
INSTRUCTIONS

for the
Forsyth County Office of Environmental Assistance and Protection
Air Pollutant Emissions Inventory
Calendar Year 2017 Emissions

Who Must Report CY2017 Emissions

Pursuant to Chapter 3 of the Forsyth County Air Quality Control Ordinance and Technical Code (“the Code”), Subchapter 3Q, Rule .0207 and Subchapter 3D, Rule .0202, each facility receiving this inventory package is required to complete an emissions inventory and send it to the Forsyth County Office of Environmental Assistance and Protection (“EAP”).

What To Report

Report the best estimate of your facility’s actual calendar year 2017 emissions of all listed pollutants except greenhouse gases. Inclusion of greenhouse gases in the EAP’s emissions inventory is voluntary. You must report CY2017 emissions from all emission sources, including unpermitted sources, except those from which emissions are considered negligible. These sources are listed below under “Sources Not Required To Be Reported”. Excess emissions during start-up, shut-down and malfunctions should be included for all except Title V facilities. If you need to report such excess emissions, please contact EAP for additional instructions. Due to permit fee rules, Title V facilities should estimate emissions under such circumstances according to what would have occurred under “normal” operating conditions.

How To Report

You may submit your emission inventory via an Access database or by using the enclosed forms. Only one copy of each form has been included with this package so please make copies of the forms before filling them out. The forms were created using a Microsoft Excel™ spreadsheet which is available for download on the EAP’s website at <http://www.forsyth.cc/EAP/forms.aspx>. If you choose to use the spreadsheet to complete your inventory, you must print out and submit the completed forms. The EAP will not accept emissions inventory data submitted as a spreadsheet file. If your facility has previously submitted an emission inventory, the inventory package sent to you includes a report showing your facility’s Emission Release Point, Emission Unit and Process information as it appears in the EAP’s emission inventory database. **Please use the existing Emission Release Point IDs, Emission Unit IDs and Process IDs when preparing the inventory.**

EPA’s emissions inventory system makes extensive use of codes. The printing and mailing of the Code Lists is cost prohibitive, therefore an Excel™ spreadsheet containing the Code Lists and the List of Pollutants to be reported is available for downloading from the EAP web page specified above. If you are unable to access the website, please call the EAP and we will supply you with the Code Lists.

In lieu of using paper emission inventory forms, the EAP strongly encourages you to submit your facility’s inventory via a database developed by this office. You must have MS Access™ 2003 or higher installed on your computer to take advantage of this method. This provides a time-saving opportunity for the inventory preparer since stack, emission source and process data will already be in the database if the facility has previously conducted an emission inventory. This office will provide assistance for anyone who desires training in the use of the emission inventory database.

Please note that facilities reporting emissions via database must submit a “Facility Emissions Summary” and “Certification Statement” signed by the facility’s Responsible Official. This report is printed out using the database. Your inventory will not be considered complete without a signed Certification Statement. Also, whether submitting the inventory on paper forms or via database, supporting calculations and other information used to determine your emissions must be included. This may be accomplished with spreadsheets, Word documents, etc. or hard copy.

If you wish to submit your inventory via Access database, please contact Steve Lyda at lydask@forsyth.cc or 336-703-2444 to receive the latest version via email. **Do not use a previous year’s version of the database to report emissions, as this may lead to the repetition of errors that have been corrected during the previous QA process.**

When To Report

The completed inventory forms must be returned to the EAP no later than **June 30, 2018**. If you complete your inventory using the Access database, you may submit your inventory on optical media (CD or DVD), flash drive or, preferably, via email attachment. Please see detailed directions regarding email attachments at the end of these instructions.

Sources Not Required To Be Reported

Title V facilities should not inventory sources described in Subchapter 3Q, Rule .0503(7) *Insignificant activities because of category*. Similarly, non-TV facilities should not include sources described in Subchapter 3Q .0102(c)(1) *Activities exempted because of category*. The Code can be found at http://www.forsyth.cc/EAP/Air_Quality_Regulation.aspx under the “Regulations” tab.

Reporting Fugitive Emissions

Small, Exclusionary Small and Synthetic Minor facilities do not need to report emissions of fugitive particulate matter from sources located outside of buildings (haul roads, storage piles, etc). All other fugitive emissions from these facilities must be reported.

Title V Facilities must report fugitive emissions as indicated below:

- a) If the fugitive-emitting process or activity is located outside of a building and not listed in Table 1, the emissions from this process or activity must be reported in the inventory;
- b) If the source of fugitives is listed in Table 1 and the facility is described in Table 2, the emissions from this process or activity must be reported in the inventory;
- c) If the source of fugitive emissions is listed in Table 1, but not listed in Table 2, the emissions from this process or activity need not be reported in this inventory.

