



## GEORGIA 1996 EMISSION INVENTORY QUESTIONNAIRE QUICK REFERENCE

**THIS PAGE LISTS THE REQUIREMENTS FOR COMPLETING THE QUESTIONNAIRE. DETAILED INSTRUCTIONS ARE ON THE BACK OF EACH PAGE.**

### GETTING STARTED:

- This package includes a cover letter, this 'Quick Reference', a 'Plant General Information' page, and a blank 1996 EMISSION INVENTORY QUESTIONNAIRE in both hard copy and electronic versions. Instructions are on the back of each blank form. Questions about completing these forms or how emissions will be calculated should be directed to:

Casey Walvoord  
E.H. Pechan & Associates  
(919) 493-3144 ext. 110.  
cwalvoord@pechan.com

- Every plant that receives this form must complete and sign the enclosed 'Plant General Information' page, even if data is submitted electronically. Next complete information for each process at the plant that operated during calendar year 1996. All processes with the potential to emit VOC, NO<sub>x</sub>, or CO must be included. There are three types of process information pages included in the Questionnaire: 1) for fuel burning processes, 2) for evaporative loss processes, and 3) for miscellaneous (i.e., all other process types) processes. After completing information for all processes, stack and control information related to each process should be completed on the appropriate form. The information provided will be used to estimate emissions by EPD. An 'Emission Factor Calculation Worksheet' is included as an option for facilities which desire to estimate their own emissions. Use this form to report source testing, CEM, or other source-specific emissions data pertaining to your plant.
- Alternatively, you may choose to submit your plant's information electronically. An electronic version of the questionnaire has been included on the enclosed diskette. The electronic version is a MS-Excel 5 spreadsheet that is very similar to the hard copy form. Please refer to the instructions and examples supplied on the hard copy form if using the electronic version. If you choose to submit your data electronically please return save your information on the enclosed diskette and return it with a signed copy of the 'Plant General Information' page.
- Any confidential data must be clearly indicated. "CONFIDENTIAL" should be stamped on every applicable page. A "Public" copy of the report should also be provided, with all of the confidential information removed.

### FILLING OUT THE EMISSION INVENTORY QUESTIONNAIRE:

**PLANT INFORMATION PAGE:** Plant general information is requested on this page. Complete this form whether submitting the hard copy form or the electronic form. Contact information refers to the person responsible for facility compliance reporting.

**PROCESS INFORMATION PAGES:** Any process which produces potential emissions greater than 1 ton per year of volatile organic compounds (VOC's), oxides of nitrogen (NO<sub>x</sub>), or carbon monoxide (CO) should be listed on one of the process information pages. Create process ID's for each unique operation. The process ID should start with a character, "F", "E", or "M" indicating fuel burning, evaporative loss, or miscellaneous operation, plus a sequentially assigned number. Each process should be linked to a stack listed on the stack information page. Any applicable control information should be reported on the control information page and properly linked by process ID. *Sample information is included on each form in italics.*

- **FUEL BURNING PROCESS INFORMATION:** List each combustion operation on this page. When several fuel burning operations are grouped under one permit emissions unit ID, add up the fuel use on one page so that emissions can be calculated in terms of the permit. Fuel use at smaller units could be summarized on one page. Sulfur and ash percentage should be included for coal-fired units, while percent sulfur only is necessary for oil-fired units. Note the units for fuel reporting listed on the bottom of the form.
- **EVAPORATIVE LOSS PROCESS INFORMATION:** List each operation where VOC evaporation produces emissions. The information provided on this form will be used to calculate emissions using the material balance method. Note that units for tracking process VOCs are in terms of pounds of VOC, not VOC-containing material. Reporting pounds or gallons of material will result in overestimation of emissions.
- **MISCELLANEOUS PROCESS INFORMATION:** This page includes processes not covered by the 'Fuel Burning' or

'Evaporative Loss' pages. Report process throughputs in tons of product.

**STACK INFORMATION:** List stack information for each significant emissions generating source whose actual or potential emissions are measured in tons per year. These pages are used to determine the emission flow from origin to emission into the atmosphere.

**CONTROL INFORMATION:** List any after-process control equipment here. Be sure to properly link to the process by listing the process ID.

