

**PROCEDURES FOR
CALCULATING
AIR PERMIT FEES
FOR CALENDAR YEARS 1998 and 1999**

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**Georgia Department of Natural Resources
Environmental Protection Division
Air Protection Branch
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1.0 INTRODUCTION TO FEE SYSTEM

This document has been prepared to specify the methods used to calculate the permit fees required under Georgia Air Quality Control Rule 391-3-1-.03(9), "Permit Fees". These procedures are to be used for calculating fees due for the calendar years ending December 31, 1998 and 1999. For calculating fees due for the calendar years 1991 through 1997 refer to "Procedures for Calculating Air Permit Fees" for the appropriate year. To obtain a copy of the Permit fee manual for 1991 through 1997, contact the Air Protection Branch at the number listed in section 6.0 "Where to Get Help." Only those matters relating to the calculation of Air Permit Fees (fees) required under 391-3-1-.03(9) are contained within, as the text is not intended to be a restatement or interpretation of emission standards or regulations.

These procedures are to be used for the calculation of air permit fees in accordance with the requirements of The Georgia Air Quality Act.

IF YOU ARE CALCULATING FEES FOR AN ASPHALT PLANT, YOU MAY PROCEED DIRECTLY TO SECTION 5.0.

Section 2.0 of these procedures is to be used for determination of the minimum fee for sources subject to Federal New Source Performance Standards (NSPS) or which have submitted or is required to submit a Part 70 (Title V) application for the purpose of obtaining a Part 70 major source permit. This section applies only if a source does not owe a fee according to section 3.0.

Section 3.0 of these procedures is to be used to calculate emissions of criteria pollutants. For the purpose of the Air Permit Fee system, "criteria pollutants" are defined as volatile organic compounds, sulfur dioxide, particulate matter, and nitrogen oxides from a stationary source. Volatile organic compounds (VOC) are any organic compound emitted to the atmosphere except those compounds specifically exempted by Georgia Air Quality Control Rule 391-3-1-.01 (jjj). Particulate matter (PM) is as defined by Georgia Air Quality Control Rule 391-3-1-.01 (xxx). The total emissions of each these four pollutants are then to be reported on the Georgia Emissions Fee Reporting Form (fee form) and are used to determine the "total calculated fee". **SECTION 3.0 CALCULATIONS ARE ONLY REQUIRED FOR SOURCES THAT ARE CONSIDERED MAJOR UNDER PART 70 REGULATIONS.**

For the purposes of the Air Permit Fee system "stationary source" is determined as follows:

- 1) The owner or operator should consider all of the pollutant emitting activities which are located on one or more contiguous properties and are under control of the same person (or persons under common control) except the activities of any vessel. If the potential emissions of Hazardous Air Pollutants (HAPs) equal or exceed 10 tons per year for any single HAP or 25 tons per year for total HAPs, then all the pollutant activities considered are considered to be one "stationary source".

- 2) If the potential emissions of HAPs do not equal or exceed 10 tons per year for any single HAP or 25 tons per year for total HAPs, then a "stationary source" is defined as all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same first two digit code) as described in the 1987 Standard Industrial Classification Manual, published by the U. S. Government Printing Office.

There are instances where a stationary source as defined by the Air Permit Fee system has been treated as more than one stationary source under the Air Protection Branch permitting system. In such cases, all permit fees for the singular stationary source as defined by the Air Permit Fee system should be reported on one Permit Fee Reporting form. If more than one set of forms (with separate AIRS numbers) are sent out for what is considered one stationary source under the Air Permit Fee system, the owner or operator should report the permit fees on the Permit Fee Reporting Form with the AIRS number that corresponds to the major emission points for the stationary source. One form (not filled in) with each of the remaining AIRS numbers should be returned with a letter indicating the AIRS number of the form on which fees for the entire stationary source were reported. In some instances, the Air Protection Branch has already identified that multiple AIRS numbers have been assigned to facilities which are defined as one stationary source under the Air Permit Fee system. In these cases, we have identified the AIRS number which we prefer to have the fees reported with and have only mailed out forms with that AIRS number. In these cases, the owner or operator should ensure that permit fees for the entire stationary source as defined by the Air Permit Fee system (including equipment permitted under separate AIRS numbers) are included on the reporting forms provided.

The owner or operator of each stationary source subject to the requirements of the Permit Fee rule shall submit the calendar year 1998 fee form and any fees due on or before September 1, 1999 and the calendar year 1999 fee form and any fees due on or before September 1, 2000. Stationary sources with an annual fee due of \$20,000 or greater may elect to make four equal quarterly payments. The quarterly payments shall be submitted on or before the dates listed in the following schedule:

	Due Date
1st Quarterly Payment	September 1
2nd Quarterly Payment	October 1
3rd Quarterly Payment	January 2
4th Quarterly Payment	April 1

A fee form is to be used for submitting the quarterly payments. (See section 4.0 for instructions on submitting the form.)

The owner or operator of a stationary source on the date annual fees are due shall be responsible for payment of fees for the entire preceding calendar year.

The Georgia Emissions Fee Reporting Form and all payments should be submitted to:

Air Quality Fees
Post Office Box 101713
Atlanta, Georgia 30392

The owner or operator of any stationary source subject to the provisions of the Georgia Air Quality Rule 371-3-1-.03 "Permits. Amended." shall also be subject to process evaluations and/or audits to determine the accuracy of methods and calculations used to determine the emission fee. The rate, frequency, and content of said audits shall be at the discretion of the Environmental Protection Division (the Division).

Failure to report, late payment of fees, and not calculating fees in accordance with this manual may result in enforcement action including monetary penalties up to \$25,000 per day. The Division will determine if a stationary source has failed to calculate fees in accordance with this fee manual through audit procedures.

If you receive a Fee Reporting Form it must be submitted, even if no fee is due.

2.0 MINIMUM FEE FOR NSPS AND PART 70 SOURCES

The minimum permit fee for the following category is \$1000.

- (a) Any source subject to Federal Standards of Performance for New Stationary Sources (NSPS) (40CFR part 60) except for the following:
- Subpart AAA - New Residential Wood Heaters
 - Natural gas fired steam generating units permitted to fire only natural gas, propane, or LPG that are subject to Subpart Dc.
 - Volatile Organic Liquid Storage Vessels with a design capacity of less than 75 m³ (40,000 gallons) which are subject to Subpart Kb.
 - Metal furniture surface coating operations which permitted to use less than 1000 gallons of coating (as applied) per year and are subject to Subpart EE.
 - Pressure sensitive tape and label surface coating operations which permitted to input less than 50,000 gallons of VOC per year to the coating process and are subject to Subpart RR.
 - Magnetic tape coating operations that are permitted to use less than 10,000 gallons of solvent which are subject to Subpart SSS.
 - Coating operations and onsite coating mix preparation equipment for polymeric coating of supporting substrates which are permitted to use less than 100 tons per year of VOC per year and are subject to Subpart VVV.

It is the responsibility of the owner or operator of an individual stationary source to verify if they are subject to an NSPS regulation.

If the Division has already determined that the source is subject to any NSPS regulations, it will be so indicated with the number "9" in the NSPS # block on the pre-printed fee form included with your permit fee package.

If the equipment subject to the NSPS standard(s) did not operate during the calendar year for which the fees are based, the NSPS minimum fee does not apply.

The minimum permit fee for the following category is \$1400.

- (b) Any source for which a Part 70 (Title V) permit application has been submitted or is required to be submitted for the purpose of obtaining a Part 70 major source permit. If a Part 70 permit application has been submitted for a facility for the purpose of obtaining a Part 70 permit and that source subsequently receives a permit which contains limits that render the source a non-major facility (i.e. a synthetic minor permit) the Part 70 minimum permit fee is not required for the calendar year in which the "synthetic minor" permit limit was issued or any other subsequent year so long as the source remains a non-major source.