Table 1: (Fugitive emissions excluded from reporting for Title V facilities if located outside of buildings not listed in Table 2)

Open coal and mineral or other similar product storage piles
Open waste storage piles and handling (i.e. mineral fines, agricultural trash)
Manual material handling (such as front end loaders) and coal handling operations
Particulate emissions from open-top product and aggregate storage bins/silos
Conveyors, conveyor drop points and material screens
All sources at concrete batching plants other than unloading to silos
Haul roads
Pumps, flanges and valves associated with volatile organic liquid processing or handling

Table 2: (Fugitive emissions must be included for Title V)

Coal cleaning plants (with thermal dryers)
Primary lead smelters
Fuel conversion plants
Secondary metal production plants
Chemical process plants
Fossil-fuel boilers (or combinations thereof) > 250 million British thermal units per hour heat input
Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels
Fossil-fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input
All other stationary source categories regulated by a standard promulgated under section 111 or 112 of the Clean Air Act, but only with respect to those air pollutants that have been regulated for that category. This includes Maximum Achievable Control Technology (MACT), New Source Performance Standards (NSPS) and New Source Performance Standards for Hazardous Pollutants (NESHAPS).

Confidential Information

North Carolina General Statute §143-215.3C(b) provides that “emissions data” as defined in 40 CFR 2.301, is not entitled to confidential treatment. However, certain information which, if made public, would divulge methods or processes entitled to protection as “trade secrets” shall be considered confidential pursuant to N.C. Gen. Stat. §132-1.2. Consistent with the U.S. Environmental Protection Agency’s published policy guidance on evaluating such confidential determinations, “emissions data” generally includes, but is not limited to, the information requested on ALL of the Air Pollutant Emissions Inventory forms. The EAP’s position with regard to what data may not be held as confidential includes quantities of pollutants emitted, operating hours, fuel usage, control device information, emission estimation method and other items related to the calculations and subsequent modeling analyses, “in so far as these data are necessary to calculate emission data.” All information submitted via Inventory forms and/or database is considered public information. After verification, it will be sent to EPA and eventually make its way into the public domain. However, some information provided with the background documentation may qualify for confidential treatment.

If you wish to claim information as confidential, you must state in writing how public disclosure of the information would divulge methods or processes entitled to protection as trade secrets. Please submit information that has been “purged” of data for which the claim of confidentiality is made. The confidential information should then be submitted separately and should be clearly identified and stamped “confidential”. Please note that any information sent to EAP via email is public, therefore confidential information should be submitted in some other fashion (hand delivered, USPS, etc.) Within ninety (90) days of the receipt of the request for confidentiality, the Director of EAP, or a designee, will issue a preliminary determination regarding whether or not the information is entitled to confidential treatment. Data submitted under a claim of confidentiality will not be subject to public disclosure, except as authorized under N.C. Gen. Stat. §143-215.3C(b) and (d). If you have any questions about confidential information, please contact Peter Lloyd (336-703-2430) at the EAP.

Definitions

Area HAP source – any stationary source of hazardous air pollutants that is not a major source. See definition of Major HAP Source

Billable Pollutants – pollutants for which Title V facilities must pay a “per-ton” emissions fee. The billable pollutants are PM10, SO₂, NO_x, VOC, Ozone, Chlorine, Fluorine, Hydrazine, Hydrogen Chloride, Hydrogen Fluoride, Hydrogen Sulfide, Methyl Chloroform, Methylene Chloride, Perchloroethylene and Phosphine.

CO - carbon monoxide

Condensable Particulate Matter - defined as the material that is collected in the back half of an EPA Reference Method 5 sampling train. It is material that is in the vapor phase at stack conditions but condenses or reacts to form solid or liquid PM upon cooling in the ambient air. *Condensable particulate matter should be included in PM-10 and PM-2.5.* There are emission factors for condensable PM for many combustion sources.

Control Device – Equipment used to destroy or remove air pollutants before discharge to the ambient air. Examples of control devices are fabric filters (“baghouses”), wet scrubbers, electrostatic precipitators, carbon adsorption units, flares, cyclones, etc.

Criteria Pollutants – Pollutants and their precursors for which national maximum ambient concentrations, or “criteria” have been established by EPA due to their health and/or environmental effects. The criteria pollutants are Particulate Matter less than 10 micrometers in mean aerodynamic (PM-10) Sulfur Dioxide (SO₂), Oxides of nitrogen (NO_x), Volatile Organic Compounds (VOC), Carbon Monoxide (CO), Lead (Pb) and Ozone.

Exclusionary Small Facility - Facility opting to limit its potential to emit pollutants in order to avoid Title V permitting through use of Section 3Q .0800 Rules in the Code.

Emission Release Point – Structure designed to exhaust gasses from a facility into the ambient air, i.e., a stack, chimney, vent or other functionally equivalent opening.

Emission Unit – Equipment or stationary object from which air pollutants are emitted, either directly or indirectly, including the origin of fugitive emissions.

Fugitive Emissions - Defined by the Code as “. . . those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening.”

Greenhouse Gases (GHGs)- Gases that absorb and emit radiation within the thermal infrared range. This process is the fundamental cause of “the greenhouse effect”, which warms the earth’s surface and lower atmosphere. For purposes of this inventory, the greenhouse gases are Carbon Dioxide (CO₂), Methane, Nitrous Oxide (N₂O), Sulfur Hexafluoride (SF₆), Perfluorocarbons (PFCs), and Hydrofluorocarbons (HFCs). Reporting of GHGs is voluntary for the EAP’s emissions inventory.