**EMISSION FACTOR CALCULATION WORKSHEET (Optional):** Use this worksheet to estimate emissions. You may use this form to report source testing, CEM, or other source-specific emissions data pertaining to your plant which would be useful in calculating actual emissions.

**FINISHING UP:**

- When completed, the 1996 EMISSION INVENTORY QUESTIONNAIRE should be mailed to:

1996 Georgia Periodic Inventory  
E.H. Pechan & Associates  
3500 Westgate Dr Ste 103  
Durham, NC 27707

- We intended to make this questionnaire as simple as possible but when collecting technical information there are many opportunities for misinterpretation. If you have any questions about completing this form PLEASE CALL US at (919) 493-3144 x110 or email [cwalvoord@pechan.com](mailto:cwalvoord@pechan.com).

**PLANT GENERAL INFORMATION:**

- 1)** Any confidential data must be clearly indicated. "CONFIDENTIAL" should be stamped on every applicable page. A "Public" copy of the report should be provided with all of the confidential information removed.
- 2)** Self explanatory.
- 3)** Self explanatory.
- 4)** Provide information for the specific location of the plant.
- 5)** Provide information for the Emissions Contact at your facility. This is the person we will call if there are questions about the contents of this report. It is also the person to whom any future EMISSION INVENTORY QUESTIONNAIRES and other correspondence related to Emission Inventories will be sent. If there is an extension, please provide that number along with the phone number. We have added a field for 'Internet Address' for those who have internet access and may prefer that correspondence be sent over the internet as opposed to faxing.
- 6)** SIC (Standard Industrial Classification) codes are descriptive codes for facilities. The primary SIC code should be found on your Title V application. If you do not know your SIC Code, leave it blank and we will find the correct one to use.
- 7)** NAICS (North American Industrial Classification System) code. This is the new industry coding system that will replace the existing SICs. It has been developed as a consequence of the North American Free Trade Agreement. It has been left blank and is optional. We intend to convert existing SICs to NAICSS in the future.
- 8)** What is the principal product manufactured at the facility?
- 9)** Please enter either the latitude and longitude for your facility OR the UTM Coordinates. It is not necessary to provide both.
- 10)** Self Explanatory.
- 11)** A signature from an authorized plant official is required whether submitting data in hard copy form or electronically.

## FUEL BURNING PROCESS INFORMATION:

This page should list each significant fuel burning emission unit at your plant. The type of fuel and the size of the fuel burning equipment determine how significant a source is. Natural gas fired units smaller than 10 mmBTU/hr (per unit) have low emissions and their combined fuel use can be reported on one line.

**Process ID–Unit:** The unit ID refers to the boiler, generator, dryer, etc. Create a number for each starting with ‘F’ to differentiate from evaporative loss or miscellaneous process units.

**Process ID–Fuel:** Number each fuel at a given unit separately. Start fuel numbers over at 1 for each unit.

**Description:** Unit descriptor, as identified by facility personnel. Fuel is self-explanatory.

**SIC:** List the SIC of the process in which the unit is running.

**% Sulfur:** By weight, required for coal and fuel oil.

**% Ash:** Required for coal only.

**Operating Rate:** Maximum is the manufacturer’s rated maximum rate of operation. For “Norm” enter the average operating rate during the year of inventory. Units should be million BTU per hour.

**Seasonal Throughputs:** Percentage of production for each quarter of the year. The total must equal 100%.

**Process Throughputs:** Annual and Ozone season daily fuel feed. Ozone season includes the months of May through September. Daily-Summer is a typical ozone season day. Units should be those listed on the bottom of the page.

**Examples:** The example listed describes a 45 mmbtu/hr boiler fired by #2 oil with a natural gas backup to reduce emissions during the ozone season. The different operating schedules for each fuel reflect the fuel conversion during the year. Throughputs are listed in million cubic feet for natural gas and 1000 gallons for fuel oil.

## EVAPORATIVE LOSS PROCESS INFORMATION:

This page is for reporting of VOC (volatile organic compounds) emissions resulting from evaporation. To report VOC use, it must be derived from the amount of material used and its VOC content. A MSDS (material safety data sheet) will provide some information to determine the lb VOC/gal or % makeup. After the amount of VOC-containing material used is established, subtract any amounts 'Shipped Out in Product', and 'Contained in the waste stream'. Any remaining material is assumed to have been emitted to the air unless a control device is in place. Operations which use great numbers of different VOC-containing materials may lump together inputs with similar VOC content and vapor pressure (e.g., printing industry, surface coating). Tons of VOCs are the appropriate level of detail to report here.