If the Division has determined the source is required to submit a Part 70 application, it will be so indicated with the either an "A", "A1", or "A2" in the CLASS block on the pre-printed fee form included with your permit fee package. It is the responsibility of the owner or operator of an individual stationary source to verify whether or not the stationary source is a Part 70 major source.

If a stationary source did not operate at all during the calendar year for which the fees are based, the minimum fees do not apply.

A minimum fee is not required if an owner or operator is subject to a \$/ton fee as specified in section 3.0 of this manual (see section 4.0, "Filling Out the Emission Fee Reporting Form", item 23).

If a stationary source falls into both categories (a) and (b) listed above, the owner or operator shall only pay the minimum fee for Part 70.

3.0 CALCULATION OF FEES

3.1 General Instructions

The calculations contained in section 3.0 are only required for stationary sources which were classified as a Part 70 major source for any part of the year for which the fees are based. A Major Source under Part 70 is defined in 40 CFR 70.2. If the Division has determined the source is classified as a Part 70 major source, it will be so indicated with the either an "A", "A1", or "A2" in the CLASS block on the pre-printed fee form included with your permit fee package. It is the responsibility of the owner or operator of an individual stationary source to verify whether or not the stationary source is a Part 70 major source.

The owner or operator of each stationary source that was classified as a Part 70 Major Source is responsible for calculating the fee due for each of the four criteria pollutants covered under the fee system (specifically: volatile organic compounds, sulfur dioxide, particulate matter, and nitrogen oxides). The following steps should be used for calculating fees:

1. Identify all pollutant-emitting activities at the stationary source which emit volatile organic compounds (VOC), sulfur dioxide (SO₂), particulate matter (PM), or nitrogen oxides (NO_x).
2. Check the exemptions listed in section 3.17, exemptions. Calculations are not required for the criteria pollutants specified for the operations and emission units listed in section 3.17.
3. Use the appropriate method contained in sections 3.21 through 3.24 to calculate the emissions for any operation subject to a numerical emissions limit contained in either an air quality permit or Georgia or Federal air quality rule. Then use method 3.25 to calculate the actual emissions from that operation for any of the remaining four criteria pollutants emitted in significant quantities (greater than one ton per year) that are not covered by a permit or rule limit.
4. Use method 3.25 to calculate the actual emissions of each of the four criteria pollutants emitted in significant quantities (greater than one ton per year) from any operations not subject to a permit or rule limit and not exempted under section 3.17.
5. Add up the calculated emissions from steps 3 and 4 for each of the four criteria pollutants. Individual calculations and the final total should be conducted as specified in section 3.12.
6. A fee is due for each pollutant for which the total calculated emissions for that pollutant at the stationary source are above the threshold for that pollutant (see section 3.16 for threshold levels).

7. If the calculated emissions for at least one of the four criteria pollutants is above the threshold listed in section 3.16, the minimum fees specified in section 2.0 do not apply. If the calculated emissions for all four of the criteria pollutants are at or below the thresholds listed in section 3.16 (total calculated fee = 0), then the owner or operator must determine any applicable minimum fee as specified in section 2.0.

The information obtained to calculate fees using the methods or procedures herein is subject to review and approval by the Division.

3.11 Amending Permit Limits

If the permitted emission limit of a criteria pollutant was changed by permit amendment or effective rule change during a calendar year, the old and new emission limit shall be prorated (based on the date of the amendment or rule change) for that year.

An owner or operator may wish to change an emission limit for the purpose of reducing fees. Application for a permit amendment of this type which will reduce fees for calendar year 1994 and beyond must be received by August 31 of the preceding year in order for the reduced limit to be in effect for the entire year. This deadline is necessary to give the Division adequate time to process the applications.

3.12 Significant Figures

Individual calculations should be carried out retaining at least four significant figures. Total emissions for each criteria pollutant should be rounded to the nearest ton.

For example, emissions from a fictitious stationary source are shown in the following table. The emissions for each process are calculated to 4 significant figures. The emissions for each pollutant are then totaled and then rounded off to the nearest ton.

process	particulate matter	sulfur dioxide	nitrogen oxides	volatile organic compounds
A	48.22	17.36	3.258	0.5785
B	22.25	83.06	17.25	3.267
C	30.03	-	-	365.3
total for each pollutant	100.5	100.4	20.51	369.1
round off to nearest ton	101	100	21	369

3.13 Excess Emissions

In methods 3.21 through 3.24 the permitted or regulatory emission rates are to be used to calculate emissions. There may be instances where actual emissions are in excess of those allowable emission limits. In those instances the owner or operator should still use the allowable emission rates. The excess emissions would be handled through the enforcement activities of EPD and not through the permit fee process.

3.14 Permit Fee Calculation Records

The owner or operator shall maintain copies of the calculations for a minimum of five years following submittal of the Georgia Emissions Fee Reporting Form. These calculations shall include the following as a minimum for each criteria pollutant emitted from each individual process and/or fuel burning equipment.

- (a) Which method (numbers 3.21-3.25) was used in the calculation.
- (b) If an exemption (section 3.17) is used for any processes or pollutant, the number of the applicable exemption [3.17(a) - 3.17(j)]
- (c) If the calculation uses a permitted emission limit, state the permit number, date of permit issuance, date of any applicable permit amendments, and the condition number of the permitted emission limit. (Not required for method 3.21)
- (d) If the calculation uses data from a permit application for which a permit or amendment has been issued, state the date of the application and application number (if known), permit number, and date of issuance of permit or amendment. (Required only if special Georgia Rule (e)/Rule (p) option of method 3.22f is used.)
- (e) If the calculation uses an emission limit set by a State or Federal regulation, state the specific regulation. (Not required for method 3.21)
- (f) The actual calculation of emissions. (Not required for method 3.21)
- (g) An explanation of why a facility is subject to an NSPS or Part 70 minimum fee.
- (h) Any records necessary to confirm data used in the calculations (Not required for method 3.21)

3.15 Obligations of Owner and/or Operator

Timely submission of the fee form based on best available data at the time of submittal and calculation of fees in accordance with this fee manual fulfills the permit fee reporting obligations for the reporting year. If you receive a Fee Reporting Form it must be submitted, even if no fee is owed.

3.16 Threshold Levels

Fees for section 3.0 are not required if the total calculated emissions of each criteria pollutant are less than

or equal to the levels listed in the following table.

pollutant	non-attainment area counties*	all other counties
particulate matter	100 tons/yr	100 tons/yr
sulfur dioxide	100 tons/yr	100 tons/yr
volatile organic compounds	50 tons/yr	100 tons/yr
nitrogen oxides	50 tons/yr	100 tons/yr

* non-attainment area counties are: Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale

3.17 Exemptions

The following categories of sources or pollutants shall not be included when calculating emissions for the purpose of determining permit fees. The Division has determined that the fees that would be generated from these items would be minimal and would not justify the additional administrative costs to collect them. These exemptions apply both when determining if emissions of a pollutant are over the levels listed in section 3.16 and when determining the amount of fee due for that pollutant. These exemptions apply only to those pollutants listed.

