secret or confidential must be accompanied by a separate letter attached to the Annual Emission Report. In addition, two copies of the affected detailed annual emission report forms must be provided. One copy of the forms must contain the data being claimed as trade secret or confidential, and the other copy with blank spaces in the data fields requested to be trade secret or confidential. For more information, refer to 35 Ill. Adm.Code 130

## SECTION 4. Common Data Fields

**EMISSION RATE DATA** - Pollutants emitted by the emission unit/mode are listed alphabetically on this page, with emission factors (if used), emission rates as calculated by IEPA, and the emission rates previously reported by your facility. The emissions rates are based upon average **controlled** emission rates of that pollutant from the emission unit to the atmosphere in units of pounds per hour. Space is provided on the form for you to correct, revise, or update the preprinted IEPA emission factors and rates for each pollutant. NOTE: All regulated pollutants may not currently be preprinted on the form. If necessary, write in pollutant emission rate data on the form and the data will be entered into the IEPA database. Any such information will then be included on subsequent Annual Emission Reports.

**POLLUTANT CODE** - A code used to represent the pollutant being emitted. Valid codes include (but are not limited to):

- AS - Arsenic
- ASB - Asbestos
- BE - Beryllium
- BENZENE - Benzene
- CO - Carbon Monoxide
- HG - Mercury
- LEAD - Lead
- MC - Methylene Chloride
- NH3- Ammonia
- NONVOM - Nonvolatile Organic Material
- NOX - Nitrogen Oxides
- PART - Particulate Matter
- PM10 - Particulate Matter <10 microns
- PERC - Perchloroethylene
- SO2 - Sulfur Dioxide
- TCA - 1,1,1-Trichloroethane
- VC - Vinyl Chloride
- VOM - Volatile Organic Material

Pollutant codes not preprinted on the form may be written in on the form.

**METHOD** - A code describing the method used to calculate or estimate emissions. Acceptable codes are:

- 1 - Source tests or other measurements
- 2 - Material balance
- 3 - Standard (AP-42) emission factor
- 4 - Engineering estimate
- 5 - Special emission factor (not AP-42)
- 6 - Not Operating (zero emissions)
- 7 - Operations Ceased (zero emissions)
- A - USEPA reference method
- B - Other particulate sampling train
- C - Liquid absorption technique
- D - Solid absorption technique
- E - Freezing-out technique
- F - Gram sampling (intermittent) technique
- I - Other measurement type

The method code shown under the IEPA heading indicates the method used by IEPA to estimate the IEPA emission rate (see below). The code shown under the REP heading indicates the method previously reported by your facility. If corrections in the METHOD field are necessary, please do so in the underscored space provided on the form.

**EMISSION FACTORS** - The relationship between the amount of pollution produced and an operating parameter (amount of fuel burned, amount of product produced, etc.). The publication, *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, No. AP-42* contains the preferred emission factors to use in estimating emissions. Another USEPA document, *FIRE Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants* provides emission factors for SCC numbers. Also, see Appendix F for a listing of common emission factors.

Emission factors can also be calculated when a measurement has been performed. To do this, take the measured emission rate, in lb/hour, and divide by the operating rate (in the units provided). The use of emission

## SECTION 4. Common Data Fields

---

factors in estimating emissions is further defined under "EMISSION FACTORS" in Appendix B.

Emission factors listed under the IEPA heading indicate the factors (if used) by IEPA to estimate the IEPA emission rate (see below). The emission factors listed under the REPORTED heading are factors previously reported by your facility. If corrections are needed to the emission factors, please do so in the underscored space provided.

**IEPA EMISSION RATE** - The amount of a pollutant released to the atmosphere **after taking into account any control devices present**. This emission rate has the units of pounds/hour and reflects the IEPA-estimated emission rate for each identical point.

**EMISSION RATE REPORTED** - The emissions of each pollutant, in pounds per hour, reported by the facility in previous annual emission reports. **Corrections or updates to reported emission rates should be entered in the underscored spaces provided.**

### **OZONE SEASON EMISSION DATA**

The IEPA-estimated previously reported, and current emissions of NO<sub>x</sub> and/or VOM in pounds per hour, of the emission unit/mode during the peak ozone season (June, July, and August). See preceding paragraphs for descriptions of pollutant code, estimation method, emission factor and previously reported emissions. **Note:** This data is required only from sources located in an ozone nonattainment area, or as described on page 2.

**CAPTURING CONTROLS** - This is a list of each control device that captures emissions directly from the emission unit/mode. Each control device is identified by a unique, four-digit number. Control numbers are assigned sequentially, from 0001 up to a maximum of 9999. Capturing control numbers may be changed.

**CAPTURING STACKS** - This is a list of each stack that captures emissions directly from a particular emission unit/mode. **The DAPC database assigns a unique, four-digit number to each point at which emissions reach the atmosphere. This may be a physical stack or simply a release point.** Stack numbers are assigned sequentially, from 0001 up to a maximum of 9999. Capturing stack numbers may be changed.

**CAPTURE EFFICIENCY** - The percentage of emissions from the emission unit/mode captured by the control device or stack. **This field does not refer to the percentage of emissions removed by the control device (see REMOVAL EFFICIENCY in Section 9).** Space has been provided on the form to correct capture efficiencies. The sum of all capture efficiencies of a mode may not add up to more than 100%.

## SECTION 5. Fuel Combustion Data Report

This section provides a detailed description of the data fields on the Fuel Combustion Data forms. These forms are used for emission points such as boilers, incinerators, space heaters, and process heaters.

### GENERAL INFORMATION

Fuel combustion emission units are primarily composed of boilers, furnaces, and similar equipment, where combustion of fuel oil, coal, wood, coke, natural or process gas or liquid petroleum gas takes place for power generation or commercial/institutional and industrial processing purposes. Fuel combustion emission units are among the largest contributors of sulfur oxides and nitrogen oxides. This section of the Annual Emission Report provides data fields for combustion information necessary for the estimation of emissions

In completing this form, the following information **must** be provided (or verified) for each permitted emission unit:

- Emission unit description
- Number of identical points
- Percent throughputs
- Fuel type
- Heat input
- Heat content of fuel
- Sulfur content of fuel (if applicable)
- Ash content of fuel (if applicable)
- Nitrogen content of fuel (if applicable)
- Typical operating data:
  - hours/day
  - days/week
  - weeks/year
  - rate/hour
- Peak ozone season operating data:
  - hours/day
  - days/week
  - weeks/season
  - rate/hour
- Pollutant emission rates
- Peak ozone season VOM and/or NOx emission rates
- Emission estimate methods
- Emission factors (if applicable)
- Verification of capturing controls and capturing stacks
- Capture Efficiencies

Optional information on this form includes:

- Began operation dates
- Ceased operation dates
- Typical operating data:
  - hours/year
- Peak ozone season data:
  - hours/season
  - start time
  - end time
- The two CONFIDENTIAL fields

**FUEL TYPE** - A code is used to represent the type of fuel used in combustion emission units. Valid codes include:

- 1 - Natural Gas
- 2 - Butane
- 3 - Propane
- 4 - Butane/Propane Mix
- 5 - Process Gas
- 6 - Landfill Gas
- 7 - Coke Oven Gas
- 9 - Other Gaseous Fuel
- 20 - Distillate Oil - Grade #1
- 21 - Distillate Oil - Grade #2
- 22 - Residual Oil - Grade #4
- 23 - Residual Oil - Grade #5
- 24 - Residual Oil - Grade #6
- 25 - Kerosene
- 26 - Jet Fuel
- 27 - Waste Oil
- 28 - Waste Solvents
- 29 - Other Oil/Petroleum/Liquid
- 40 - Coal - Bituminous
- 41 - Coal - Anthracite
- 42 - Coal - Sub bituminous
- 43 - Wood
- 44 - Municipal Solid Waste
- 45 - Municipal Solid Waste and Coal
- 49 - Other Solid Waste
- 60 - Dual Fuel Gas/Liquid
- 61 - Dual Fuel Gas/Solid
- 62 - Dual Fuel Liquid/Solid
- 69 - Other Dual Fuel
- 99 - Other

In the cases where the fuel is of an 'other' type, please specify the fuel in the mode description field.

## SECTION 5. Fuel Combustion Data Report

---

**HEAT INPUT** - The maximum heat input of the combustion unit. This value is always expressed in million BTUs per hour.

**HEAT CONTENT** - The heat content of the fuel. Provide the units of the heat content (e.g. BTU/gal)

**SULFUR CONTENT** - The sulfur content of the fuel expressed as a percentage, by weight, of the fuel. This information is required for combustion emission units that use oil, coal, or process gas. It is assumed that sulfur content is negligible for other gaseous fuels.

**ASH CONTENT** - The ash content of the fuel expressed as a percentage, by weight, of the fuel. This information is required for combustion emission units that use coal. It is assumed that ash content is negligible for gaseous and oil fuels.