Hazardous Air Pollutants (HAPs) - Specific pollutants identified in Section 112 of the 1990 Clean Air Act Amendment as harmful to health and welfare. HAPs are denoted in the “List of Pollutants” by “HAP” in the pollutant type column.

In-process fuel – fuel that is burned inherent with an Emission Unit’s function, whose combustion products cannot be separately quantified from each “Process.” Examples are direct-fired tenter frames, asphalt drum mixers, etc. where the combustion and process gases are mixed and quantification of the total emissions is possible, but not necessarily quantification of the separate process emissions.

Major HAP source – Section 112 of the Clean Air Act defines a “major source” is any stationary source (including all emission points and units located within a contiguous area and under common control) of air pollution that has the potential to emit, considering controls, 10 tons per year or more of any HAP or 25 tons or more per year of any combination of HAPs.

NO_x - Oxides of Nitrogen (for inventory purposes, report as tons of NO₂ equivalent)

PM – Particulate Matter is finely divided solid or liquid material, other than uncombined water, emitted to the ambient air, inclusive of all particle sizes capable of being air borne.

PM-10 - Airborne particulate matter less than or equal to 10 microns in aerodynamic diameter.

PM-2.5- Airborne particulate matter less than or equal to 2.5 microns in aerodynamic diameter.

Process – an operating scenario associated with an Emission Unit. A Process defines the way the equipment comprising the Emission Unit operates on an actual and day-to-day basis and determines the emissions from that Emission Unit. There should be at least one Process for each Emission Unit. Emission Units may have more than one process. For example, if a boiler (an “Emission Unit”) is capable of running on both oil and natural gas, each fuel would be considered a separate “Process”, with emissions calculated separately for each process based on the quantities of each fuel used by the boiler.

Regulated Air Pollutant - The most common regulated air pollutants are shown on the “List of Pollutants” that is included in this emissions inventory package. The list is not all inclusive, however. For a more thorough definition of “regulated air pollutant” you may wish view Lydia Wegman’s 25-year-old memorandum that addresses this subject on EPA’s website <https://www.epa.gov>.

Small Facility - A facility that is not a Title V facility, Synthetic Minor facility, or Exclusionary Small facility.

SO₂ - Sulfur Dioxide (for inventory purposes do not include SO₃, Sulfur Trioxide and H₂SO₄, Sulfuric Acid)

Synthetic Minor Facility - A facility that would be a Title V facility except for the fact that its potential emissions are limited to below Title V threshold levels by physical or operational limitations on the capacity of the facility to emit an air pollutant. Such limitations must be enforceable by the U.S. Environmental Protection Agency.

Toxic Air Pollutants (TAPs) - Specific pollutants determined to be carcinogens, toxics or irritants. These pollutants are listed in Section 3D .1100 of the CODE and are denoted in the “List of Pollutants” by “TAP” in the pollutant type column.

Title V Facility - A facility that has or will have potential emissions of 100 tons per year or more of at least one regulated air pollutant; or 10 tons per year or more of at least one hazardous air pollutant; or 25 tons per year or more of all hazardous air pollutants combined.

TSP - Total Suspended Particulate - a measure of the particulate content of ambient air, it is not a regulated air pollutant as defined in 40 CFR 70.2. However, for purposes of this inventory, TSP is considered to be PM that has become airborne and is generally less than or equal to 100 microns in aerodynamic diameter.

VOC - Volatile Organic Compound - any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. As found in 40 CFR 51.100, the following organic compounds have been determined to have negligible photochemical reactivity and should not be included as Volatile Organic Compounds (note that some are HAPs and/or TAPs and should be reported, but not included in the VOC total):

* This pollutant is specifically listed as a Non-Criteria Regulated Air Pollutant on the Facility Emissions Summary page.