- (a) all criteria pollutants from any emissions sources or activities listed in the Insignificant Activities List contained in Georgia Rule 391-3-1-.03(10)(g) or in the Trivial List of Appendix A of the “State of Georgia Title V Major Source Operating Permit Application, Introduction and Instructions” When calculating fees for any particular calendar year, the owner or operator may use any final version of Rule 391-3-1-.03(10)(g) which was in existence during that calendar year.
- (b) sulfur dioxide and VOC emissions resulting from the combustion of natural gas, methane, and liquefied petroleum gas
- (c) volatile organic compound (VOC) emissions resulting from the combustion of fossil fuels
- (d) fugitive particulate matter emissions
- (e) fugitive VOC, fugitive nitrogen oxides, and fugitive sulfur dioxide emissions unless the emissions of such are limited by an Air Quality Permit condition or Federal or State rule or regulation
- (f) particulate matter emissions resulting from the combustion of distillate oil (no. 2 or lighter), gaseous fuels, and liquified petroleum gas

- (g) sulfur dioxide emissions resulting from the combustion of wood, bark, and other fuels with a sulfur content of equal to or less than 0.10% (dry basis)
- (h) nitrogen oxides emissions resulting from thermal or catalytic fume incinerators used for the sole purpose of controlling air emissions
- (i) particulate matter emissions from any process whose only particulate matter emission limit is Georgia Rule 391-3-1-.02(2)(e) or 391-3-1-.02(2)(p) **and**
 - 1. is exclusively used for material handling and storage (i.e. bins, silos, hoppers, feeders, conveyors) (if emissions from another process or piece of fuel burning equipment are vented through the material handling and storage equipment, this exemption (3.17(i)1.) is not applicable);
 - or
 - 2. whose estimated actual particulate matter emissions are less than 2 tons per year(see section 3.22f)
- (j) Any emissions from a liquid storage tank with a capacity of less than 40,000 gallons or containing a liquid with a vapor pressure of less than 1.52 psia

For the purpose of the Air Permit Fee system, "fugitive" emissions are defined as those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening. Note: The Division does not consider emissions from storage tanks to be fugitive.

3.18 Correcting a Submitted Air Emissions Fee Reporting Form

If the owner or operator of a stationary source discovers that a part or all of the information submitted in a Georgia Air Emissions Fee Reporting form is incorrect, a "Georgia Air Emissions Fee Amendment Form" (amendment form) should be submitted. Instructions for completing and filing an amendment form are listed in section 4.1.

If a stationary source is chosen for a process evaluations and/or audits as described in section 1.0, no amendment forms should be submitted until the audit is complete and all issues are resolved.

3.2 Methods of Calculation

The owner or operator shall use the method listed below which most closely matches the limit for each criteria pollutant from a stationary source, individual process, or piece of fuel burning equipment. The methods are arranged in order of priority. If more than one limit applies, the highest priority (lowest number) method shall be used. When emissions are not limited in a permit or by a regulatory emission limit, method 3.25 shall be used.

- 3.21 For any criteria pollutant, the owner or operator may elect to estimate the total annual emissions from the entire stationary source as **4000 tons or greater**. In this case 4000 tons shall be used for calculating fees. If this method is chosen for a criteria pollutant, no other calculations are necessary for that pollutant for the entire stationary source.
- 3.22 Methods 3.22a through 3.22g have equal priority. If more than one is applicable, the owner or operator may select any one of these methods.
- 3.22a If a stationary source or individual process and/or fuel burning equipment has a specific **annual or 12 month rolling total emission limit** for a criteria pollutant as a condition of a Georgia Air Quality Permit (permit) or set by a Federal or State rule or regulation, that emission limit (in tons per year) shall be used as a basis for calculating fees. If a stationary source or individual process and/or fuel burning equipment commences initial operation and/or permanently ceases operation during the calendar year, the owner or operator shall use the greater of the actual emissions during the calendar year or the annual allowable limit prorated in months for the portion of the year since operation commenced and/or prior to permanent cessation of operations. If a stationary source or individual process and/or fuel burning equipment has a specific annual or 12 month rolling total emission limit but did not operate at all during the calendar year, emissions are defined to be zero (0). Operation of a source is defined as the operation of the pollutant emitting equipment or process at a stationary source for its intended purpose.
- 3.22b If a stationary source or individual process and/or fuel burning equipment has a specific **monthly, weekly, or daily (or any other period of time greater than an hour but less than a year) emission limit** for a criteria pollutant as a condition of a permit or set by a Federal or State rule or regulation, that limit shall be multiplied by the actual number of months, weeks or days (or other applicable period) for which the source was in operation. For the purpose of this method, operation of a source for any period of time during a month/week/day/(other period), shall be treated as a full month/week/day/(other period) of operation. (This is consistent with regulatory procedures.)

- 3.22c If a stationary source or individual process and/or fuel burning equipment has a specific **hourly (or less) emission limit** for a criteria pollutant as a condition of a permit or set by a Federal or State rule or regulation, that limit shall be multiplied by the actual time of operation for the source. Partial hours of operation may be summed when calculating actual annual hours of operation.
- 3.22d If a stationary source or individual process and/or fuel burning equipment has a specific **concentration emission limit (grain/dscf, ppm, etc.)** for a criteria pollutant as a condition of a permit or set by a Federal or State rule or regulation, the concentration limit shall be converted to a mass per unit time basis (lb/hr, etc.) using the average gas flow rate under normal operation. If the limit is corrected to a specific diluent concentration and/or moisture concentration, the gas flow rate should be corrected to the same basis as the limit. That mass per unit time limit shall then be multiplied by the actual time of operation for the stationary source, fuel burning, or process equipment for which the emission limit applies. Partial hours of operation may be summed when calculating actual annual hours of operation.

For stationary sources which have obtained sulfur dioxide and/or nitrogen oxides concentrations using continuous emissions monitoring systems (CEMS), that data may be used in lieu of the emission limit to calculate permit fees. Methods for using CEMS data are contained in appendix C.

The following formula should be used to calculate a conversion factor for converting ppm emission limits or rates to units of lb/dscf which can then be used to convert to a lb/hr basis:

$$(2.59 \times 10^{-9} \times M) \text{ lb/dscf} = 1 \text{ ppm} \quad (\text{equation 2d})$$

M = pollutant molecular weight
 = 64.07 for SO₂
 = 46.01 for NO_x

3.22e If a stationary source or individual process and/or fuel burning equipment has a **fixed emission limit in units other than mass per unit time** for a criteria pollutant as a condition of a permit or set by a Federal or State rule or regulation (lb/MMBtu, lb/unit of production, lb VOC/gallon of coating solids, etc.) the owner or operator shall use the following formula for calculating the emission rate which is then used for calculating fees.

$$ER = \frac{EL \times AOL}{2000} \quad (\text{equation } 2e)$$

where: ER = mass Emission Rate to be used for calculating permit fees (tons/year)

EL = allowable Emissions Limit for the pollutant (lb/MMBtu, lb/unit of production, lb VOC/gallon of coating solids delivered to applicator, etc.)

AOL = Annual Operating Level during the calendar year (MMBtu/yr, units of production/yr, gallons/yr of coating solids delivered to applicator, etc.)

If a stationary source uses any non-compliance coatings, emission limits in terms of lb VOC/gallon of coating must be converted to lb VOC/gallon of coating solids using methods specified in section 1.8(b)(2) of the Division's Procedures for Testing and Monitoring Sources of Air Pollution. (See appendix B of this manual.) If only compliance coatings were used, emissions may be calculated using the lb VOC/gallon of coating limit and the total gallons of coating used or applied (as applicable) during the year.

For stationary sources which have obtained sulfur dioxide and/or nitrogen oxides concentrations using continuous emissions monitoring systems (CEMS), that data may be used in lieu of the emission limit to calculate permit fees. Methods for using CEMS data are contained in appendix C.