**NITROGEN CONTENT** - The nitrogen content of the fuel expressed as a percentage, by weight, of the fuel. This information is required for combustion emission units that use oil, coal or process gas.

**NOTE: See Section 4. COMMON DATA FIELDS for an explanation of the remaining fields on the fuel combustion and emission rate forms.**

## SECTION 6. Process Data Report

This section provides a detailed description of the data items on the Process Data Report forms. This report is used for emission points where material enters the emission unit, some operation is performed on that material, and the new material then leaves the emission unit. Some typical examples of process emission units are manufacturing lines, reactors, mineral processing equipment, coating lines, etc.

### GENERAL INFORMATION

Process emission units are primarily associated with some part of a manufacturing process. The type of emission units covered by this report can vary widely. Process emission units can be distinguished from other types of emission units because, in most cases, material enters the emission unit, some operation is done on that material and the processed material leaves the emission unit, either as product or to be further processed.

In completing this form, the following information **must** be provided (or verified) for each permitted emission unit:

- Emission unit description
- Percent throughputs
- Typical operating data:
  - hours/day
  - days/week
  - weeks/year
  - rate/hour
- Peak ozone season operating data:
  - hours/day
  - days/week
  - weeks/season
  - rate/hour
- Pollutant emission rates
- Peak ozone season VOM and/or NOx emission rates
- Emission factors (if applicable)
- Emission estimate methods
- Verification of capturing controls and capturing stacks
- Capture Efficiencies

Optional information on this form includes:

- Began operation dates
- Ceased operation dates
- Typical operating data:
  - hours/year
- Peak ozone season data
  - hours/season
  - start time
  - end time
- The two CONFIDENTIAL fields

**TYPICAL OPERATION PWR - PWR** (process weight rate) is the total amount of raw materials processed by an emission unit per hour. For process emission units that are not continuous, the process weight rate is the total amount of raw material used divided by the operating time for one cycle. The units of the process weight rate are **always** pounds per hour. These units cannot be changed. For a more detailed definition of process weight rate, see 35 Ill. Adm. Code 211.

**NOTE:** See Section 4. COMMON DATA FIELDS for an explanation of the remaining data fields on the process data and emission rate forms.

## SECTION 7. Storage Tank Data Report

This section provides a detailed description of the data fields on the Storage Tank Data Report forms. This report is used for emission points where a tank is used to store a material, usually organic. This report is not used for process tanks where a material is pumped into a vessel and held for a while until it is pumped to another vessel.

### GENERAL INFORMATION

Storage tanks are contributors of volatile organic material emissions. These emissions are generally a result of tank breathing and working losses. Breathing losses result from vapor volume and pressure variations caused by daily temperature changes. Working losses occur during tank filling operations when vapors are displaced from the tank as the liquid surface rises. This section of the Annual Emission Report provides data fields for information related to storage tank capacity, vapor pressure of the material stored and characteristics of the storage tank. This information is necessary for the accurate calculation of emissions.

In completing these forms, the following information **must** be provided (or verified) for each permitted storage tank:

- Emission unit description
- Percent throughputs
- Typical operating data:
  - hours/day
  - days/week
  - weeks/year
  - rate/hour
  - input volume
- Peak ozone season operating data:
  - hours/day
  - days/week
  - weeks/season
  - rate/hour
  - input volume
- Tank information:
  - tank type
  - capacity
  - diameter
  - height
  - vapor space
  - temperature
  - color
  - paint condition
  - location
  - seal type (if applicable)

- support type (if applicable)
- Material information:
  - material stored
  - molecular weight
  - density
  - vapor pressure
- Typical VOM emission rates
- Peak ozone season VOM emission rates
- Emission factors (if applicable)
- Emission estimate methods
- Verification of capturing controls and capturing stacks
- Capture efficiencies

**Optional** information on this form includes:

- Began operation dates
- Ceased operation dates
- Typical operating data:
  - hours/year
- Peak ozone season data:
  - hours/season
  - start time
  - end time
- The two CONFIDENTIAL fields

Any data provided in optional fields will be included in subsequent Annual Emission Reports for reference purposes.

**TANK TYPE** - A short description of the type of storage tank. Tank types might include: fixed roof, internal floating roof, external floating roof, pressure tank, variable vapor space tank, etc. Space has been provided for changes to the tank type description.

**CAPACITY** - The storage capacity of the tank in gallons.

**DIAMETER** - The inside diameter of the tank in feet.

**HEIGHT** - The height of the tank in feet.

## SECTION 7. Storage Tank Data Report

---

**VAPOR SPACE** - The average distance between the top of the liquid surface and the top of the tank expressed in feet.

**TEMPERATURE** - The average temperature at which material is stored in the tank in units of degrees Fahrenheit.

**COLOR** - The external paint color of the tank. Some examples include: white, aluminum (specular), aluminum (diffuse), gray, green, black, etc.

**PAINT CONDITION** - A description of whether the paint condition is GOOD or FAIR.

**LOCATION** - A description of whether the tank is above ground or below ground.

**SEAL TYPE** - A description of the type of tank seal for tanks with floating roofs. Typical entries in this field might include:

- mechanical shoe seal - primary only
- mechanical shoe seal - shoe mounted secondary seal
- mechanical shoe seal - rim mounted secondary seal
- resilient seal - liquid mounted primary only
- resilient seal - weather shield
- resilient seal - rim mounted secondary seal
- resilient seal - vapor mounted primary only
- resilient seal - vapor mounted weather shield

**SUPPORT TYPE** - A description of the type of support for tanks with floating roofs. Typical entries in this field might include:

- self-supported roof with no internal support columns
- column supported - construction type not specified
- column supported - 9" X 7" columns
- column supported - 8" diameter columns

**MATERIAL STORED** - The chemical name or trade name of the material stored in the tank.

**MOLECULAR WEIGHT** - The molecular weight of the material stored in the tank in units of pounds per pound mole. For example, ethanol has two carbon atoms (weight = 12), one oxygen atom (weight = 16) and six hydrogen atoms (weight = 1). The molecular weight would be  $2(12) + 16 + 6(1) = 46$  lb/lb mole.

**DENSITY** - The density of the material stored in the tank expressed in pounds per gallon.

**VAPOR PRESSURE** - The vapor pressure of the material stored in the tank in units of pounds per square inch, absolute (psia) at the temperature at which the material is stored.

**INPUT VOLUME** - The total amount of material that entered the tank during the reporting year in units of gallons.

**PEAK OZONE SEASON INPUT VOLUME** - The total amount of material that entered the tank during the reporting year for the months of June, July and August in units of gallons.

**NOTE:** Refer to SECTION 4. COMMON DATA FIELDS for an explanation of the remaining data fields on the storage tank and emission rates forms.

## SECTION 8. Other Emission Unit Data Report

This section provides a description of the data fields on the Other Emission Unit Data Report forms. This report is used for emission points that cannot be classified as fuel combustion, process or storage tank emission units. Types of emission units that are included in this report are emission units such as fugitive emissions from pumps, valves, clean-up operations, etc.

### GENERAL INFORMATION

The type of emission unit covered by this report varies widely. This report is used to represent emission units that do not fall into the fuel combustion, process or storage tank categories. Fugitive emission units, such as printing presses cleanup operations, valve and pump leaks, relief valves, connectors, etc., are examples of the type of emission units that might be included in this report.

When completing a blank Other Emission Unit Data Report, the **UNITS** field varies widely and there is no consistent value for each emission unit. When providing units, make them portray the emission unit. Some suggestions are:

Tons processed  
Tons of solvent used  
Gallons used  
Number of valves in operation  
Number of pumps in operation

In completing this form, the following information must be provided (or verified) for each emission unit:

- Emission unit description
- Percent throughputs
- Typical operating data:
  - hours/day
  - days/week
  - weeks/year
  - rate/hour
- Peak ozone season operating data:
  - hours/day
  - days/week
  - weeks/season
  - rate/hour
- Pollutant emission rates
- Peak ozone season VOM and/or NOx emission rates
- Emission factors (if applicable)
- Emission estimate methods

- Verification of capturing controls and capturing stacks
- Capture efficiencies

**Optional** information on this form includes:

- Began operation dates
- Ceased operation dates
- Typical operating data:
  - hours/year
- Peak ozone season data:
  - hours/season
  - start time
  - end time
- The two CONFIDENTIAL fields

Any data provided in optional fields will be included in subsequent Annual Emission Reports for reference purposes.

**NOTE:** Refer to SECTION 4. COMMON DATA FIELDS for an explanation of the data fields on the Other Emission Unit and Emission Rate forms.

## SECTION 9. Control Device Data Report

This section provides a detailed description of the data items on the Control Device Data form. This report is used for equipment that reduces emissions from an emission unit.

### GENERAL INFORMATION

A control device is a piece of equipment that is used to reduce or prevent the emission of one or more pollutants from a contaminated exhaust stream. These types of control devices include equipment such as filters, scrubbers, afterburners, etc. In addition, emissions from an emission unit can be reduced by using a control method. An example of a control method would be the spraying of water on a dirt road to reduce emissions of particulate matter.