2-amino-2-methyl-1-propanol	HFC- 245ca (1,1,2,2,3-pentafluoro propane)
2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane	HFC-236ea (1,1,1,2,3,3,3-hexafluoropropane)**
2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane	HFC-245ea (1,1,2,3,3-pentafluoropropane)
Acetone	HFC 227ea (1,1,1,2,3,3,3-heptafluoropropane)**
Dimethyl carbonate	HFC-236fa (1,1,1,3,3,3,3-hexafluoropropane)**
Ethane	HFC 43-10mee (1,1,1,2,3,4,4,5,5,5-deca-fluoropentane)
Methane	HFC-152a (1,1-difluoroethane) **
Methyl acetate	HFE-134 (HCF ₂ OCF ₂ H)
Methyl chloroform (1,1,1-trichloroethane)*	HFE-236ca2 - (HCF ₂ OCF ₂ OCF ₂ H)
Methyl formate	HFE-338pcc13 - (HCF ₂ OCF ₂ CF ₂ OCF ₂ H)
Methylene chloride (dichloromethane)*	HFE-7000 (1,1,1,2,2,3,3,3-heptafluoro-3-methoxy-propane)
Perchlorobenzotrifluoride (PCBTF)	HFE-7100 (1,1,1,2,2,3,3,3,4,4 nonafluoro-4-methoxybutane)
Perchloroethylene (tetrachloroethylene)*	HFE-7200 (1-ethoxy-1,1,2,2,3,3,3,4,4,4-nonafluorobutane)
Propylene carbonate	HFE-7300 (1,1,1,2,2,3,3,4,5,5,5-decafluoro-3-methoxy-4-trifluoromethyl-pentane)
Siloxanes, cyclic, branched, or completely methylated linear	HFE-7500 also known as HFE-s702, T-7145 and L-15381
t-Butyl Acetate*	(3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-(trifluoromethyl) hexane)
CFC-11 (trichlorofluoromethane)	HCFC-123 (1,1,1-trifluoro 2,2- dichloroethane)
CFC-12 (dichlorodifluoromethane)	HCFC-123a (1,2-dichloro-1,1,2- trifluoro-ethane)
CFC-115 (chloro-pentafluoroethane)	HCFC-124 (2-chloro-1,1,1,2-tetra- fluoroethane)
CFC-114 (1,2-dichloro 1,1,2,2-tetra fluoroethane)	HCFC-141b (1,1-dichloro-1-fluoroethane)
CFC-113 (1,1,2-trichloro -1,2,2- trifluoroethane)	HCFC-142b (1-chloro 1,1-difluoroethane)
HFC-23 (trifluoromethane) **	HCFC-151a (1 chloro 1-fluoroethane)
HFC-32 (difluoro-methane) **	HCFC-22 (chloro- difluoromethane)
HFC-125 (pentafluoroethane) **	HCFC-225ca (perchloroethylene (tetrachloroethylene))
HFC-161 (ethylfluoride)**	HCFC-225cb (1,3-dichloro -1,1,2,2,3-pentafluoro propane)
HFC-143a (1,1,1-trifluoroethane)	HCFC-31 (chlorofluoromethane);
HFC-134a (1,1,1,2-tetra-fluoroethane) **	HCF ₂ OCF ₂ OCF ₂ CF ₂ OCF ₂ H (H-Galden 1040x or H-Galden ZT 130 (or 150 or 180)
HFC-134 1,1,2,2-tetra fluoroethane **	<i>trans</i> -1,3,3,3-tetrafluoropropene
HFC-245eb (1,1,1,2,3- pentafluoropropane)	<i>trans</i> 1-chloro-3,3,3-trifluoroprop-1-ene; 2,3,3,3-tetrafluoropropene
HFC-245fa (1,1,1,3,3- pentafluoropropane)**	
HFC-365mfc (1,1,1,3,3-pentafluorobutane)**	
	Perfluorocarbon compounds which fall into these classes:
	i. Cyclic, branched, or linear, completely fluorinated alkanes,
	ii. Cyclic, branched, or linear, completely fluorinated ethers with no unsaturations,
	iii. Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations, and
	iv. Sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.”

** This pollutant is a greenhouse gas .

Estimating Your Facility's Emissions

General

The EAP realizes the difficulty of obtaining accurate emissions estimates and requests that you prepare this information carefully and thoroughly. Most of the facilities required to complete this inventory have successfully completed an emissions inventory before, therefore, the topic of *how* to estimate emissions will not be discussed in detail in these instructions. If you are unfamiliar with emission factors or estimating emissions, it would be beneficial for you to read the "Basic Information" on EPA's CHIEF website, <https://www.epa.gov/air-emissions-factors-and-quantification>. This site also provides several resources for emission factors and other emission estimation tools. Generally, the most accurate emissions estimates will be obtained through use of site specific data such as stack test results and mass balance. These methods are not applicable or practical for certain emission sources, however, and emission factors or other methods must be used. You may need to obtain additional information from your chemical suppliers and other vendors, corporate offices and/or environmental consultants. As in previous years, you should use the most current emission factors and estimation programs available.

Actual emissions must be calculated using the operating hours for each emission unit, production rates, control equipment, and types of materials processed, stored, or combusted during the calendar year being inventoried. **Emissions should be expressed in units of tons per year for billable/criteria pollutants and in pounds per year for all other air pollutants.**

To accurately quantify emissions, use emissions monitoring or other test data when available. If emission factors are used, care should be taken to choose the most valid and current emission factors for the particular process. Any non-published factors (e.g. draft emission factors) must be well documented and justified as part of the submittal. You may also use data provided by the suppliers for your facility. For example, Material Safety Data Sheets may be used as a basis for mass balance calculations for a surface coating operation. The origin of your data sources and methods for estimating emissions must be clearly and completely documented so that the pollutant quantities can be independently recreated by the EAP reviewer. In order for the inventory to be considered complete, the calculations used to determine actual emissions must be included with the submitted inventory.

The inventory preparer is responsible for identifying all regulated pollutants emitted by the facility. The List of Pollutants is primarily composed of specific HAPs and TAPs but is NOT all-inclusive with regard to VOC and Particulate Matter. For example, many solvents used/emitted by industry are not HAPs and are not on the list but are VOC and must be reported in the inventory as such.