3.22f If a stationary source or individual process and/or fuel burning equipment has an **emission limit as either a condition of a permit or set by a Federal or State rule or regulation which is defined by formula and is dependent upon the operating level**, the average operating level during normal operation shall be used to calculate the emission limit (EL). This emission rate (ER) is calculated by multiplying this emission limit (EL) by the actual operating level (OL) and by actual hours of operation during the calendar year (HR/YR).

$$ER = \frac{EL \times OL \times HR/YR}{2000} \quad (\text{equation } 2f1)$$

where: ER = Emission Rate in tons per year to be used for calculating permit fees

EL = calculated allowable Emissions Limit specified in the rule or regulation for the pollutant (lb/MMBtu, lb/unit of production, etc.) This number is calculated using the average operating level during normal operations.

OL = average hourly Operating Level during the calendar year (MMBtu/hr, units of production/hr, etc.) for periods when the individual process and/or fuel burning equipment is in operation

HR/YR = actual hours of operation during the calendar year

Or in the case when the calculated emission limit is in pounds per hour the emission rate (ER) is calculated by multiplying the emission limit in pounds per hour (LB/HR) times the actual hours of operation during the calendar year and converting the result to tons per year.

$$ER = \frac{LB/HR \times HR/YR}{2000} \quad (\text{equation } 2f2)$$

For stationary sources which have obtained sulfur dioxide and/or nitrogen oxides concentrations using continuous emissions monitoring systems (CEMS), that data may be used in lieu of the emission limit to calculate permit fees. Methods for using CEMS data are contained in appendix C.

Some of the Georgia Air Quality Control Rules to which this method applies are:

Rule 391-3-1-.02(2)(d)1.(ii) and 2.(ii), Fuel-burning Equipment [Rule (d)]

391-3-1-.02(2)(d)1.(ii) [Rule (d)1] (pre-1972)

$$P = 0.7 \left(\frac{10}{R} \right)^{0.202}$$

or

391-3-1-.02(2)(d)2.(ii) [Rule (d)2]

$$P = 0.5 \left(\frac{10}{R} \right)^{0.5}$$

Where: R = heat input of fuel-burning equipment in million BTU per hour

P = particulate matter emission limit in lb/MMBtu

The owner or operator of a piece of fuel burning equipment subject to Rule (d) would calculate R using the following formula:

$$R = \frac{a}{b} \quad (\text{equation } 2f3)$$

Where: a = total heat input to fuel burning equipment during the calendar year

b = total hours of operation of the fuel burning equipment during the calendar year

The value of "a" may be obtained by multiplying the quantity of fuel combusted by the heat content (gross calorific value) of the fuel. Where fuel moisture content or fuel mass rate determination is extremely variable or difficult to obtain, "a" may be calculated using the fuel "F" factor and appropriate flow rate and excess air data subject to the approval of the Division.

The value of R calculated using equation 2f3 is used in Rule (d) to calculate the particulate matter emission limit. EL is the calculated particulate matter emission limit (lb/MMBtu) from Rule (d). Also, use the value of R (MMBtu/hr) calculated from equation 2f3 as OL, and use the value of "b" from equation 2f3 as HR/YR. The emission rate (ER) in tons per year can then be derived from equation 2f1.

If more than one fuel was combusted during the year, the following formula shall be used for calculating the value of "a" in equation 2f3, the total heat input to the fuel burning equipment during the year.

$$a = \sum_{i=1}^n Q_i H_i \quad (\text{equation } 2f4)$$

Where: Q_i = quantity of each type of fuel burned

H_i = heat content of each type of fuel burned

The specific values of individual fuel heat content listed in the following table may be used for the fuels listed or the owner or operator may use a different content (gross calorific value) for a specific fuel provided that the procedures specified in Appendix A, method 19 of the Division's Procedures for Testing and Monitoring Sources of Air Pollutants, or other approved procedures where the procedures in Method 19 are determined by the Director not to be applicable, were used to determine that heat content.

Fuel	Heat Content (gross calorific value)
natural gas	1000 Btu/cubic ft
liquified petroleum gas (LPG)	94,000 Btu/gallon
#1 fuel oil (kerosene)	137,000 Btu/gallon
#2 fuel oil (distillate)	141,000 Btu/gallon
#4 fuel oil (very light residual)	146,000 Btu/gal
#5 fuel oil (light residual)	148,000 Btu/gal
#6 fuel oil (residual)	150,000 Btu/gal
bituminous coal	13,000 Btu/lb
wood - pine and pine bark (0% moisture)	9250 Btu/lb
wood - mixed hardwoods (0% moisture)	8400 Btu/lb
municipal waste (dry basis)	8600 Btu/lb
refuse derived fuel (RDF)	8100 Btu/lb
tire derived fuel (TDF)	15,500 Btu/lb
petroleum coke	14,900 Btu/lb

Rule 391-3-1-.02(2)(e), Particulate Emissions from Manufacturing Processes [Rule(e)],
and Rule 391-3-1-.02(2)(p), Particulate Emissions from Kaolin and Fuller's Earth Processes [Rule (p)]

For new equipment (as defined by Rule (e)):

$$E = 4.1 P^{0.67}; \quad (\text{for } P \leq 30 \text{ tons/hr})$$

$$E = 55 P^{0.11} - 40; \quad (\text{for } P > 30 \text{ tons/hr})$$

For existing equipment (as defined by Rule (e)):

$$E = 4.1 P^{0.67}$$

For new equipment (as defined by Rule (p)):

$$E = 3.59P^{0.62}; \quad (\text{for } P \leq 30 \text{ tons/hr})$$

$$E = 17.31 P^{0.16}; \quad (\text{for } P > 30 \text{ tons/hr})$$

For existing equipment (as defined by Rule (p))

$$E = 4.1 P^{0.67}; \quad (\text{for } P \leq 30 \text{ tons/hr})$$

$$E = 55 P^{0.11} - 40; \quad (\text{for } P > 30 \text{ tons/hr})$$

Where: $E =$ particulate matter emissions limit (pounds per hour)

$P =$ process input weight rate (tons per hour)

The owner or operator of a piece of manufacturing equipment subject to Rule (e) or from kaolin or Fuller's earth process equipment subject to Rule (p) would calculate P using the following formula:

$$P = \frac{c}{d} \quad (\text{equation 2f5})$$

Where: $c =$ total weight of material input to the process during the calendar year in tons

$d =$ total hours of operation of process equipment during the calendar year

This value of P calculated using equation 2f5 is used in the appropriate equation of Rule (e) or Rule (p) to calculate E. Equation 2f2 is then used to calculate the emissions rate (ER) in tons per year for calculating fees. EL is the value of E (lb/hr) from the appropriate equation from Rule (e) or Rule (p) and HR/YR is the value of d as used in equation 2f5.

For the purpose of this fee calculation method a "process" is defined as a unit operation or combination of

unit operations which cannot be operated independently of each other or which have been specified by the Division to be considered one process subject to the rule. In most instances there will be some type of raw material, intermediate, or product storage or accumulation between "processes" in order to allow for the processes to operate independently. Unless otherwise specified by the Division, this definition shall be used when determining the process input weight rate to be used with Rule (e) or Rule (p). However, a combination of unit operations which are defined as a single process according to this paragraph but have been previously considered by EPD as separate processes for the purpose of determining compliance with Rule (e) or Rule (p) shall continue to be considered separate processes for the purpose of fee calculation.