All control devices used at your source to control the emissions of permitted emission units must be included in the Annual Emission Report. Use blank CONTROL DEVICE DATA REPORT forms to include devices not currently shown. Use a character such as A, or B, to identify the added control devices. The IEPA will assign a proper number when the data is entered into the DAPC database. Each control device or control method has an associated control device code. These codes, along with typical pollutant removal efficiencies, can be found in Appendix D.

In completing this form, the following information **MUST** be provided (or verified) for each control device:

- Control description
- Removal efficiency
- Verification of capturing controls and stacks.
- Capture efficiencies

**Optional** information on this report includes:

- Control codes
- Method code
- Began operation date
- Ceased operation date

Any information provided in these data fields will be provided in subsequent Annual Emission Reports for reference purposes.

**CONTROL NUMBER** - The Control Number is a unique identification number assigned to a control device by the DAPC. Control Numbers are assigned sequentially, from 0001 up to a maximum of 9999 and are **not** to be changed on the form. To add control devices to the report, use blank CONTROL DEVICE DATA REPORT forms. Use control device identifiers such as "A" or "B." DAPC will assign proper numbers when the data is entered into the database.

**CONTROL DESCRIPTION** - A short description follows each control number. Each control number must have an accompanying control description. Space is provided to correct the control description, however, please do not change the description to a different type of control device. For example, do not change a baghouse to a cyclone. Changes to the control description should only be made to better describe the control device, e.g., "MIKROPUL BAGHOUSE #18314," instead of "BAGHOUSE."

**PERMIT NUMBER** - This is the operating permit number that includes the control device. Please do **not** make changes to this field. If it is suspected that a control device has been included in the wrong permit or is otherwise not properly permitted, a request must be made in writing to the DAPC Permit Section to correct the error.

**CONTROL CODE** - The control code is a 3-digit number used to describe the control device or method. Valid control codes and associated control efficiencies are listed in Appendix D.

**REMOVAL EFFICIENCY** - The capacity of a control device to reduce or remove a given pollutant, expressed as a percentage, at average operation of the emission unit. Pollutant codes are listed alphabetically with preprinted IEPA removal efficiencies. Space is provided on the form for you to correct, revise, or update the efficiencies for each

## SECTION 9. Control Device Data Report

---

pollutant. Typical control efficiencies for specific control devices are listed in Appendix D. If the actual control efficiency is unavailable, the design efficiency or control efficiency limit imposed by a permit should be used. Valid codes for this field range from 0.000 to 99.999.

**METHOD** - A code representing the method in which the removal efficiency was determined. Valid codes include:

- 1 - Test based upon EPA reference method
- 2 - Test based upon other test method
- 3 - Manufacturer's design value
- 4 - Engineering estimate
- 5 - Calculated based upon material balance
- 6 - Estimated based upon published value
- 7 - Other

**CAPTURING CONTROLS** - This is a list of each control device that captures emissions directly from the control device. Each control device is identified by a unique, four-digit number. Control numbers are assigned sequentially, from 0001 up to a maximum of 9999. Capturing control numbers may be changed.

**CAPTURING STACKS** - This is a list of each stack that captures emissions directly from the control device. The DAPC database assigns a unique, four-digit number to each point at which emissions reach the atmosphere. **This may be a physical stack or simply a release point.** Stack numbers are assigned sequentially, from 0001 up to a maximum of 9999. Capturing stack numbers may be changed.

**CAPTURE EFFICIENCY** - The percentage of emissions from the control device captured by the next control device or stack in series. Space has been provided on the form to correct capture efficiencies. The sum of all capture efficiencies of a control device may not add up to more than 100%.

## SECTION 10. Stack Data Report

This section provides a detailed description of the data fields on the Stack Data Report form. This report is used to provide information on emission unit exhaust points.

### GENERAL INFORMATION

A stack is a point at which emissions reach the atmosphere. This can be a location that has physical characteristics such as a diameter and height, or it can be a release point where the only physical characteristic is release height. This form provides data fields related to exhaust point parameters such as location, height, diameter, exhaust rate, and temperature. Each data field is explained below. Space is provided to update or correct the data in each field.

In completing this form, the following information **MUST** be provided or verified:

- Height
- Diameter (if applicable)
- Temperature
- Flow rate (if applicable)

**Optional** information includes those data fields related to:

- Stack description
- Latitude
- Longitude
- Method

Any information provided in these data fields will be provided with subsequent Annual Emission Reports.

**STACK NUMBER** - Each exhaust point at a source is identified by a unique, four-digit stack number assigned by the DAPC. Stack Numbers are assigned sequentially, from 0001 up to a maximum of 9999. Stack Numbers are **not** to be changed on the form. To add stacks to the report, use blank STACK DATA REPORT forms. Use stack identifiers such as "A" or "B". DAPC will assign proper numbers when the data is entered into the database.

**STACK DESCRIPTION** - Enter a short description of the exhaust point in the space following the Stack Number. Stack descriptions are not currently in the IEPA

database. If updated, this information will be provided in subsequent Annual Emission Reports.

**DIAMETER** - The inside diameter of a physical stack in units of feet. The diameter of a square stack can be calculated by taking 1.128 times the square root of the area of the stack.

**HEIGHT** - The exit height (above grade) of a stack in units of feet. Values for the height data field may only be between 1 and 1,250 feet. In those instances where a definable, physical stack does not exist for the exhaust point, enter the height (in feet) at which pollutants are released into the atmosphere. These height values should be between 1 and 200 feet.

**TEMPERATURE** - The temperature (in degrees Fahrenheit) of the exhaust stream at the exit of a physical stack under normal operating conditions.

**FLOW RATE** - The total volume of exhaust gas released from a physical stack at the operating temperature in units of actual cubic feet per minute (acfm).

**VELOCITY** - The velocity of released exhaust gas in feet per second. This value is calculated by the IEPA and need not be provided.

**LATITUDE and LONGITUDE** - parameters are the locational coordinates of the exhaust point.

## SECTION 11. Coating and Solvent Use Data Report

---

This section provides a detailed description of the data fields on the Coating and Solvent Use Data Report forms. This report is used to report the amount and type of coating and/or solvent used in the reporting year.

### GENERAL INFORMATION

This report contains data fields that, when completed, provide the necessary information for estimating the emission of volatile organic materials resulting from the evaporation of organic solvents used in surface coating operations. One method of estimating VOM emissions is to calculate coating usage over the reporting year and multiply that usage by the VOM content of each coating. Summing the estimated VOM emissions from all coatings used during the year will provide an estimate of total VOM emissions from your source. The data fields provided on this form are described below.

**COATING DESIGNATION** - This field contains the manufacturer's name or designation of the coating material. Space is provided in this column for you to add coatings that might not be included in the DAPC listing. You also may delete (cross out) any listed coatings that were not used during the reporting year. In this case, make sure that zero's are entered in the **USAGE** field.

**POINT** - The emission unit number where the particular coating or solvent was used. If you add coatings or solvents to this report, make sure to include the appropriate point number. If a point number has not yet been assigned by the DAPC, enter the letter designation you have assigned to that point.

**COATING DENSITY** - The density, in units of pounds per gallon, of the coating or solvent. This information can be obtained from manufacturer's specifications or data sheets.

**VOM CONTENT** - The amount of volatile organic material in units of pounds VOM per gallon of the coating material before application to the coated object. This data can be obtained from manufacturer's specifications or data sheets.

**VOM CONTENT AS APPLIED** - The amount of volatile organic material in units of pounds of VOM per gallon of the coating material when applied to the object being coated. This figure may or may not be identical with that in the **VOM CONTENT** field, depending upon whether other solvents or mixtures are introduced during the actual application of the coating.

**USAGE** - The total usage in gallons of the identified coating or solvent for the reporting year.

## SECTION 12. Startup/Shutdown/Malfunction Data Report

---

This section provides a detailed description of the data fields on the Startup/Shutdown/Malfunction Data Report form. This report is used to provide emission rates of pollutants when the emission unit is undergoing a startup, shutdown or malfunction.

### GENERAL INFORMATION

This form provides space for you to report any VOM and/or NO<sub>x</sub> emissions resulting from a startup, shutdown, or malfunction. Any data existing in IEPA files or database regarding such occurrences will be provided for your verification or correction.

### EMISSION UNIT (POINT) NUMBER

The four-digit number assigned by DAPC that identifies the emission unit affected by the startup, shutdown, or malfunction. The emission unit numbers are **not** to be changed.

**MODE** - The two-digit number assigned by DAPC that identifies the emission unit mode of operation affected by the startup, shutdown, or malfunction. Mode numbers are **not** to be changed.

**START DATE & END DATE** - The starting and ending dates of the startup, shutdown, or malfunction. The format of the date is mm/dd/yy. For example, April 29, 1993 would be 04/29/93.