Similarly, some compounds may be a member of a "family" of HAPs. Emissions of all these compounds must be quantified and included in the totals for the applicable "family" of pollutants. If individual compounds are included in the pollutant their emissions must also be reported individually. An example of this is "Glycol Ethers", which are commonly used in paints and inks. The Federal HAPs list includes "Glycol Ethers" and defines which glycol ethers are considered to be HAPs by describing molecular structure, not by name. Some glycol ether emissions have been overlooked in previous inventories simply because the inventory preparer was unaware that a particular compound was a glycol ether. The North Carolina Department of Environmental Quality, Division of Air Quality ("DAQ") provides a Glycol Ethers search page at <https://deq.nc.gov/about/divisions/air-quality/air-quality-data/glycol-ethers> to help determine which compounds are in the family of glycol ethers.

If a pollutant can be characterized by more than one pollutant category, its emissions should be included in each applicable category. For example, if a spray booth emits 2 tons of Hexyl Cellosolve™ (a glycol ether, HAP and VOC), 5 tons of methyl ethyl ketone (a HAP and VOC) and 5 tons of naphtha, (a VOC) the emissions summary for this process should reflect not only the two speciated HAPs, Hexyl Cellosolve™ and methyl ethyl ketone, but also 2 tons of Glycol Ethers and 12 tons of VOC.

If you are using a previous submittal to help prepare your inventory please be aware that pollutant codes may have been changed, added, or omitted from this year's pollutant list. This is especially true of speciated HAPs that were members of a family. For example, in a previous inventory, Beryllium, Beryllium Chloride, Beryllium Fluoride, Beryllium Nitrate, Beryllium Oxide, Beryllium Sulfate and "Beryllium & Compounds" may have been reported separately. These, and any other Beryllium compounds, must now be reported in aggregate as simply Beryllium.

Where to get emission factors and other emissions estimation tools

NCDAQ has created spreadsheets to aid in calculating emissions from certain facilities. Among these are oil, gas, coal and wood combustion, incinerators, stone quarries and stone crushing, various woodworking operations and asphalt plants. The spreadsheets are available for downloading from NCDAQ's website at <https://deq.nc.gov/about/divisions/air-quality/air-quality-permits/...>

The EPA has developed many resource documents, databases and programs that are useful for emissions estimation. They are available for downloading at no charge from the ClearingHouse for Inventories and Emission Factors (CHIEF) on the EPA's TTNWeb website at <https://www.epa.gov/chief>. Some of these sources are listed below.

Compilation of Air Pollutant Emission Factors, (AP-42), Volume 1: Stationary Point & Area Sources, 5th Edition, and Supplements
This voluminous document is the most common source for emission factors. You may download the sections you need from the CHIEF website at <https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors>. For a few sources, the most recent factors may be draft factors. If you wish to use draft factors, please discuss the matter with your facility's case manager at the EAP beforehand.

Locating and Estimating Air Toxic Emissions from Sources of . . .

These documents provide emission factors, for sources of specific pollutants. Some of these documents may be downloaded from the CHIEF web page at <https://www3.epa.gov/ttn/chief/le/index.html>

Other Emission Factor and Emission Estimation Tools are available at <https://www.epa.gov/air-emissions-factors-and-quantification/emissions-estimation-tools>. These tools include:

- WebFIRE is a searchable, web-based application that provides access to emission factors and stack test data. WebFIRE data may also be downloaded as a .csv file to be imported into MS Access.
- TANKS: TANKS estimates volatile organic compound (VOC) and hazardous air pollutant (HAP) emissions from fixed- and floating-roof storage tanks.
- Speciate: SPECIATE is EPA's repository of Total Organic Compound (TOC) and Particulate Matter (PM) speciated profiles for a variety of sources for use in source apportionment studies.
- LandGEM: The Landfill Gas Emissions Model (LandGEM) is an automated estimation tool with a Microsoft Excel interface that can be used to estimate emission rates for total landfill gas, methane, carbon dioxide, nonmethane organic compounds, and individual air pollutants from municipal solid waste landfills. It is available from the EPA's Clean Air Technology Center.
- Water9: WATER9, a wastewater treatment model, consists of analytical expressions for estimating air emissions of individual waste constituents in wastewater collection, storage, treatment, and disposal facilities; a database listing many of the organic compounds; and procedures for obtaining reports of constituent fates, including air emissions and treatment effectiveness.

Reporting Your Facility's Emissions

Facility Site Information form

Complete this form to provide facility location and contact information.

Facility Name: the name of your facility.

Facility ID #: the first five digits of your facility's permit number (e.g., If the permit number is 00883R6, then the Facility ID is 00883).

Additional Info: If applicable, specify a plant site name, location, etc. (e.g., "North Quarry", "KTM-EXC-300 Plant", "Husaberg Road Site").

North American Industry Classification System (NAICS) Code: the NAICS code system is a means for classifying business activity in North America. The codes can be found online at <http://www.naics.com/search.htm> or in the Code List spreadsheet. Please verify that the NAICS code entered is a valid code listed in the Code List spreadsheet.