For a process whose **only** particulate matter emission limit is Rule (e) or Rule (p), the following apply:

- a. The owner or operator may use the maximum pound per hour emission rate listed in an appropriate air quality permit application for which a permit or amendment has been issued for that process when calculating fees in lieu of the pound per hour limit calculated using Rule (e) or Rule (p). This option is not applicable if it has been determined that the actual emissions from the process exceed the maximum pound per hour emission rate listed in the application. The Division reserves the right to reissue or modify air quality permits based upon emissions data used to calculate fees according to this paragraph.
- b. Equipment used exclusively for material handling and storage (i.e. bins, silos, hoppers, feeders, conveyors) are exempt from the permit fee system. If emissions from another process or piece of fuel burning equipment are vented through the material handling and storage equipment, the exemption under this paragraph (b.) is not allowed.
- c. Processes whose estimated actual emissions are less than 2 tons/year are exempt from the fee system.

(Note that provisions b. and c. above are the same as exemptions 3.17(i).)

3.22g If a stationary source or individual process and/or fuel burning equipment has a specific **sulfur-in-fuel emission limit** as either a permit condition or Federal or State rule or regulation, the owner or operator shall use the following formulas for calculating the sulfur dioxide emission rate which is then used for calculating fees.

Coal (equation 2g1)

$$ER \text{ (tons } SO_2/\text{yr)} = \frac{(39S) \times (\text{tons coal burned during year})}{2000}$$

Residual Oil (equation 2g2)

$$ER \text{ (tons } SO_2/\text{yr)} = \frac{(157S) \times (\text{gal/yr residual oil burned})}{2 \times 10^6}$$

Distillate Oil (equation 2g3)

$$ER \text{ (tons } SO_2/\text{yr)} = \frac{(142S) \times (\text{gal/yr distillate oil burned})}{2 \times 10^6}$$

Note: For fee calculation purposes, the regulatory sulfur-in-fuel limit for **distillate oil** (no. 2 fuel oil or lighter) may be assumed to be 0.5%.

Other Fuels (equation 2g4)

$$ER \text{ (tons } SO_2/\text{yr)} = \frac{(2S) \times (\text{lb/yr of fuel burned})}{200,000}$$

Where: ER = Emission Rate of sulfur dioxide in tons per year to be used for calculating permit fees

S = sulfur-in-fuel limit expressed as a decimal
(i.e. for 2.5% sulfur limit, S = 2.5)

If a combination of fuels is combusted, the emission rates shall be calculated for each fuel. The emission rates for each fuel shall be summed to obtain the total emission rate for the stationary source or individual process and/or fuel burning equipment.

3.23 If a stationary source or individual process and/or fuel burning equipment has an **emission reduction requirement (i.e. control efficiency or required capture and control efficiency) as either a condition of a permit or set by a Federal or State rule or regulation**, the emission rate is the sum of the required emissions reduction applied to the captured emissions plus the un-captured emissions. If capture efficiency is not included as part of the limit, 80% capture efficiency shall be assumed for process equipment unless demonstrated otherwise and 100% capture efficiency shall be assumed for fuel burning equipment unless demonstrated otherwise.

- 3.24 If a stationary source or individual process and/or fuel burning equipment has a **specific emission or production limit as either a condition of a permit or set by a Federal or State rule or regulation which is not listed in methods 3.21 through 3.23**, that emission or production limit shall be used for calculating the annual emission rate. **ELIGIBILITY FOR THE USE OF METHOD 3.24 IS EXTREMELY RARE. YOU SHOULD CONTACT YOUR COMPLIANCE ENGINEER AS SPECIFIED IN SECTION 6.0 PRIOR TO USING THIS METHOD.**
- 3.25 For any "criteria pollutant" emitted from a stationary source whose emissions are **not limited by any permit condition, rule, or regulation** and are not exempted under section 3.17, the owner or operator shall calculate the estimated actual emission rate for the calendar year. Methods for estimating actual emissions are listed below in order of priority. When more than one source of data can be used to calculate the actual emissions, the method with the highest priority should be used.
- (a) material balance for VOC emissions except where over 50% of the VOC used is carried out in a product or byproduct (i.e. includes printing, coating, etc. does not include paint mixing, etc.)
 - (b) representative emissions test data or continuous emissions monitor data (i.e. SO₂ or NO_x monitoring systems) during the calendar year for which fees are based (If more than one emissions test is conducted during the year, all tests conducted shall be used)
 - (c) representative emissions test data performed during a calendar year other than the calendar year for which fees are based
 - (d) representative test data from similar processes
 - (e) emission factors specified by the Division in section 3.3 of this manual or approved by the Division prior to submittal of the Georgia Air Emissions Fee Reporting form
 - (f) other emission factors - The owner or operator shall obtain emission factors from the following publications, listed in order of priority. When the emission factor or control efficiency is given as a range of values, the average of the range shall be used.
 - 1. U.S. EPA document AP-42, "Compilation of Air Pollutant Emission Factors", as revised
 - 2. emission factors developed by industry or trade associations or government regulatory agencies (may be subject to approval by the Division)
 - 3. any other published emission factors (may be subject to approval by the Division)
 - (g) material balance
 - (h) design calculations
 - (i) best available estimate

3.3 Emission Factors Specified by the Division

The following emission factors shall be used when calculating emissions using method 3.25(e). Supplemental emission factors not listed here may also be provided or approved by the Division.

3.31 Kraft Pulp Mills

(a) Recovery Boilers

- i. NO_x (indirect contact evaporator) = 2.3 lb/ton of air dried pulp
 NO_x (direct contact evaporator) = 1.8 lb/ton of air dried pulp
(reference - 8)
- ii. VOC (indirect contact evaporator) = 0.27 lb/ton of air dried pulp
VOC (direct contact evaporator) = 1.06 lb/ton of air dried pulp
(reference - 8)
- iii. SO_2 (indirect contact evaporator) = 4.2 lb/ton of air dried pulp
 SO_2 (direct contact evaporator) = 3.3 lb/ton of air dried pulp
(reference - 8)

(b) Smelt Dissolving Tanks

- i. NO_x = 0.033 lb/ton black liquor solids
(reference - 8)
- ii. SO_2 = 0.016 lb/ton black liquor solids
(reference - 8)
- iii. VOC (when using clean condensate in dissolving tank)= 0.062 lb/ton black liquor solids
VOC (when using foul condensate in dissolving tank)= 1.76 lb/ton black liquor solids
(reference - 8)

(c) Lime Kilns and Fluid Bed Calciners

- i. NO_x = 2.19 lb/ton CaO
(reference - 8)

ii. SO_2 (kilns with scrubbers) = 0.23 lb/ton CaO
 SO_2 (kilns with ESP's) = 1.0 lb/ton CaO
(reference - 8)

iii, VOC = 0.24 lb/ton CaO
(reference - 8)

(d) Brown Stock Washers

VOC (clean condensate used in washers) = 0.09 lb/ton air dried unbleached pulp
VOC (foul condensate used in washers) = 0.97 lb/ton air dried unbleached pulp
(if these gases are incinerated, VOC = 0)
(reference - 8)

(e) Foul Condensate Strippers

VOC = 14.1 lb/ton air dried unbleached pulp
(if these gases are incinerated, VOC = 0)
(references - 6,7)

(f) Black Liquor Oxidation Towers

VOC = 0.34 lb/ton air dried pulp
(reference - 8)

(g) Bleach Plant Vents

VOC = 0.10 lb/ton air dried pulp
(reference - 8)

(h) Oxygen Delignification Reactors
VOC = 0.08 lb/ton air dried pulp
(reference - 8)

(i) Tall Oil Reactors
VOC = 4.0 lb/ton tall oil
(reference - 8)