**Identifiers:** The process ID refers to the coating booth, batch chemical process, etc. Create a number for each starting with 'E' to differentiate from fuel burning or miscellaneous processes.

**Raw Material:** Name of material.

**SIC:** List the SIC of the process in which the unit is running.

**Operating Rate:** Maximum is the manufacturer's rated maximum rate of operation. For "Norm" enter the average operating rate during the year of inventory. Units should be pounds of material applied per hour.

**Seasonal Throughputs:** Percentage of production for each quarter of the year. The total must equal 100%. This

### **Material Balance:**

- **Gross VOC inputs:** For each material, multiply pounds of chemical/coating/adhesive/solvent used by its VOC content by weight. Result is VOC use in pounds.
- **Residual VOC shipped in product:** For each input, determine the ratio of starting material left in the product. Report the product of the amount of starting material left in the product and its VOC content by weight. *For paint manufacturers chemical manufacturing, or facilities which ship dye, adhesive, or VOC-containing materials, this blank is critical to determining emissions.*
- **VOC's contained in waste stream:** For solvent cleanup or other processes which dispose of VOC-containing materials, use this blank to list the pounds of VOC disposed through wastewater or shipped offsite for treatment.

### **Example: Surface Coating operation**

Using this formula, 2090 gallons at 6.7 lb. VOC/gal. of "Red #1" were used during the year. 14,000 lbs of VOC are reported in "Gross VOC Inputs" for this coating. Unless the VOC's can be accounted for in some other way, we assume it is all emitted to the atmosphere. Since negligible VOC remains bound in the coating, a 0 is placed in "Residual VOC Shipped in Product". Since the equivalent of 298 lbs of red #1 were disposed of in the waste water, 2000 lbs of "VOC's contained in waste stream" is listed. **NOTE: This does not account for VOC's removed in a thermal oxidizer or other control device. The destruction of these VOC's will be accounted for in the "Control Device Information" page.**

#### MISCELLANEOUS EMISSION UNITS:

This page covers most manufacturing operations which are neither fuel burning nor evaporative loss sources. For processes such as dryers or wood kilns there may be emissions beyond fuel use or evaporation which would necessitate listing the process here as well. Report throughput in terms of tons of product.

THERE IS NO NEED TO FILL THIS PAGE OUT IF ALL EMISSIONS FROM A GIVEN EMISSIONS UNIT ARE EITHER FUEL RELATED OR EVAPORATIVE LOSS.

**Process ID:** The unit ID refers to the mill, dryer, crusher, etc. Create a number for each starting with 'M' to differentiate from fuel burning or evaporative loss units.

**Description:** Unit descriptor, as identified by facility personnel. Also list each product produced by the process.

**SIC:** List the SIC of the process in which the unit is running.

**Operating Rate:** Maximum is the manufacturer's rated maximum rate of operation. For "Norm" enter the average operating rate during the year of inventory. Units should usually be Tons of product per hour. If this does not make sense for the process, use the terms the manufacturer rates the equipment.

**Units:** List the units for operating rate

**Seasonal Throughputs:** Percentage of production for each quarter of the year. The total must equal 100%.

**Process Throughputs:** Annual and Ozone season daily fuel feed. Ozone season includes the months of May through September. Daily-Summer is a typical ozone season day. **Units should be tons of product.**

**Example:** The example listed describes a fiberglass manufacturing process. Operating rate is listed in tons/hr for both maximum and normal rates. The operating schedule listed is the same for a batch or continuous feed system. The unit is considered operating between batches, as long as the unit remains online. Production does not vary seasonally, so throughput is 25 percent for each season. Finally, process throughput is listed in tons per year and tons per typical July day.

1996 STACK INFORMATION:

Stack Information page should list each stack that exhausts a process listed on one of the "Process Information" pages.

**Stack ID:** Assign a unique number to each stack. This can be the facility designation for the stack, not to exceed 3 characters.

**Process ID(s) Exhausted:** Each process from any of the Process Information pages exhausted by this stack should be listed here. If one process exhausts multiple stacks, list each stack separately with the common process ID indicated, and indicate the percentage of exhaust flow routed to each stack in Column 4 of the stack chart.