**START TIME & END TIME** - The starting and ending times of the startup, shutdown, or malfunction. For example, 3:00 p.m. is represented by 1500 and 2:00 a.m. is represented by 0200.

## APPENDIX A. Abbreviations

---

Abbreviations and acronyms used in the Annual Emission Report Instructions are alphabetically listed below, with accompanying definitions.

Acfm	Actual cubic feet per minute (ft <sup>3</sup> /min)
Agency	Illinois Environmental Protection Agency
AP-42	<i>Compilation of Air Pollution Emission Factors, Volume 1, Stationary Point and Other Sources</i> (and Supplements A through E), USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27717
btu or BTU	British thermal units
BTU/ft <sup>3</sup>	British thermal unit per cubic foot
BTU/lb	British thermal unit per pound
BTU x 10 <sup>6</sup>	Million British Thermal Units
CAAA	1990 Clean Air Act Amendments
CAAPP	Clean Air Act Permit Program
DAPC	Division of Air Pollution Control, Illinois Environmental Protection Agency
FEIN	Federal Employers Identification Number
FIPS	Federal Information Processing Standards
Gr	Grain
HAP	Hazardous Air Pollutant
ID Number	IEPA Bureau of Air Source Identification Number
IEPA	Illinois Environmental Protection Agency
K	Thousand
Lb	Pound
M	Meter
MACT	MACT Maximum Achievable Control Technology
MW	Megawatt (1 million Watts)
NESHAP	National Emission Standard for Hazardous Air Pollutants
psai	Pounds per square inch absolute
SCC	Source Classification Code
SIC	Standard Industrial Classification Code
TITLE V	Title V of the Clean Air Act as amended in 1990
tpy or TPY	Tons per year
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey

## APPENDIX B. Definitions

---

This section provides an alphabetical listing of terms used in the Annual Emission Report Instructions. Where applicable, the definitions used in the appropriate rules and regulations have been quoted here.

**ACTUAL EMISSIONS:** The rate of emissions of a regulated pollutant from a source or emissions unit for the calendar year, seasonal period, day or other period of time as specified, based on the best information available to the owner or operator of that emission unit. Actual emission rates include startup, shutdown or malfunction emissions. The calculation of actual emissions must follow an "emission determination method." Where, for any reason, a source has measured any of its emissions, the source must report the measured total as its "actual emissions" for those pollutants rather than using an estimation method to derive the total for that period of time during which the measurements were taken.

**AIR CONTAMINANT:** Any solid, liquid or gaseous matter, any odor or any form of energy that is capable of being released into the atmosphere from an emission source.

**ALLOWABLE EMISSIONS:** The emission rate of a source calculated using the maximum rated capacity of the source, subject to enforceable permit conditions or other enforceable limits and any applicable emission standards adopted by 35 Ill. Adm. Code, SubTitle Chapter B, or the USEPA under Section 113 of the Clean Air Act. If a source is not subject to permit conditions or emission standards, the allowable emissions are assumed to be the source's maximum emissions.

**AMBIENT AIR:** The atmosphere external to buildings comprising emission sources.

**AMBIENT AIR QUALITY STANDARDS:** Standards promulgated by the Pollution Control Board pursuant to authority found in 35 Ill. Adm. Code 243 or by the USEPA pursuant to authority found in the Clean Air Act and its amendments.

**ANNUAL PROCESS RATE:** The actual or estimated annual fuel, process or waste operating rate.

**BRITISH THERMAL UNIT:** The quantity of heat required to raise one pound of water from 60°F to 61°F.

**CERTIFYING INDIVIDUAL:** The individual responsible for the certification of the accuracy of the Annual Emission Report and who will take legal responsibility for the information verified or reported in the Annual Emission Report.

**CLEAN AIR ACT:** The Clean Air Act of 1970, as amended by the amendments of 1977 and 1990.

**CONFIDENTIAL DATA:** Information submitted under the Environmental Protection Act, which is not a trade secret nor privileged information, and which is accorded confidential treatment for business or privacy purposes. For further definition of confidential data refer to 35 Ill. Adm. Code 130.

**CONTROL CODE:** A three-digit code that defines the category of equipment used to reduce, by destruction or removal, the amount of air pollutant(s) in an air stream before discharge to the ambient air. Please see Appendix D for a list of control devices and related, acceptable codes.

**CONTROL DEVICE:** Equipment, such as an afterburner, absorber, scrubber, condenser, cyclone or baghouse used to remove or prevent the emission of pollutants from a contaminated air stream. Control devices also may include methods and procedures used to reduce pollutant emissions (such as water sprays used for dust suppression).

## APPENDIX B. Definitions

---

**CONTROL EFFICIENCY:** The amount, expressed as a percentage, by which emissions of a pollutant are reduced by the control device or devices.

**EMISSIONS:** Pollutants discharged into the atmosphere from smokestacks, manufacturing processes, vents, and surface areas of commercial or industrial facilities and other stationary sources.

**EMISSION DETERMINATION METHOD:** The method generally accepted and used by those persons engaged in the field of air pollution control to derive actual emissions, whether measured or estimated. Acceptable methods include actual source tests or measurements, material balance calculations, engineering estimates, and the use of emission factors.

**EMISSION FACTOR:** An estimate of the quantity of pollutant released to the atmosphere because of some activity, based upon the relationship of pollution produced and the amount of raw material processed. For example, an emission factor for a blast furnace making iron would be the number of pounds of particulate matter emitted per ton of iron produced. If emission factors are used in the calculation of emissions, the source must use emission factors that are approved by the USEPA or IEPA. The preferred emission factors are contained in the USEPA publication, *Compilation of Air Pollution Emission Factors, Volume 1: Stationary Point and Area Sources, No. AP-42* (and Supplements A through E). In order to calculate emissions from emission factors, the appropriate emission factor is multiplied by the activity data, i.e., process rate, throughput, etc. Control device efficiency then provides the basis for the estimate of emissions to the atmosphere after passage through the control device. The basic emission estimate algorithm is:

$$E = R \times EF \times (1 - C/100)$$

where: E = emission estimate for the emission unit  
R = activity level (operating rate)  
EF = emission factor (such as lbs emitted/ton)  
C = control device efficiency (in percentage)

The accuracy of the emission estimate is equally dependent upon the relative accuracy of each individual component. A typical calculation for emissions (in lbs/hr) is shown below:

EXAMPLE: Calculation of Particulate Emissions Using Data for SCC 30300801 (Ore Charging of Blast Furnace)

Given the following data:

Operating Rate (R) = 30 tons iron/hr  
Emission Factor (EF) = 110.0 lb particulates/ton iron produced  
Control Efficiency (C) = 95%

Emissions are then calculated using:

$$\text{Particulate emissions in lb/hr} = 30 \times 110 \times (1 - 95/100) = 165.00 \text{ lb/hr}$$

**EMISSION RATE:** Total quantity of any air contaminant discharge into the atmosphere in a given period.

**EMISSION SUMMARY:** The portion of the Annual Emission Report that contains data fields for source identification, total actual emissions of regulated air pollutants emitted by the source, permit information, and the certification block that includes the signature of the certifying individual.

## APPENDIX B. Definitions

---

**EMISSION UNIT:** Any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant. The term "**POINT**" is used on the Annual Emission Report forms to indicate an emission unit. A unique, four-digit number is assigned to each emission unit or point by the DAPC database.

**MODE NUMBER:** A two-digit number identifying a particular method of operation of an emission unit/point that is automatically assigned by the IEPA database. An emission unit/point that has more than one mode of operation must have a mode number for each mode.

**NAICS:** North American Industry Classification System. A series of codes to classify establishments according to the type of economic activity in which they are engaged. National Industry Classification System is replacing the U.S Standard Industrial Classification (SIC) system.

**NONATTAINMENT AREA:** A geographic area that does not meet one or more of the National Ambient Air Quality Standards for the criteria pollutants specified in the Clean Air Act.