3.32 Fossil Fuel Fired Boilers - Nitrogen Oxides Emissions
(reference - 3)

(a) Bituminous and Subbituminous Coal Combustion

Pulverized Coal Fired

Dry Bottom, Wall Fired, Bituminous

Pre-NSPS = 22 lb/ton of coal fired

Pre-NSPS with low-NOx Burner(s) = 11 lb/ton of coal fired

NSPS = 12 lb/ton of coal fired

Dry Bottom, Wall Fired, Sub-Bituminous

Pre-NSPS = 12 lb/ton of coal fired

NSPS = 7.4 lb/ton of coal fired

Dry Bottom, Cell Burner Fired

Bituminous = 31 lb/ton of coal fired

Sub-Bituminous = 14 lb/ton of coal fired

Dry Bottom, Tangentially Fired, Bituminous

Pre-NSPS = 15 lb/ton of coal fired

Pre-NSPS with low-NOx Burner(s) = 9.7 lb/ton of coal fired

NSPS = 10 lb/ton of coal fired

Dry Bottom, Tangentially Fired, Sub-Bituminous

Pre-NSPS = 8.4 lb/ton of coal fired

NSPS = 7.2 lb/ton of coal fired

Wet Bottom, Wall Fired

Bituminous, Pre-NSPS = 31 lb/ton of coal fired

Sub-Bituminous = 24 lb/ton of coal fired

Wet Bottom, Tangentially Fired, Bituminous = 14 lb/ton of coal fired

Cyclone Furnace

Bituminous = 33 lb/ton of coal fired

Sub-Bituminous = 17 lb/ton of coal fired

Spreader Stoker

Bituminous = 11 lb/ton of coal fired

Sub-Bituminous = 8.8 lb/ton of coal fired

Overfeed Stoker = 7.5 lb/ton of coal fired

Underfeed Stoker = 9.5 lb/ton of coal fired

Fluidized Bed Combustion

Circulating Bed = 5.0 lb/ton of coal fired

Bubbling Bed = 15.2 lb/ton of coal fired

(b) Residual Fuel Oil Combustion

Rated Heat Input > 100 MMBtu/hr

No. 6 Oil

Normal Firing = 47 lb/1000 gallon oil fired

Normal Firing, Low-NOx Burner(s) = 40 lb/gallon oil fired

Tangential Firing = 32 lb/1000 gallon oil fired

Tangential Firing, Low NOx Burner(s) = 26 lb/1000 gallon oil fired

No. 5 and/or No. 4 Oil

Normal Firing = 47 lb/1000 gallon fired

Tangential Firing = 32 lb/1000 gallon fired

Rated Heat Input ≤ 100 MMBtu/hr

No. 5 and/or No. 6 Oil Fired = 55 lb/1000 gallons oil fired

No. 4 Oil Fired = 20 lb/1000 gallons fired

(c) Distillate Fuel Oil Combustion

Rated Heat Input > 100 MMBtu/hr

Uncontrolled = 24 lb/1000 gallon oil fired

Low Nox Burners and Flue Gas Recirculation = 10 lb/1000 gallon oil fired

Rated Heat Input ≤ 100 MMBtu/hr = 20 lb/1000 gallon oil fired

(d) Natural Gas Combustion

Rated Heat Input > 100 MMBtu/hr

Wall Fired

Uncontrolled, Pre-NSPS = 280 lb/10⁶ scf fired

Uncontrolled, NSPS = 190 lb/10⁶ scf fired

Low-NOx Burners = 140 lb/10⁶ scf fired

Flue Gas Recirculation = 100 lb/10⁶ scf fired

Tangential Fired

Uncontrolled = 170 lb/10⁶ scf fired

Flue Gas Recirculation = 76 lb/10⁶ scf fired

Rated Heat Input ≤ 100 MMBtu/hr

Uncontrolled = 100 lb/10⁶ scf fired

Low Nox Burners = 50 lb/10⁶ scf fired

Low NOx Burners and Flue Gas Recirculation = 32 lb/10⁶ scf fired

(e) Liquefied Petroleum Gas Combustion

Butane

Rated Heat Input > 10 MMBtu/hr = 21 lb/1000 gallons fired

Rated Heat Input ≤ 10 MMBtu/hr = 15 lb/1000 gallons fired

Propane

Rated Heat Input > 10 MMBtu/hr = 19 lb/1000 gallons fired

Rated Heat Input ≤ 10 MMBtu/hr = 14 lb/1000 gallons fired

3.33 Wood and Bark Combustion in Boilers
(reference - 8)

(a) NO_x

Spreader Stoker = 1.76 lb/ton of wet wood residue fuel fired

Fuel Cells/Dutch Ovens = 1.43 lb/ton of wet wood residue fuel fired

Fluidized Bed = 1.42 lb/ton of wet wood residue fuel fired

(b) VOC

Spreader Stokers that use pulp mill condensates in scrubber = 0.12 lb/MMBtu

Spreader Stoker (all others) = 0.034 lb/MMBtu

Fuel Cells/Dutch Ovens = 0.016 lb/MMBtu

Fluidized Bed = 0.001 lb/MMBtu

3.34 Stationary Gas Turbines for Electrical Generation - Nitrogen Oxides Emissions
(reference - 3)

(a) Natural Gas

Uncontrolled = 0.44 lb/MMBtu

Water Injection = 0.14 lb/MMBtu

Steam Injection = 0.12 lb/MMBtu

(b) Distillate Fuel Oil

Uncontrolled = 0.70 lb/MMBtu

Water Injection = 0.29 lb/MMBtu

3.35 Stationary Diesel Engines - Nitrogen Oxides Emissions
(reference - 3)

(a) > 600 hp

Uncontrolled = 3.2 lb/MMBtu

Controlled with Ignition Timing Retard = 1.9 lb/MMBtu

(b) ≤ 600 hp = 4.41 lb/MMBtu

3.36 Fiberglass Molding - VOC Emissions

- (a) To calculate emission factor for the following processes, determine styrene content of resin in first column and select emission factor corresponding with that styrene content and the process. Calculate VOC emissions using the following formula:

$$\text{VOC (lb/yr)} = (\text{lb/yr of resin used}) \times (\text{styrene content}) \times (\text{emission factor})$$

i.e. VOC emissions for hand layup process with 35% styrene resin:

$$\text{VOC (lb/yr)} = (\text{lb/yr of resin used}) \times (0.35) \times (0.116)$$

Styrene Content	Gelcoat Process	Resin Spray Up Process	Hand Layup Process	Flow Coater Process	Pressure-fed Roller Process
30%	0.494	0.121	0.103	0.095	0.106
33%	0.514	0.145	0.111	0.102	0.113
35%	0.527	0.162	0.116	0.106	0.118
38%	0.548	0.189	0.123	0.113	0.126
40%	0.561	0.208	0.128	0.117	0.131
43%	0.582	0.239	0.135	0.124	0.139
45%	0.596	0.260	0.140	0.129	0.144
48%	0.617	0.294	0.148	0.136	0.151
50%	0.632	0.318	0.152	0.140	0.156

(Reference - 9)

- (b) To determine the emissions for the following processes, multiply the amount of resin used by the emission factors indicated.