Facility Address: the street address, city, and zip code of the facility, i.e., the facility's physical location. Do not use a post office box number for the facility address.

Latitude and Longitude: Geographic coordinates of the facility's general entrance. Common ways for determining lat/longs are by using Google Earth (<http://earth.google.com>) or Forsyth County's Geo-Data Explorer website (<http://www.forsyth.cc/tax/geodata.aspx>), or similar GIS websites. Please report latitude and longitude in decimal degrees, *not* in degrees, minutes and seconds. Latitude coordinates in Forsyth County should be between 35.972730 and 36.261614. Longitude coordinates should be between -80.035433 and -80.516445.

Horizontal Collection Method: code for the method used to determine the lat/long coordinates. If you use the County's Geo-Data Explorer or other aerial photo-based method to determine lat/longs, the proper code is "019". If you use Google Earth or some other satellite photo-based online mapping site, the code is "020". If you use a standard hand held GPS to locate your facility, the code would be "016". For other options, see "Horizontal Collection Method" in the Code List spreadsheet.

Horizontal Reference Datum Code: code that represents the reference datum used in determining the lat/long coordinates. The county's Geo-Data Explorer utilizes the North American Datum of 1983, the code for which is "002". The code for World Geodetic System 1984, which is used by Google Earth, is 003.

Geographic Reference Point Code: code that represents the place for which geographic coordinates were established. The EAP prefers that the coordinates for the general plant entrance are specified, the code for which is "101". For other options, see Geographical Reference Point Code in the Code List spreadsheet.

Facility Contact: name, title, telephone number, fax number and email address of an on-site emissions inventory contact person. This person does not have to be the person who prepared the report, but should be someone familiar with the details of the report.

Inventory Preparer Contact: name, title, telephone number, fax number and email address of the person who completed this emissions inventory, if different from Facility Contact.

Responsible Official: name, title, telephone number, fax number and email address of facility owner or "responsible official" as defined in 40 CFR 70.2.

Emission Release Point form

Complete as many forms as necessary to describe the facility's Emission release Points. If you have determined Emission Release Point parameters via a stack test, please use those actual data.

ER Point ID#: unique alphanumeric ID assigned by you to an Emission Release Point to distinguish one from another. The ERP ID# can be up to 10 characters in length. If you have already established an ID for a stack, vent or fugitive source in a previous emissions inventory, do not change it. For facilities that have submitted an inventory before, this information is included in the report provided with the inventory package showing Emission Release Point, Emission Unit and Process information. If you have not established an ID for a stack, vent or fugitive source in a previous emission inventory, you should use the equipment IDs specified in your permit, as available.

Emission Release Point Description: describe the ERP in 100 characters or less. Usually stacks and vents are described by the process they exhaust. For example, "Boiler #4 Stack" or "Cement Silo Bin Vent"

ERP Type: code for physical configuration of the release point.

<u>Code</u>	<u>Emission Release Point Type</u>	<u>Code</u>	<u>Emission Release Point Type</u>
01	FUGITIVE EMISSIONS	04	GOOSE NECK
02	VERTICAL DISCHARGE	05	VERTICAL WITH RAIN CAP
03	HORIZONTAL DISCHARGE	06	DOWNWARD-FACING VENT

Height: the physical distance in feet from the ground to the top of the ERP.

Diameter: the inside diameter in feet of the ERP at its exit point. If the emission point is not round, specify the actual dimensions in the description and enter the equivalent diameter using the following equation:

$$\text{Diameter} = 2 \times L \times W / (L+W) \text{ where } L \text{ is the length and } W \text{ is the width}$$

Flow: volume of gas exhausted by stack in Actual Cubic Feet per **Minute**. This parameter must be reported to the nearest tenth (e.g., 14500.0) and should be between 0.1 and 12000000 for non-fugitive release points. Numerals only – no commas.

Temperature: the temperature of the gas as it exits the emission point in degrees Fahrenheit. Must be between 30 and 3500.

Velocity: average velocity of gas in Feet per **Second** as it exits the vent or stack. This parameter must be to the nearest tenth (e.g., 145.7) and should be between 0.1 and 600, inclusive for non-fugitive release points. If the stack has a raincap, is horizontal or is downturned, enter the flow but leave velocity blank.

Please ensure that stack parameters produce flow and velocity that are reasonable according to good engineering practice and the physical laws of the universe. For example, stack diameter and flow combinations that produce supersonic exhaust gas velocity indicate an error. You may use the formulas below to check the validity of your reported parameters. Reported flow/velocity should not vary from calculated flow/velocity by more than 5 percent.

$$F = V \times 188.5 \times r^2 \quad \text{and} \quad V = \frac{F}{188.5 \times r^2} \quad \text{Where: } F = \text{flow in ACFM, } V = \text{velocity in ft/sec, and } r = \text{radius in feet}$$

Dist. To Fenceline: distance in feet from ERP to facility's fence line or other point beyond which the general public has access. The information is needed by EPA's air quality modelers to more accurately predict the residual risk of HAP emissions beyond the facility's property boundary.