**NONVOLATILE ORGANIC MATERIAL:** Organic materials or compounds that have been determined to have negligible photochemical reactivity but are still regulated pollutants and must be reported in the Annual Emission Report. Nonvolatile organic materials include the following specific chemicals or groups of chemicals:

- 1-chloro-1-fluoroethane (HCFC-151a)
- 1-chloro-1,1-difluoroethane (HCFC-142b)
- 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane
- 1,1-dichloro-1-fluoroethane (HCFC-141b)
- 1,1-difluoroethane (HFC-152a)
- 1,1,1-trichloroethane (methyl chloroform)
- 1,1,1-trifluoro-2,2-dichloroethane (HCFC-123)
- 1,1,1-trifluoroethane (HFC-143a)
- 1,1,1,2-tetrafluoroethane (HFC-134a)
- 1,1,1,2,3-pentafluoropropane (HFC-245eb)
- 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC-43-10mee)
- 1,1,1,2,3,3-hexafluoropropane (HFC-236ea)
- 1,1,1,3,3-pentafluoropropane (HFC-245fa)
- 1,1,1,3,3-pentafluorobutane (HFC-365-mfc)
- 1,1,1,3,3,3-hexafluoropropane (HFC-236fa)
- 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113)
- 1,1,2,2-tetrafluoroethane (HFC-134)
- 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxybutane
- 1,1,2,2,3-pentafluoropropane (HFC-245ca)
- 1,1,2,3,3-pentafluoropropane (HFC-245ea)
- 1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a)
- 1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114)
- 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb)
- 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane
- 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane
- 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124)
- 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca)
- acetone (2-propanone)
- chlorodifluoromethane (CFC-22)
- chlorofluoromethane (HCFC-31)
- chloropentafluoroethane (CFC-115)
- dichlorodifluoromethane (CFC-12)
- difluoromethane (HFC-32)

## APPENDIX B. Definitions

---

ethane  
ethylfluoride (HFC-161)  
methane  
methyl acetate  
methylene chloride (dichloromethane)  
parachlorobenzotrifluoride (PCBTF)  
perchloroethylene (tetrachloroethylene)  
pentafluoroethane (HFC-125)  
trichlorofluoromethane (CFC-11)  
trifluoromethane (HFC-23)  
cyclic, branched or linear completely-methylated siloxanes  
perfluorocarbon compounds which fall into these classes  
    Completely fluorinated cyclic, branched or linear completely fluorinated alkanes  
    Completely fluorinated ethers with no unsaturations  
    Completely fluorinated tertiary amines with no unsaturations  
    Sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

**OPERATING RATE:** Quantity, per unit time, of any raw material immediately consumed or product generated through the use of any equipment, operation or process. For industrial processes, this term generally refers back to the process weight (in pounds, tons, gallons, barrels, etc., per hour). For fuel combustion units, this term generally refers to fuel consumption rate (in tons, gallons or cubic feet per hour).

**PEAK OZONE SEASON:** "Peak ozone season" means the months of June, July and August.

**POINT:** Any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant. See: EMISSION UNIT

**POTENTIAL TO EMIT:** The capability of a source to emit a pollutant at maximum design capacity, except as constrained by enforceable permit conditions that include restrictions on the hours of operation and the type or amount of material combusted, stored or processed, or the installation of air pollution control equipment

**PROCESS EMISSION UNIT:** Any stationary emission unit/point other than a fuel combustion emission unit or an incinerator

**PROCESS WEIGHT RATE:** The actual weight or engineering approximation of all materials (except liquid and gaseous fuels and combustion air) introduced into any process per hour. For cyclical or batch operations, the process weight rate is determined by dividing the actual weight or engineering approximation by the number of hours of operation, excluding any time the equipment was idle. For continuous processes, the process weight rate is determined by dividing the actual weight or engineering approximation by the number of hours in one complete operation, excluding any time the equipment was idle.

**REGULATED POLLUTANT:** Pollutants for which National Ambient Air Quality Standards or specific regulations limiting emissions are established. This is further defined under Section 39 of the Illinois Environmental Protection Act. A current list of regulated air pollutants may be found in Section 1 of this booklet under the heading "WHAT AIR EMISSIONS MUST BE REPORTED?". Hazardous air pollutants now regulated in accordance with Section 112 of the Clean Air Act are listed in Appendix G of this booklet.

## APPENDIX B. Definitions

---

**SCC:** Source Classification Code. An eight-digit code that provides a detailed analysis of a process creating emissions. Source Classification Codes are listed in the USEPA document, *FIRE Version 6.0 Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants*.

**SIC CODE:** Standard Industrial Classification code. A series of codes devised by the Office of Management and Budget (OMB) to classify establishments according to the type of economic activity in which they are engaged.

**SOURCE:** All of the pollutant emitting activities that are located on one or more contiguous or adjacent properties and are under the control of the same person.

**SOURCE INVENTORY REPORT:** The report that the IEPA provides to the source that lists data fields for the information required in the Annual Emission Report and contains the information, if any, that previously has been reported to the IEPA for those data fields.

**STACK (EXHAUST POINT):** A flue or conduit, free standing or with exhaust port, above the roof of the building on which it is mounted, by which air contaminants are emitted into the atmosphere. In the IEPA system, stack **may also refer to a release point which is not a physical stack**.

**STATIONARY SOURCE:** Any building, structure, facility, plant, or installation which emits, or may emit, any air pollutant subject to regulation under the Clean Air Act; an emission source that is not self-propelled.

**TYPICAL OPERATION:** The most common values associated with an emission unit during its operation.

**TYPICAL OZONE SEASON DAY:** Any day, Monday through Friday, representative of source operations during the peak ozone season.

**VOLATILE ORGANIC MATERIAL (VOM):** Any compound of carbon (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate) that participates in atmospheric photochemical reactions and is not specifically designated by the USEPA as having negligible photochemical reactivity. Common VOCs include: benzene, butyl acetate, butyl alcohol, carbon tetrachloride, ethyl acetate, ethyl alcohol, heptane, hexane, isobutyl alcohol, isopropyl alcohol, methyl alcohol, methylisobutyl ketone, toluene, naphtha, and xylene.

## APPENDIX C. Conversion Factors

---

Typical conversion factors are listed below. These factors might be helpful in converting to specified SCC units of measure.

### Energy:

- 1 BTU/hour = 0.293 Watts
- 1 Megawatt = 3,413,000 BTU/hour
- 1 boiler horsepower (BHP) = 33520 BTU/hr
- 1 boiler horsepower (BHP) = 9803 Watts
- 1 lb/mmbtu = 1.548 kg/MW-hr
- 1 pound steam/hour (300 psi, saturated) = 1202 BTU/hour
- 1 million ft<sup>3</sup> = 10,000 therms
- 1 therm = 100,000 BTU
- 1 therm = 100 ft<sup>3</sup> natural gas
- 1 ft<sup>3</sup> natural gas  $\approx$  1000 BTU
- 1 Pound of fuel oil  $\approx$  19,000 BTU

### Pressure:

- 1 atmosphere = 14.69 psi
- 1 atmosphere = 760 millimeters of mercury
- 1 psi = 0.068 atmospheres
- 1 millimeter of mercury = 0.00132 atmospheres
- 1 millimeter of mercury = 0.0193 psi

### Volume:

- 1 ft<sup>3</sup> (liquid) = 7.48 gallons
- 1 barrel = 42 gallons

### Weight:

- 1 kilogram = 1000 grams = 2.205 lbs
- 1 pound = 7000 grains
- 1 pound = 0.454 kilograms = 454 grams
- 1 ton = 2000 pounds

### Other:

- Density of water = 8.337 lb/gal

## Appendix D. Control Device Codes and Removal Efficiencies

The first column is the three digit control device code. The description column is a short description to show the class of control device. The last six columns show a range of common pollutant removal efficiencies, expressed in percent, for that type of control and particular pollutant. **These ranges of removal efficiencies are only guidelines, your actual values may differ.**

Code	Description	TYPICAL REMOVAL EFFICIENCY (%)					
		CO	PART	PM10	SO2	NOX	VOM
001	Wet Scrubber- high efficiency		95-99.9	95-99	75-97		
002	Wet Scrubber- medium efficiency		80-95	80-95	60-75		
003	Wet Scrubber- low efficiency		70-90	70-90	30-60		
004	Gravity Collector- high efficiency		95-99.9	6.0			
005	Gravity Collector- medium efficiency		80-95	4.8			
006	Gravity Collector-, low efficiency		20-80	3.7			
007	Centrifugal Collector- high efficiency		95-99.9	95			
008	Centrifugal Collector- medium efficiency		80-95	80-85			
009	Centrifugal Collector- low efficiency		20-80	20-50			
010	Electrostatic precipitator- high efficiency		95-99.9	95-99.5			
011	Electrostatic precipitator- medium efficiency		80-95	80-95			
012	Electrostatic precipitator- low efficiency		60-90	60-90			
013	Gas Scrubber( general, not classified)	70-99			70-99	70-99	70-99
014	Mist eliminator-velocity >250 ft/min		70-99	70-90	70-99		
015	Mist eliminator- velocity <250 ft/min		50-99	50-75	50-99.9		
016	Fabric filter- Temperature > 250 <sup>o</sup> F		75-99.9	75-99.5			
017	Fabric filter-Temperature 180-250 <sup>o</sup> F)		80-99.9	80-99.5			
018	Fabric filter-Temperature < 180 <sup>o</sup> F		80-99.9	80-99.5			
019	Catalytic afterburner	90-99	80-95				90-99.9
020	Catalytic afterburner with heat exchanger	90-99.9	80-95				90-99.9
021	Direct flame afterburner	99-99.9	25-70				94-99.9
022	Direct flame afterburner with heat exchanger	99-99.9	25-70				94-99.9
023	Flaring	95-99.9	25-98				90-99.9
024	Modified furnace or burner design					20-80	
025	Staged combustion					20-60	
026	Flue gas recirculation					20-70	
027	Reduced combustion- air preheating					20-60	
028	Steam or water injection					20-70	
029	Low-excess air firing					10-60	
030	Use of fuel with low nitrogen content					10-70	
031	Air injection					**	
032	Ammonia injection					**	
033	Control of percent oxygen in combustion air					**	
034	Wellman-Lord/sodium sulfite scrubbing				50-95		
035	Magnesium oxide scrubbing				50-95		
036	Dual alkali scrubbing				50-95		
037	Citrate process scrubbing				50-95		
038	Ammonia scrubbing				50-95		
039	Catalytic oxidation- flue gas desulfurization				75-90		
040	Alkalized alumina				75-90		
041	Dry limestone injection				40-60		
042	Wet limestone injection				80-90		