**Description:** Facility designation or other description of the stack.

**Height:** Stack height above grade, in feet.

**Diameter:** Interior diameter in feet.

**Velocity:** Exit gas velocity, linear feet per second.

**Temperature:** Exit gas temperature, degrees Fahrenheit.

**Flow Rate:** Flow rate in actual cubic feet per minute (ACFM) under maximum emissions conditions.

#### CONTROL DEVICE INFORMATION:

Use this page to describe equipment that controls VOC, NO<sub>x</sub> or CO emissions. There is no need to list devices which control only PM, or SO<sub>2</sub> only. The device must be associated with the process unit it controls. If only one device is present, list it under "Primary Control Device".

**Process ID:** List the process ID from one of your "Process Information" pages that is controlled by this device.

**Pollutant:** List either VOC, NO<sub>x</sub>, or CO—whichever pollutant is controlled by the device.

**Control Efficiency:** Two factors contribute to the overall efficiency of a control device—**Capture** and **Control**. List separate efficiencies for primary and secondary devices, if present.

**Capture Efficiency:** Describes the percentage of process exhaust that enters the control device. In a closed system, this would be 100%. For a hood or other enclosure, less than 100% of the emissions of a process enter a control device.

**Control Efficiency:** Equivalent to destruction efficiency in a thermal oxidizer, this factor describes the percent of pollutant entering the device which is removed by the device.

**Example:** The example illustrates a thermal oxidizer controlling process E1, the coating operation listed on the "Evaporative Emissions" page. Since no other device is present in this line, no secondary device is listed. Capture efficiency is 90%, indicating that 10% of the fumes escape uncontrolled to the atmosphere. Of the 90% which enters the oxidizer, 99.5% is destroyed by combustion.

## EMISSION FACTOR CALCULATION WORKSHEET (OPTIONAL)

The Emission Factor Calculation Worksheet is provided for facilities who would like to supply their own emissions calculations. Note that evaporative losses are calculated from the “Evaporative Emissions Process Emissions” page. Facilities with source testing, continuous emissions monitoring (CEM), or other source-specific emissions data may want to provide this data to ensure the best emissions calculations. Duplicate the worksheet as necessary to list all emissions calculations.

**Process ID:** List the process ID from the “Process Information” page.

**Source Classification Code:** If available, list the EPA source classification code describing the process. This may have been reported in a permit application.

**Annual Output:** Taken from the respective “Process Information” page.

**Emission Factor:** The pollutant-specific emission factor for this process. Each factor should include a **method code** as a reference for the factor. The list of method codes is at the bottom of the form. The method codes describe the source of the factor at rate its quality. The emission factor should be chosen from available data in the order of descending method code.

**Control Efficiency:** Control efficiency here is the overall efficiency, which is the product of the capture and control efficiencies listed on the control information page. Multiply the efficiencies as decimals to get the overall percentage. To apply the control efficiency to uncontrolled emissions, follow the formula listed on the top of the calculation worksheet.

**Example:** The example shows emissions calculations using AP-42 emission factors for the natural gas combustion at Boiler #1 (ID F1). A separate calculation would be required for fuel oil to complete the emissions calculations for this unit.



# GEORGIA 1996 EMISSION INVENTORY QUESTIONNAIRE

DATA REPRESENTATIVE OF JANUARY 1, 1996 - DECEMBER 31, 1996

**Directions:** Please complete/correct information as needed.

**PLANT GENERAL INFORMATION:** FIPS State-County-Plantid: \_\_\_\_\_

(1) Is any of the information contained in this report confidential in accordance with the Freedom of Information Act and the Pollution Control Act? \_\_\_\_\_ If yes, please provide a second copy with confidential information blanked out so that public access requests can be met without compromising trade secrets.