Processes Exhausted Through This Release Point: ID#'s of Processes exhausted through the stack or vent. The Process ID# entered here must exactly match the Process ID# entered on the Process, Emissions and Control System form.

Emission Unit form

Use this form to list each Emissions Unit for which emissions are to be reported. Up to twelve units may be listed on one page. Grouping of emission units is allowed under certain conditions, especially when it simplifies emissions reporting and is consistent with the manner in which equipment is listed in the facility's air quality permit. An example of this would be grouping ten paint spray booths together where the emissions are estimated as a group and no distinct regulations apply to some booths and not the others.

Grouping of emission units should be limited to:

- ✓ Sources where there are similar hours of operation,
- ✓ Same or very similar emission release points,
- ✓ Same regulatory applicability,
- ✓ No single emission unit emits greater than 10 tons of VOC or NOx
- ✓ Groups of equipment operating as a system

Further grouping may be done at the process level based on types of fuel and emission factors.

Emission Unit Description: a description of the equipment or object from which emissions originate, e.g., "Aprilia Boiler #4 – 57 MMBtu/hr – NG/Oil", "Two-Piece Metal Can Production Line", or "Coal Handling."

Emission Unit ID: unique alphanumeric identifier used to distinguish each Emission Unit at the facility. The Emission Unit ID may be up to ten alphanumeric characters in length. If you have already established an ID for an Emission Unit in a previous emissions inventory, please do not change it. For facilities that have previously submitted an inventory, this information is included in the report provided with the inventory package showing Emission Release Point, Emission Unit and Process information. If you have not established an ID for a stack, vent or fugitive source in a previous emission inventory, you should use the IDs shown in your permit, if possible.

Unit Type Code: this code identifies the type of emissions unit activity and is found in the Code List.

Unit Design Capacity: if the Emissions Unit has Unit Type Code 100, 120, 140, 150, 160, 180, or 200, report its maximum continuous throughput capacity. For all other unit types, leave blank.

Design Capacity Units: this code specifies the unit of measure for the Design Capacity, if reported and is found in the Code List.

Process, Emissions and Control System form

This form is to be used for identifying each Process and its associated control devices and emissions.

A Process form must be completed for each operating scenario at each Emission Unit. If additional space is required to list pollutants, please use the "Process, Emission and Control System - (continued)" form.

Process Description: a description of the process, e.g., "Boiler #4 – Natural Gas", "Boiler #4 – Oil", "Two-Piece Metal Can Coating – Inside Spray", "Fugitive Emissions from Coal Pile."

Process ID: a unique alphanumeric identifier associated with a process. One commonly used approach is to append a process identifier to the related Emission Unit ID. For example if the EU ID for Boiler #4 is "B4", the Process IDs for NG and oil combustion could be "B4-NG" and "B4-OIL". The Process ID may be up to ten alphanumeric characters in length. If you have already established an ID for a Process in a previous emissions inventory, do not change it. If you are assigning an ID for the first time, use the Process IDs found in your permit when possible.

Emission Unit, Emission Release Points: list the Emission Unit and the Emission Release Point(s) this process is associated with.

Source Classification Code: is used as a primary identifying data element for processes in many of EPA's databases. Report the most appropriate SCC for the process. NC DEQ and Michigan DEQ both have very good SCC code query websites at <https://xapps.ncdenr.org/eq/scs/SCCFinder.jsp> and http://www.deq.state.mi.us/maers/scs_query.asp respectively. The codes are also listed on the "SCC" tab in the Code List spreadsheet.

Operating Hours: actual number of hours per year that the process equipment operated during the inventory year.

Material Code: code for the material or fuel processed. See Code List spreadsheet. For example, the “material” for a boiler might be #2 fuel oil , the code for which is “58”. The exact material used or produced by the process may not be listed. Please select the closest match possible.

Material I/O Code: a descriptor indicating whether material is used or produced or simply passes through the process.

Code	Material I/O Description
I	PROCESS MATERIAL USED (INPUT)
O	PROCESS MATERIAL PRODUCED (OUTPUT)
E	EXISTING MATERIAL PASSES THRU IN STATIC MANNER

Throughput: numeric value quantifying the amount of specified material that went through this process during the inventory year.

Units Code: code expressing unit of measure for material throughput. See “Throughput Units” in the Code List.

Calculation Data Source: report the source of throughput/activity data e.g., “fuel purchased”, “widget production records”, “hour meter on #4 Dryer”, etc. Maximum length 50 characters.

Control Approach: description of the control approach applied to a process. For each Control Approach there must also be at least one Control Measure and one controlled Pollutant. If there are no downstream control measures for the process, leave blank. Since at this time there is no requirement for a unique ID number for each control approach, please attempt to provide a unique descriptor. This could be achieved simply by choosing a description that refers to the process being controlled. For example, “Bultaco Grinder pulse jet baghouse”, “OSSA Printer#1 (EP-1) carbon adsorption”, etc.

Control Approach Percent Capture: an estimate of the portion of an emissions stream that is collected and routed to the control measures when the system is operating as designed, reported as a percent.