## Appendix D. Control Device Codes and Removal Efficiencies

Code	Description	TYPICAL REMOVAL EFFICIENCY (%)					
		CO	PART	PM10	SO2	NOX	VOM
043	Sulfuric acid plant- contact process				50-98		
044	Sulfuric acid plant- double contact process				95-99.9		
045	Sulfur plant				85-99.9		
046	Process change	10-90	10-90		10-90	10-90	10-90
047	Vapor recovery system						85-99
048	Activated carbon adsorption						70-99
049	Liquid filtration system		50-99.9	50-85			
050	Packed- gas absorption column	70-99	70-99	70-99	70-99	70-99	70-99
051	Tray-type gas absorption column	70-99	70-99	70-95	70-99	70-99	70-99
052	Spray tower	70-99	90-99	90-95	70-99	70-99.9	70-99
053	Venturi scrubber	70-99	90-99	70-99	70-99	70-99	70-99
054	Process enclosed		50-99	3.7			
055	Impingement plate scrubber	20-99	20-99	20-99	20-99	20-99	20-99
056	Dynamic separator (dry)		20-99	20-99			
057	Dynamic separator (wet)		20-99	20-85			
058	Mat or panel filter		10-97	10-97			
059	Metal fabric filter screen (Cotton Gin)		50-99	0-20			
060	Process gas recovery	99-99.9					95-99.9
061	Dust suppression by water sprays		0-90	0-90			
062	Dust suppression by chemical stabilizers		0-99.9	0-90			
063	Gravel bed filter		90-99.9	80			
064	Annular ring filter		90-99.9	90-97			
065	Catalytic reduction					75-99.9	
066	Molecular sieve					95-99.9	
067	Wet lime slurry scrubbing				50-95		
068	Alkaline fly ash scrubbing				50-95		
069	Sodium carbonate scrubbing				50-95		
070	Sodium alkali scrubbing				50-95		
071	Fluid bed dry scrubber		90-99.9	90			
072	Tube and shell condenser						20-99.9
073	Refrigerated condenser						20-99.9
074	Barometric condenser						20-99.9
075	Single cyclone		25-99	25-50			
076	Multiple cyclone without fly ash reinjection		50-99.9	50-95			
077	Multiple cyclone with fly ash reinjection		50-85	50-85			
078	Baffle**						
079	Dry electrostatic granular filter**						
080	Chemical oxidation		20-99.9			20-99.9	20-99.9
081	Chemical reduction					20-99.9	
082	Ozonation						10-99.9
083	Chemical neutralization	10-99.9	10-99.9		10-99.9	10-99.9	10-99.9
084	Activated clay absorption						20-99.9
085	Wet cyclonic separator		20-99.9	20-85			
086	Water curtain		10-95	10-90			10-95
087	Nitrogen blanket						10-99
088	Conservation vent						10-99.9
089	Bottom filling						10-99.9

## Appendix D. Control Device Codes and Removal Efficiencies

Code	Description	TYPICAL REMOVAL EFFICIENCY (%)					
		CO	PART	PM10	SO2	NOX	VOM
090	Conversion to variable vapor space tank						10-99.9
091	Conversion to floating roof tank						10-99.9
092	Conversion to pressurized tank						10-99.9
093	Submerged filling						10-99.9
094	Underground tank						10-99.9
095	White paint						10-99.9
096	Vapor lock balance recovery system						10-99.9
097	Install secondary seal for external floating roof						10-99.9
098	Moving bed dry scrubber**						
099	Miscellaneous control devices**						
101	High efficiency particulate air filter**						
106	Dust Supression by physical stabilization						
107	Selective Noncatalytic Reduction for NOx**						
113	Rotoclone						
117	Packed scrubber						
118	Crossflow packed bed scrubber						
119	Dry scrubber						
120	Floating bed scrubber						
122	Quench Tower						
123	Spray scrubber						
124	High pressure scrubber						
125	Low pressure scrubber						
134	Demister						
139	Selective Catalytic Rediction (SCR)						
140	Non selective catalytic reduction (NSCR)						
146	Wet electrostaticprecipitator						
158	Ionizing wet scrubber						
159	Electrified filter box						
201	Knock out box						

\*\*These are considered valid combinations, but efficiency ranges are not available.

## Appendix E. Addresses and Web Sites

---

Annual Emission Report Mailing Address	Illinois EPA Division of Air Pollution Control Air Quality Planning Section (#39) 1021 North Grand Avenue East P.O. Box 19276 Springfield, IL 62794-9276  Attn: Annual Emission Report  Phone: 217-524-4343
Permit Section Mailing Address	Illinois EPA Division of Air Pollution Control Permit Section (#11) 1021 North Grand Avenue East P.O. Box 19276 Springfield, IL 62794-9276  Phone: 217-782-2113
Air Pollution Control Location Address	Illinois EPA Division of Air Pollution Control 1340 North 9th Street Springfield, IL 62702
USEPA (AP-42)	United States EPA Office of Air Quality Planning and Standards Research Triangle Park, NC 27717
USEPA's Home Page	<a href="http://www.epa.gov">www.epa.gov</a>
Illinois EPA's Home Page	<a href="http://www.epa.state.il.us">www.epa.state.il.us</a>
Annual Emission Report Home Page	<a href="http://www.epa.state.il.us/air/aer">www.epa.state.il.us/air/aer</a>
Emission Estimation Software	<a href="http://www.epa.gov/ttn/chief/software/index.html">www.epa.gov/ttn/chief/software/index.html</a>
AP-42	<a href="http://www.epa.gov/ttn/chief/ap42/index.html">www.epa.gov/ttn/chief/ap42/index.html</a>
NAICS Codes Listing (and SIC)	<a href="http://www.census.gov/epcd/www/naics.html">www.census.gov/epcd/www/naics.html</a>
Annual Emission Report	<a href="http://www.epa.state.il.us/air/aer">www.epa.state.il.us/air/aer</a>
Are you required to have a permit?	<a href="http://www.epa.state.il.us/small-business/pollution-control-permit/apc-permit.html">www.epa.state.il.us/small-business/pollution-control-permit/apc-permit.html</a>

## Appendix F. Emission Factors and Equations

---

The following list of emission factors and equations may be helpful in estimating emissions from emission units such as boilers, incinerators, grain facilities, chrome plating equipment, dry cleaning facilities, sterilizing equipment, and storage tanks. **The factors contained herein are suggested only, and are not meant to supersede any previous factors established by permits or other references.**

### NATURAL GAS FIRED BOILERS:

≥100 million BTU/hr	CO:	84 lb/million cubic feet burned
	CO <sub>2</sub> :	120,000 lb/million cubic feet burned
	METHANE:	2.3 lb/million cubic feet burned
	N <sub>2</sub> O:	2.2 lb/million cubic feet burned
	NH <sub>3</sub> :	3.2 lb/million cubic feet burned
	NO <sub>X</sub> :	280 lb/million cubic feet burned
	PART:	7.6 lb/million cubic feet burned
	PM <sub>10</sub> :	7.6 lb/million cubic feet burned
	SO <sub>2</sub> :	0.6 lb/million cubic feet burned
	VOM:	5.5 lb/million cubic feet burned
<100 million BTU/hr	CO:	84 lb/million cubic feet burned
	CO <sub>2</sub> :	120,000 lb/million cubic feet burned
	METHANE:	2.3 lb/million cubic feet burned
	N <sub>2</sub> O:	2.2 lb/million cubic feet burned
	NH <sub>3</sub> :	3.2 lb/million cubic feet burned
	NO <sub>X</sub> :	100 lb/million cubic feet burned
	PART:	7.6 lb/million cubic feet burned
	PM <sub>10</sub> :	7.6 lb/million cubic feet burned
	SO <sub>2</sub> :	0.6 lb/million cubic feet burned
	VOM:	5.5 lb/million cubic feet burned