(2) Plant Name: \_\_\_\_\_

(3) Permit No(s): \_\_\_\_\_

(4) Plant Location:

Street \_\_\_\_\_ City \_\_\_\_\_ Zip Code \_\_\_\_\_ County: \_\_\_\_\_

(5) Emission Inventory Contact Person:			
Contact Name:	Phone # + ext:	Fax #:	Internet Address:
Mailing Address:	Mailing City:	Mailing State:	Mailing Zip Code:

(6) Primary/Secondary/ SIC Code: \_\_\_\_\_ / \_\_\_\_\_ (7) NAICS Code \_\_\_\_\_

(8) Principal Product: \_\_\_\_\_

(9) Lat/Long for plant coordinates: Latitude (DDMMSS): \_\_\_\_\_ Longitude (DDMMSS): \_\_\_\_\_

(10) Is plant a portable facility (e.g., asphalt plants, portable concrete plants, soil remediation units or portable diesel generators)? \_\_\_\_\_

If yes, in what county were emissions generated?

**When the entire package has been completed, please sign and date below. By your signature you are declaring that the information is complete and accurate.**

\_\_\_\_\_

(11) Name \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Responsible Facility Official



## Fuel Burning Process Information Form

**Instructions: Complete for EACH** combustion operation at your facility. Copy this form as needed. Example data is included in italics. Emissions calculations will be based on the production data submitted.

Process ID		Description		SIC	% Sulfur	% Ash	Operating Rate (10 <sup>6</sup> BTU/hr)		Normal Operating Schedule			Seasonal Throughputs (%) (Must=100)				Process Throughput		
Unit	Fuel	Unit	Fuel				Max	Norm	Hrs/Day	Day/Wk	Wk/Yr	Mar-May	June-Aug	Sept-Nov	Dec-Feb	Annual	Daily-Summer	Units**
<i>F1</i>	<i>1</i>	<i>Boiler 1</i>	<i>#2 Oil</i>	<i>2211</i>	<i>0.5</i>	<i>0</i>	<i>45</i>	<i>40</i>	<i>24</i>	<i>7</i>	<i>39</i>	<i>20</i>	<i>0</i>	<i>30</i>	<i>50</i>	<i>1500</i>	<i>0</i>	<i>1000 gallons</i>
<i>F1</i>	<i>2</i>	<i>Boiler1</i>	<i>Natural Gas</i>	<i>2211</i>	<i>0</i>	<i>0</i>	<i>45</i>	<i>40</i>	<i>24</i>	<i>7</i>	<i>13</i>	<i>15</i>	<i>70</i>	<i>15</i>	<i>0</i>	<i>90</i>	<i>2</i>	<i>Million Cubic Feet</i>

**\*\*Units for Combustion Throughput: Natural Gas=Million Cubic Feet, Fuel Oils (Including LPG)=1000 gallons, Solid Fuels (Including Coal) =Tons**











## Emission Factor Calculation Worksheet

**Instructions:** Complete a table for each process for which emissions are calculated using emission factor. Copy this form as necessary. An emission factor is any function which expresses emissions in terms of production. Direct emissions monitoring or source testing yield the best emission factors. A list of EPA-approved emission factors is available upon request. To calculate emissions using emission factors, follow the formula below for each process:

$$\frac{\text{Annual Throughput} \times \text{Emission Factor} \times (100 - \text{Control Efficiency})}{2000}$$

Process ID	Source Classification Code (SCC)	Annual Output (From Process Page)
<i>F1</i>	<i>10200603</i>	<i>300</i>

Pollutant	Emission Factor	Method Code*	Control Efficiency	Annual Emissions (TPY)
<i>VOC</i>	<i>5.5</i>	<i>3</i>		<i>0.825</i>
<i>NOx</i>	<i>100</i>	<i>3</i>		<i>15</i>
<i>CO</i>	<i>84</i>	<i>3</i>		<i>12.6</i>

Process ID	Source Classification Code (SCC)	Annual Output (From Process Page)

Pollutant	Emission Factor	Method Code*	Control Efficiency	Annual Emissions (TPY)
VOC				
NOx				
CO				

Process ID	Source Classification Code (SCC)	Annual Output (From Process Page)

Pollutant	Emission Factor	Method Code*	Control Efficiency	Annual Emissions (TPY)
VOC				
NOx				
CO				

Process ID	Source Classification Code (SCC)	Annual Output (From Process Page)

Pollutant	Emission Factor	Method Code*	Control Efficiency	Annual Emissions (TPY)
VOC				
NOx				
CO				

\*Method Codes: 1=Continuous Emission Monitor, 2=Material Balance, 3=Source Test 4=AP-42 Emission Factor, 5=Other Emission Factor, Including Engineering Judgement

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