First Emissions Inventory Year Controls Active: the first emissions inventory year for which the control approach was implemented. If this information is unknown, and the controls were installed before 1990, use 1990.

Emissions Year Controls Permanently Shutdown: leave blank if control measures are in place and active. If the control measure(s) are no longer in place, report last emissions inventory year for which the control approach was active. If it was active part of the current inventory year before it was shut down, please leave this blank until the next inventory.

Control Measure Code(s): code used to identify the device(s) or practice(s) used to reduce one or more pollutants. If a Control Approach is listed, at least one Control Measure and controlled pollutant must be entered. Control Measure codes can be found in the code list spreadsheet.

Pollutant Name: the name of the Pollutant. Emissions of all pollutants on the “List of Pollutants” found in the Code List spreadsheet must be reported, as well as any other Regulated Air Pollutants.

Pollutant Code: code or Chemical Abstracts Service (CAS) number associated with the Pollutant. See the “List of Pollutants”. You must report all listed pollutants. Additionally, if the process emits a compound that is not listed, you must include its mass in the inventory as VOC or Particulate Matter whichever is applicable. If a Control Approach is listed, at least one pollutant must be entered as being controlled (see Control Efficiency). Verify that the Pollutant code entered is a valid code included in the Code List spreadsheet.

Yearly Emissions: the best estimate of the actual quantity of each air pollutant emitted by the process during the inventory year. For criteria and “billable” pollutants (see definitions) please report emissions in tons. For all other pollutants, report emissions in pounds.

Units: specify whether emissions were reported in tons or pounds. For criteria and “billable” pollutants, emissions must be reported in tons. For all other pollutants, emissions must be reported in pounds.

Calculation Method: code for the method used to estimate emissions. Found in the code list.

Control Efficiency: mass of the emissions collected by the entire control system divided by the mass of emissions emitted by the process, expressed as a percentage. Control efficiency should be entered for all pollutants where emissions were calculated using the control approach. If emissions are calculated using a “controlled” emission factor, you are encouraged but not required to report a control approach, control measure and a controlled pollutant efficiency at this time.

Note regarding control device data: The entire Control Approach section, and the Control Efficiency data element found under the pollutant emissions section should be left blank when there are no emission controls for the process. However, these sections must be completed if the control efficiency is applied to reduce emissions in your calculations. When controlled emission factors are used (i.e., the factor accounts for controls) if possible, please specify the control efficiency “built-in” to the factor.

Facility Emissions Summary Form

Sum the emissions data from the individual “Process, Emission, and Control System” forms on this form. If the facility-wide total for a pollutant is below the reporting threshold listed in the pollutant list, the pollutant is not required to be reported on this form (note: if a reporting threshold is not shown in the List of Pollutants, emissions of the pollutant must be reported on this form).

If you need additional space for listing pollutants, use the “FACILITY EMISSIONS SUMMARY - (continued)” form. If you complete the inventory forms using your computer instead of hardcopy forms, please **do not** re-sort the criteria and billable pollutants that are already listed on this form. Preserving the sort order is necessary for the EAP staff to enter the information accurately

Shut Down Equipment Form

List emissions-related equipment (stacks, process equipment, etc.) that has been shut down since the facility's last emissions inventory, along with the corresponding ID and the approximate date the equipment was shut down. If a shutdown process is associated with the shutdown of an emissions unit, these processes will be automatically archived when their corresponding emissions unit is listed as shut down. Do not list as shut down any stacks or units that operated during the year being inventoried. These should be done in the next inventory cycle.

Certification Form

The owner, operator or responsible official for your facility must certify the accuracy and completeness of the information reported by signing and dating the certification statement. This certification statement applies to all the information supplied on the inventory forms and should be signed only after the forms have been completed and reviewed. Forms submitted by Title V facilities **must** be certified by a “Responsible Official” as defined in 40 CFR 70.2. Print or type, in the space provided, the name and title of the person who signs the statement.

What to do with the completed Forms/Database

After you have completed the forms, retain copies for yourself and mail the forms, supporting calculations and emission factor documentation to:

Forsyth County Office of Environmental Assistance and Protection
Forsyth County Government Center
201 N Chestnut St, 5th Floor
Winston-Salem, NC 27101-4120

Those reporting their facility’s emissions via database should be aware that emailing the database as an mdb file may fail without notification. To avoid this problem,:

1. Change the extension of your file name from .mdb to .aok then ZIP the file.
2. Send the database to the following email address: lydask@forsyth.cc
3. If you don’t receive an acknowledgment, please call or email Steve Lyda (336-703-2444 / lydask@forsyth.cc) to make sure your information was properly received before June 30th. Be sure to include your phone number in case there is a problem.
4. You may also send the database via CD, DVD or flash drive.

If you have any questions about completing your facility’s emissions inventory using the inventory database, contact Steve Lyda at 336-703-2444 or Bob Ragland at 336-703-2442. If you have questions regarding estimating and reporting emissions from specific processes at your facility, please contact your case manager at the Office of Environmental Assistance and Protection at (336) 703-2440.