### FUEL OIL-FIRED BOILERS

Fuel Oil #1 or #2	CO:	5 lb/1000 gallons burned
	CO <sub>2</sub> :	22,300 lb/1000 gallons burned
	METHANE:	0.052 lb/1000 gallons burned
	N <sub>2</sub> O:	0.11 lb/1000 gallons burned
	NH <sub>3</sub> :	0.8 lb/1000 gallons burned
	NO <sub>X</sub> :	20 lb/1000 gallons burned
	PART:	2 lb/1000 gallons burned
	PM <sub>10</sub> :	1 lb/1000 gallons burned
	PM <sub>2.5</sub> :	0.25 lb/1000 gallons burned
	SO <sub>2</sub> :	142(S) lb/1000 gallons burned
VOM:	0.252 lb/1000 gallons burned	

## Appendix F. Emission Factors and Equations

---

Fuel Oil #4	CO:	5 lb/1000 gallons burned
	CO2:	22,300 lb/1000 gallons burned
	METHANE:	0.28 lb/1000 gallons burned
	N2O:	0.11 lb/1000 gallons burned
	NH3:	0.8 lb/1000 gallons burned
	NOX:	47 lb/1000 gallons burned
	PART:	7 lb/1000 gallons burned
	PM10:	6.3 lb/1000 gallons burned
	PM2.5:	3.9 lb/1000 gallons burned
	SO2:	150(S) lb/1000 gallons burned
	VOM:	1.04 lb/1000 gallons burned
Fuel Oil #5	CO:	5 lb/1000 gallons burned
	CO2:	24,400 lb/1000 gallons burned
	METHANE:	1 lb/1000 gallons burned
	N2O:	0.11 lb/1000 gallons burned
	NH3:	0.8 lb/1000 gallons burned
	NOX:	47 lb/1000 gallons burned
	PART:	10 lb/1000 gallons burned
	PM10:	8.6 lb/1000 gallons burned
	SO2:	157(S) lb/1000 gallons burned
	VOM:	1.04 lb/1000 gallons burned
Fuel Oil #6	CO:	5 lb/1000 gallons burned
	CO2:	25,000 lb/1000 gallons burned
	METHANE:	1 lb/1000 gallons burned
	N2O:	0.11 lb/1000 gallons burned
	NH3:	0.8 lb/1000 gallons burned
	NOX:	47 lb/1000 gallons burned
	PART:	9.19(S) + 3.22 lb/1000 gallons burned
	PM10:	9.19(S) + 3.22 lb/1000 gallons burned
	PM2.5:	4.67(A) + 3.22 lb/1000 gallons burned
	SO2:	157(S) lb/1000 gallons burned
	VOM:	0.28 lb/1000 gallons burned

**S** = weight percentage of sulfur in oil

**A** = percentage of ash in oil

### OTHER FUELS

Butane	CO:	3.6 lb/1000 gallons burned
	CO2:	14,300 lb/1000 gallons burned
	METHANE:	0.2 lb/1000 gallons burned
	N2O:	0.9 lb/1000 gallons burned
	NOX:	21 lb/1000 gallons burned
	PART:	0.6 lb/1000 gallons burned
	PM10:	0.6 lb/1000 gallons burned
	SO2:	0.09(S) lb/1000 gallons burned
	VOM:	0.6 lb/1000 gallons burned

## Appendix F. Emission Factors and Equations

---

Propane	CO:	3.2 lb/1000 gallons burned
	CO2:	12,500 lb/1000 gallons burned
	METHANE:	0.2 lb/1000 gallons burned
	N2O:	0.9 lb/1000 gallons burned
	NOX:	19 lb/1000 gallons burned
	PART:	0.6 lb/1000 gallons burned
	PM10:	0.6 lb/1000 gallons burned
	SO2:	0.1(S) lb/1000 gallons burned
	VOM:	0.6 lb/1000 gallons burned

S = Sulfur content expressed in grain/100 feet<sup>3</sup>

### INCINERATORS

Multiple Chamber	CO:	10 lb/ton burned
	HCL	10 lb/ton burned
	NOX:	3.0 lb/ton burned
	PART:	7.0 lb/ton burned
	PM10:	4.7 lb/ton burned
	SO2:	2.5 lb/ton burned
	VOM:	3.0 lb/ton burned

Pathological	CO:	2.95 lb/ton burned
	CO2:	9150 lb/ton burned
	HCL:	1.2 lb/ton burned
	NOX:	3.56 lb/ton burned
	PART:	4.67 lb/ton burned
	PM10:	3.02 lb/ton burned
	PM2.5:	2.02 lb/ton burned
	SO2:	2.17 lb/ton burned
	VOM:	0.299 lb/ton burned

### Medical Waste

	CD:	0.0054 lb/ton burned
	CO:	2.95 lb/ton burned
	Dioxins/Furans:	0.0000928 lb/ton burned
	HCL:	33.5 lb/ton burned
	Lead:	0.0728 lb/ton burned
	Mercury:	0.107 lb/ton burned
	NOX:	3.56 lb/ton burned
	PART:	4.67 lb/ton burned
	PM10:	3.04 lb/ton burned
	PM2.5:	2.02 lb/ton burned
	SO2:	2.17 lb/ton burned
	VOM:	0.299 lb/ton burned

### DRY CLEANERS, DEGREASERS USING VOLATILE ORGANIC SOLVENTS

$$\frac{(\text{Gallons Solvent} - \text{Gallons Recycled}) \times \text{Weight per Gallon (lb/gal)}}{2,000} = \text{Tons VOM per year}$$

## Appendix F. Emission Factors and Equations

---

### CHROME PLATING EMISSION FACTORS

Hard Chrome Plating	CR6:	$1.71 \times 10^{-5}$ lb/hr/amp* per hour
	PART:	$3.57 \times 10^{-5}$ lb/hr/amp* per hour
	PM10:	$3.57 \times 10^{-5}$ lb/hr/amp* per hour
Decorative Chrome Plating	CR6:	$4.71 \times 10^{-6}$ lb/hr/amp* per hour
	PART:	$9.86 \times 10^{-6}$ lb/hr/amp* per hour
	PM10:	$9.86 \times 10^{-6}$ lb/hr/amp* per hour
Anodizing/Electropolishing	CR6:	$2.86 \times 10^{-4}$ lb/hr/ft <sup>2**</sup> per hour
	PART:	$6.00 \times 10^{-4}$ lb/hr/ft <sup>2**</sup> per hour
	PM10:	$6.00 \times 10^{-4}$ lb/hr/ft <sup>2**</sup> per hour

\*Average daily rectifier setting in amps

\*\*Surface area of bath in square feet

## Appendix G. Hazardous Air Pollutants (HAPs)

This appendix provides a listing of additional pollutants that are now regulated in accordance with Section 112 of the Clean Air Act as amended in 1990. If your source emits any of these pollutants **and** the pollutant is regulated for your type of source (a specific regulation exists for your type of source), you are required to provide the annual source emissions of those pollutants. Use the pollutant codes in the left-hand column for your entries on the Annual Source Emissions form. Most of the pollutants listed below are also VOM or PART. When reporting the pollutants, also include their totals in the appropriate VOM or PART category. The "ALSO REPORTED AS" column indicates whether or not the pollutant is also VOM or PART. The CAS number is the Chemical Abstracts Services number assigned to that pollutant.

Pollutant Code	Chemical Name	CAS #	Also Reported As
75070	Acetaldehyde	75070	VOM
60355	Acetamide	60355	VOM
75058	Acetonitrile	75058	VOM
98862	Acetophenone	98862	VOM
53963	2-Acetylaminofluorine	53963	VOM
ACROLEIN	Acrolein	107028	VOM
79061	Acrylamide	79061	VOM
79107	Acrylic acid	79107	VOM
107131	Acrylonitrile	107131	VOM
107051	Allyl chloride	107051	VOM
92671	4-Aminobiphenyl	92671	VOM
ANILINE	Aniline	62533	VOM
90040	o-Anisidine	90040	VOM
ASBESTOS	Asbestos	1332214	PART
BENZENE	Benzene	71432	VOM
92875	Benzidine	92875	VOM
98077	Benzotrichloride	98077	VOM
100447	Benzyl chloride	100447	VOM
BIPHENYL	Biphenyl	92524	VOM
117817	Bis(2-ethylhexyl)phthalate (DEHP)	117817	VOM
542881	Bis(chloromethyl)ether	542881	VOM
75252	Bromoform	75252	VOM
106990	1,3-Butadiene	106990	VOM
156627	Calcium cyanamide	156627	-----
CAPTAN	Captan	133062	PART
CARBARYL	Carbaryl	63252	PART
CS2	Carbon disulfide	75150	VOM
CCL4	Carbon tetrachloride	56235	VOM
463581	Carbonyl sulfide	463581	VOM
120809	Catechol®	120809	VOM
133904	Chloramben	133904	VOM
CHLORDANE	Chlordane	57749	VOM
CL	Chlorine	7782505	-----
79118	Chloroacetic acid	79118	VOM
532274	2-Chloroacetophenone	532274	VOM
108907	Chlorobenzene	108907	VOM
510156	Chlorobenzilate	510156	VOM
CCL3	Chloroform	67663	VOM
107302	Chloromethyl methyl ether	107302	VOM
126998	Chloroprene	126998	VOM