Continuous Lamination

Non-Vapor Suppressed = 0.055

Vapor Suppressed = 0.030

Pultrusion

Non-Vapor Suppressed = 0.055

Vapor Suppressed = 0.030

Filament Winding
Non-Vapor Suppressed = 0.075
Vapor Suppressed = 0.045
Marble Casting
Non-Vapor Suppressed = 0.020
Vapor Suppressed = 0.015
Closed Molding
Non-Vapor Suppressed = 0.020
Vapor Suppressed = 0.015
(Reference - 3)

References for section 3.3

- 3 - U.S. EPA Document AP42
- 6 - National Council of the Paper Industry for Air and Stream Improvement, Inc. (NCASI) technical bulletin, May, 1988
- 7 - U.S. EPA Document EPA-450/2-78-003b
- 8 - NCASI technical bulletin 646, February, 1993 "Emission factors for NO_x, SO₂, and Volatile Organic Compounds for Boilers, Kraft Pulp Mills, and Bleach Plants
- 9 - U.S. EPA Region 4 letter, March 3, 1998 "Emission Factors for Certain Polyester Resin Plastics Product Fabrication Processes - Summary of Emission Data Results"

4.0 FILLING OUT THE GEORGIA AIR EMISSIONS FEE FORMS

4.1 Reporting Form

The Georgia Air Emissions Fee Reporting Form shall be used for reporting the Air Permit Fees due for the previous calendar year and for submitting quarterly payments. Note that a new set of fee forms will be mailed out each year. The owner or operator should not use forms intended for other years. A separate form should be used to amend a previously submitted form (see section 4.2). The following are item by item instructions for completing the form. Each item below corresponds to an identically numbered box or item on the form.

Facility Information and Mailing Address

1. FEI # - Enter your **Federal Employer Identification Number** (same as Federal tax I.D.) This number is necessary in order to process a refund if EPD determines through its audit procedures that your facility has overpaid its emissions fees.

The information for items 2-12 should be pre-printed on each form you receive and should correspond to your stationary source. If this information is not printed in the area to the left of items 2-12 or if any of this information is incorrect, enter the correct information in the boxes provided. Since the forms are pre-printed for each facility, forms should not be transferred between one facility and another. Original blank forms are available by calling the telephone number listed in section 6.0 "WHERE TO GET HELP".

complete only if the pre-printed information is incorrect or missing

2. Contact Person - The company shall designate a person to whom all inquiries and correspondence regarding your permit fees should be directed. This does not have to be the same as the person listed in box 27.
3. Title - Enter The title of the contact person (i.e. company attorney, plant manager, environmental supervisor, plant engineer).
4. Company Mailing Address Name - Enter the company name which corresponds to the mailing address for contact person listed above.
- 5-8. Enter the mailing address to which correspondence regarding permit fees should be mailed. This must be the address for the owner or operator of the stationary source.
- 9-11. Facility Name and Location (street & city) - Enter the facility name, street address and city where the stationary source is located.
12. Area Code & Phone Number - Enter the area code and phone number of the contact person.

Annual Fee Calculation

This section should be completed when reporting the Permit Fee due for the previous calendar year. Do not complete this section when submitting quarterly payments due October 1, January 2, or April 1.

13. This Stationary Source did not Operate at all in (xxxx) (where (xxxx) is the calendar year for which the form is being submitted)- If the pollutant emitting equipment or processes at your facility did not operate for its intended purpose for any time during the calendar year, check this box. No permit fee is due. If you check this box, skip to box 24.

- 14-17. Annual VOC/NO_x/PM/SO₂ Emissions in Tons - After you have calculated the total annual emissions for each of the four pollutants (as specified in section 3.0 of this manual), round that figure for each pollutant off to the nearest ton (i.e. 100.4 tons would be rounded down to 100 tons, 100.5 tons would be rounded up to 101 tons) and enter the results in the appropriate boxes. If the amount calculated for any pollutant is greater than 4000 tons, enter 4000 in the box for that pollutant. Note that even if the calculated emissions for a particular pollutant is less than the threshold level listed in section 3.16, the emissions of that pollutant should still be reported in this block. If a particular pollutant is not emitted from a stationary source or if all emissions of a pollutant are exempt from fee calculations (as defined in section 3.17 of this manual) enter 0 in the block for that pollutant.

- 18-19. Fee Due for VOC/NO_x - If the stationary source is in a **non-attainment county** (Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, or Rockdale) and the number in box 14 or 15 is 50 tons or less, enter 0 in the appropriate box 18 or 19 that corresponds to that pollutant. If the number in box 14 or 15 is 51 tons or more, multiply the number in each box by \$28. Enter the result in the corresponding box 18. or 19. If the stationary source is in **any other county** and the number in box 14 or 15 is 100 tons or less, enter 0 in the appropriate box 18 or 19 that corresponds to that pollutant. If the number in box 14 or 15 is 101 tons or more, multiply the number in each box by \$28. Enter the result in the corresponding box 18 or 19. In no case should the amount in box 18 or 19 exceed \$112,000.

- 20-21. Fee Due for PM/SO₂ - If the number in box 16 or 17 is 100 tons or less, enter 0 in the appropriate box 20 or 21 that corresponds to that pollutant. If the number in box 16 or 17 is 101 tons or more, multiply the number in each box by \$28. Enter the result in the corresponding box 20 or 21. In no case should the amount in box 20 or 21 exceed \$112,000.

22. Total Calculated Fee - Add up the figures in boxes 18 through 21. This is the total calculated fee as determined by section 3.0 of the manual. In no case should this number exceed \$448,000.
23. Minimum Fee - If the "Total Calculated Fee" in box 22 is greater than 0, you may skip box 23. (Note that if you completed boxes 14 through 22 correctly and box 22 is greater than 0, the amount in box 21 should be at least \$1428 for sources located in a non-attainment county and \$2828 for sources located in any other county.) If the "Total Calculated Fee" in box 22 is 0 and a Part 70 (Title V) permit application has been or is required to be submitted for the source for the purpose of obtaining a Part 70 major source permit it is subject to a Part 70 minimum fee. If the Division has determined the source is classified as a Part 70 major source, it will be so indicated with either an "A", "A1", or "A2" in the CLASS block at the top of the form. If so, check the box marked "Part 70" and enter \$1400 in box 23. If the "Total Calculated Fee" in box 22 is 0 and is not subject to a Part 70 application minimum fee it may be subject to an NSPS minimum fee. If the stationary source is subject to a Federal New Source Performance Standard (NSPS) it is subject to the NSPS minimum fee. If so, check the box marked "NSPS" and enter \$1000 in box 23. For each stationary source that was sent a Fee Reporting Form, the Division has already determined whether that stationary source is subject to NSPS if the number "9" appears in the box marked "NSPS #" near the top of the form. If your stationary source is subject to an NSPS but all of your NSPS sources are exempted from the NSPS minimum fee as specified in section 2.0 of the manual, check the box on the form indicating so and enter 0 in box 23. If a "9" appears in this box but you believe that this stationary source is not subject to any NSPS standard, call the number listed in section 6.0 of this manual. If you believe that your stationary source is subject to an NSPS standard and is not already shown as such, then you should put a "9" in the "NSPS #" box and include the minimum fee if appropriate. See section 2.0 of this manual for further explanation of the minimum fee.
24. Total Fee Due - If you received a form but did not operate at all during the calendar year for which the fee is based, enter \$0 in box 24 and check box 13. If you did operate during the calendar year for which the fee is based, enter the greater of boxes 22 and 23. **If the amount in this box is \$0 (total fee due), the form must still be completed and submitted to the Division.**

Payment

25. Payment - Enter the amount of the payment enclosed with the form. Enter the check number in the box below box 25. This is necessary if for some reason your check gets separated from the form.

26. Payment is for (check one) - If you are submitting payment for the entire fee due for the previous calendar year, check "Entire Annual Fee." If the total fee due is less than \$20,000, the entire fee must be paid in its entirety with the form submittal.

If the total fee due is \$20,000 or greater, it may be paid on a quarterly basis (four equal quarterly payments). If this is the initial quarterly payment when paying fees for the previous calendar year check "Quarterly Payment Due Sept. 1". If "Entire Annual Fee" or "Quarterly Payment Due Sept. 1" is checked, the "Annual Fee Calculation" section of the form must be completed. When submitting the three remaining quarterly payments, check the appropriate box. The "Annual Fee Calculation" section of the form should not be completed when submitting quarterly payments which are due October 1, January 2, and April 1.