## Appendix G. Hazardous Air Pollutants (HAPs)

Pollutant Code	Chemical Name	CAS #	Also Reported As
1319773	Cresols and cresylic acids (mixed)	1319773	VOM
95487	Cresol and cresylic acid (o-isomer)	95487	VOM
108394	Cresol and cresylic acid (m-isomer)	108394	VOM
106445	Cresol and cresylic acid (p-isomer)	106445	VOM
CUMENE	Cumene	98828	VOM
94757	2,4-D, salts and esters	94757	VOM
334883	Diazomethane	334883	VOM
DBF	Dibenzofurans	132649	VOM
96128	1,2-Dibromo-3-chloropropane	96128	VOM
DBP	Dibutylphthalate	84742	VOM
106467	1,4-Dichlorobenzene	106467	VOM
91941	3,3'-Dichlorobenzidine	91941	VOM
111444	Dichloroethyl ether	111444	VOM
DDE	Dichlorodiphenyldichloethylene	3547044	VOM
542756	1,3-Dichloropropene	542756	VOM
62737	Dichlorvos	62737	VOM
111422	Diethanolamine	111422	VOM
64675	Diethyl sulfate	64675	VOM
121697	N,N-Dimethylaniline	121697	VOM
119904	3,3'-Dimethoxybenzidine	119904	VOM
60117	Dimethyl aminoazobenzene	60117	VOM
119937	3,3'-Dimethylbenzidine	119937	VOM
79447	Dimethyl carbamoyl chloride	79447	VOM
DMF	Dimethylformamide	68122	VOM
57147	1,1-Dimethylhydrazine	57147	VOM
131113	Dimethyl phthalate	131113	VOM
77781	Dimethyl sulfate	77781	VOM
534521	4,6-Dinitro-o-cresol, and salts	534521	VOM
51285	2,4-Dinitrophenol	51285	VOM
121142	2,4-Dinitrotoluene	121142	VOM
DIOX-FUR	Total Dioxins and Furans	DIOX-FUR	VOM
123911	1,4-Dioxane	123911	VOM
122667	1,2-Diphenylhydrazine	122667	VOM
106898	Epichlorohydrin	106898	VOM
106887	1,2-Epoxybutane	106887	VOM
140885	Ethyl acrylate	140885	VOM
ETBZ	Ethylbenzene	100414	VOM
51796	Ethyl carbamate (Urethane)	51796	VOM
75003	Ethyl chloride (Chloroethane)	75003	VOM
106934	Ethylene dibromide (Dibromoethane)	106934	VOM
107062	Ethylene dichloride (1,2-Dichloroethane)	107062	VOM
107211	Ethylene glycol	107211	VOM
151564	Ethyleneimine (Aziridine)	151564	VOM
ETO	Ethylene oxide	75218	VOM
96457	Ethylene thiourea	96457	VOM
75343	Ethylidene dichloride (1,1-dichloroethane)	75343	VOM
FORM	Formaldehyde	50000	VOM
76448	Heptachlor	76448	PART
118741	Hexachlorobenzene	118741	VOM
87683	Hexachlorobutadiene	87683	VOM
77474	Hexachlorocyclopentadiene	77474	VOM
67721	Hexachloroethane	67721	VOM

## Appendix G. Hazardous Air Pollutants (HAPs)

Pollutant Code	Chemical Name	CAS #	Also Reported As
822060	Hexamethylene-1,6-diisocyanate	822060	VOM
680319	Hexamethylphosphoramide	680319	VOM
HEXANE	Hexane	110543	VOM
CR6	Hexavalent chrome	7440473	PART
302012	Hydrazine	302012	VOM
HCL	Hydrochloric acid (Hydrogen Chloride gas only)	7647010	-----
HF	Hydrogen fluoride (Hydrofluoric acid)	7664393	-----
123319	Hydroquinone	123319	VOM
78591	Isophorone	78591	VOM
LINDANE	Lindane (all isomers)	58899	PART
108316	Maleic anhydride	108316	VOM
MEOH	Methanol (Methyl Alcohol)	67561	VOM
72435	Methoxychlor	72435	PART
74839	Methyl bromide (Bromomethane)	74839	VOM
74873	Methyl chloride (Chloromethane)	74873	VOM
TCA	1,1,1-Trichloroethane (Methyl Chloroform)	71556	-----
60344	Methyl hydrazine	60344	VOM
74884	Methyl iodide (Iodomethane)	74884	VOM
MIBK	Methyl isobutyl ketone (Hexone)	108101	VOM
624839	Methyl isocyanate	624839	VOM
80626	Methyl methacrylate	80626	VOM
MTBE	Methyl t-butyl ether	1634044	VOM
101144	4,4-Methylene bis(2-chloroaniline)	101144	VOM
MC	Methylene Chloride (Dichloromethane)	75092	-----
MDI	4,4'-Methylene diphenyl diisocyanate	101688	VOM
101779	4,4'-Methylenedianiline	101779	VOM
91203	Naphthalene	91203	VOM
98953	Nitrobenzene	98953	VOM
92933	4-Nitrobiphenyl	92933	VOM
100027	4-Nitrophenol	100027	VOM
79469	2-Nitropropane	79469	VOM
684935	N-Nitroso-N-methylurea	684935	VOM
62759	N-Nitrosodimethylamine	62759	VOM
59892	N-Nitrosomorpholine	59892	VOM
PARATHION	Parathion	56382	VOM
82688	Pentachloronitrobenzene (Qunitobenzene)	82688	PART
87865	Pentachlorophenol	87865	PART
PERC	Perchloroethylene (Tetrachloroethylene)	127184	-----
PHENOL	Phenol	108952	VOM
106503	p-Phenylenediamine	106503	VOM
PHOSGENE	Phosgene	75445	VOM
7803512	Phosphine	7803512	VOM
P	Phosphorus	7723140	-----
85449	Phthalic anhydride	85449	VOM
PCB	Polychlorinated biphenyls (Aroclors)	1336363	VOM
1120714	1,3-Propane sultone	1120714	VOM
57578	beta-Propiolactone	57578	VOM
123386	Propionaldehyde	123386	VOM
114261	Propoxur (Baygon)	114261	VOM
78875	Propylene dichloride (1,2-Dichloropropane)	78875	VOM

## Appendix G. Hazardous Air Pollutants (HAPs)

Pollutant Code	Chemical Name	CAS #	Also Reported As
PO	Propylene oxide	75569	VOM
75558	1,2-Propylenimine (2-Methyl aziridine)	75558	VOM
QUINOLINE	Quinoline	91225	VOM
QUINONE	Quinone	106514	VOM
STYRENE	Styrene	100425	VOM
96093	Styrene oxide	96093	VOM
2378TCDD	2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746016	VOM
79345	1,1,2,2-Tetrachloroethane	79345	VOM
7550450	Titanium tetrachloride	7550450	-----
TOLUENE	Toluene	108883	VOM
95807	Toluene-2,4-diamine	584849	VOM
TDI	2,4-Toluene diisocyanate	584849	VOM
95534	o-Toluidine	95534	VOM
TOXAPHENE	Toxaphene (chlorinated camphene)	8001352	VOM
120821	1,2,4-Trichlorobenzene	120821	VOM
79005	1,1,2-Trichloroethane	79005	VOM
TCE	Trichloroethylene	79016	VOM
95954	2,4,5-Trichlorophenol	95954	VOM
88062	2,4,6-Trichlorophenol	88062	VOM
121448	Triethylamine	121448	VOM
1582098	Trifluralin	1582098	VOM
540841	2,2,4-Trimethylpentane	540841	VOM
108054	Vinyl acetate	108054	VOM
593602	Vinyl bromide	593602	VOM
VC	Vinyl chloride	75014	VOM
75354	Vinylidene chloride (1,1-Dichloroethylene)	75354	VOM
XYLENE	Xylenes (mixed)	1330207	VOM
XYLENE-M	Xylene (m-isomer)	108383	VOM
XYLENE-O	Xylene (o-isomer)	95476	VOM
XYLENE-P	Xylene (p-isomer)	106423	VOM
<b>COMPOUNDS*:</b>			
SBC	Antimony compounds		PART
ASC	Arsenic compounds (inorganic including arsine)	7440382	PART
BEC	Beryllium compounds	7440417	PART
CDC	Cadmium compounds		PART
CRC	Chromium compounds		PART
COC	Cobalt compounds		PART
COG	Coke Oven gases		-----
CNC	Cyanide compounds		-----
GLYET	Glycol Ethers		VOM
LEADC	Lead compounds		PART
MNC	Manganese compounds	7439965	PART
HGC	Mercury compounds	7439976	-----
MINFIBER	Fine mineral fibers		-----
NIC	Nickel compounds		PART
POM	Polycyclic organic matter		-----
RAD	Radionuclides (including radon)		-----
SEC	Selenium compounds		PART

\* A unique chemical substance containing the named chemical as part of its infrastructure.