Signature

- 27-30. The name and title of the person who assumes legal authority for information contained in the form shall be entered here. That person should then sign and date the form. Any form submitted without this information and a signature will be considered incomplete.

4.2 Amendment Form

If the owner or operator of a stationary source wishes to amend a Georgia Air Emissions Fee Reporting Form (reporting form) which has been submitted, a "Georgia Air Emissions Fee Amendment Form" (amendment form) should be submitted. The following are item by item instructions for completing the amendment form. Each item below corresponds to an identically numbered box or item on the form.

Facility Information and Mailing Address

1. AIRS # - This is a unique number assigned to each stationary source which is used to track activity regarding that source. The AIRS # for each stationary source appears on the pre-printed fee form for that source. Enter the AIRS # for the stationary source for which the amendment form is being submitted in this space.
2. FEI # - Enter your **Federal Employer Identification Number** (same as Federal tax I.D.) This number is necessary in order to process a refund if your facility has overpaid its emissions fees.
- 3-13. This is the same information as on the reporting form. If any of the information in this section is different than the information that was most recently submitted on an emissions fee form, check the box at the bottom of this section.

Information to be Amended

In this section, you will enter information as it was reported on the original form which is being amended and then enter the corrected information.

14. In boxes 14.a. and 14.b., put the date which is on the reporting form which is being amended and the calendar year of the fees. The date in box 14.a. should correspond to the date contained in the "signature" section of the fee reporting form which is being changed.
- 15-18. Previous VOC/NO_x/PM/SO₂ - These boxes should contain the annual emissions (in tons) of each of the four pollutants as they were reported on the original form.
- 19-22. Corrected VOC/NO_x/PM/SO₂ - In each of these four boxes, enter the correct annual emissions (in tons) for each of the four pollutants. If the correct emissions value is the same as originally reported (for example, you are correcting the emissions for one of the pollutants, but the other three are unchanged) the same value should be entered in the "Previous..." and "Corrected..." boxes.
- 23-26. Previous VOC/NO_x/PM/SO₂ Fee - Enter the "ANNUAL FEE" as reported on the original form.
27. Previous Calculated Fee - Enter the amount from "Total Calculated Fee" (1993 and later forms) as reported on the original form. The 1991 and 1992 forms did not contain this box. If you are amending a 1991 or 1992 form, put "n/a" in this box.
28. Previous Minimum Fee - Enter the amount reported in the box labeled "Minimum Fee" on the original form. Note that the number in this box should either be 0, \$1000, \$1250, or \$1400. This item did not exist on the 1991 and 1992 forms. If you are amending a 1991 or 1992 form, put "n/a" in this box.
29. Previous Total Fee - Enter the amount from "Total Fee Due" as reported on the original Form.
- 30-33. Corrected VOC/NO_x/PM/SO₂ Fee - Enter the corrected annual fee for each of the four pollutants. If the correct fee is the same as the "Previous" fee, enter that number in the "Corrected" fee box.
34. Corrected Calculated Fee - Add boxes 30. through 33. and put the result in box 34.

35. If the source was subject to a "minimum fee" for NSPS, Title III, or Part 70 (see section 2.0 of the fee manual for the appropriate year) enter the appropriate minimum fee in box 35. Otherwise, enter 0. Note that the NSPS minimum fee has been in place for calendar year 1993 fees and beyond and is \$1000, the Title III minimum fee was in place for calendar year 1993 through 1995 fees and was \$1000, and the Part 70 minimum fee is in place for calendar year 1996 fees and beyond and is \$1250 for calendar year 1996 fees and \$1400 for calendar year 1997 and later fees.
36. Corrected Total Fee - Enter the greater of boxes 34. and 35.

Payment Refund

- 37-38. If the amount in box 29. "Previous Total Fee" is greater than the amount in box 36. "Corrected Total Fee", check the box on line 37 and enter the amount that should be refunded to you in box 38. A refund will be sent to you following receipt and approval of your amendment.
- 39-40. If the amount in box 29. "Previous Total Fee" is less than the amount in box 36. "Corrected Total Fee", check the box on line 39 and enter the amount you owe in box 40. A check for the amount shown in box 40. should be made out to "Georgia Department of Natural Resources" and submitted along with the amendment form.

Signature

- 41-44. The name and title of the person who assumes legal authority for information contained in the form shall be entered here. That person should then sign and date the form. Any form submitted without this information and a signature will be considered incomplete.

Amendment forms and payments should be submitted to the following address:

Air Quality Fees
Post Office Box 101713
Atlanta, Georgia 30392

This address is shown on the form and is on the return envelopes included with your Air Permit Fee packages. You should use one of these return envelopes if you have one.

5.0 INSTRUCTIONS FOR ASPHALT PLANTS

The following are used with "Asphalt Concrete Facility - Short Form" which should be used by all asphalt plants instead of the standard fee form and instructions.

- A. Items 1 through 12 should be completed using the instructions for items 1 through 12 of the regular "Georgia Air Emissions Fee Reporting Form" which begins on page 29 of the Fee Manual.
- B. If the asphalt plant in question did not operate at all during the calendar year in which the fees are based, you should check box 13 and complete the signature section.
- C. Question 14 is used to determine if the plant in question is subject to Federal New Source Performance Standard, Subpart I for Hot Mix Asphalt Facilities. If the asphalt plant was originally build after June 11, 1973 or if it was modified after that date, it is subject to Subpart I . If this is the case, you should check yes for question 14 and enter \$1000 in box 14. If our records indicate that the plant is subject to the NSPS standard, a "9" will appear in the box marked "NSPS#" near the top of the page. If you have any question as to whether the facility in question is subject to the NSPS, call our office at 404/363-7000 and ask for the engineer who handles your facility.
- D. Question 15 is for determining fees for particulate matter emissions. We have determined that any asphalt plant which is equipped with a baghouse or venturi scrubber for control of particulate matter is not required to pay a fee for particulate matter. If you have either of these devices installed on your asphalt plant, answer "yes." If not, call our office (see instructions in step C. above) to determine if the plant in question has the proper control equipment and whether or not permit fees would be due for particulate matter.
- E. Question 16 is for determining fees for VOC and NO_x emissions. We have determined that asphalt plants that operated in one of the listed Atlanta area counties with annual production less than or equal to 640,000 tons per year are not required to pay a fee for VOC or NO_x. We have also determined that the asphalt plants located outside of the counties listed do not owe a fee for VOC or NO_x regardless of their annual production. Therefore, if the asphalt plant in question did not operate in one of the 13 counties listed, check the "no" box in the first question of 16, a zero in box 16a, and go on to 17. If it did operate in one of the listed counties during the year in question, check yes to the first question in 16 and indicate in the second question in 16 whether or not annual production for the year in question exceeded 640,000 tons. If you answer "no" to the second question in 16, enter zero in box 16b and proceed to 17. If the production was over 640,000 tons for the year and you answered "yes" to the second question in 16, you cannot use the short form. Instead, you are required to use the regular fee reporting form and the instructions in the manual.

- F. Question 17 is for determining fees for SO₂ emissions. We have determined that asphalt plants that burn fuel oil and use less than 480,000 gallons during the year are not required to pay a fee for SO₂. We have also determined that asphalt plants that burn only natural gas are not required to pay a fee for SO₂. If you answer "no" to the first question in 17, enter a zero in box 17a and proceed to 18. If you answer "yes" to the first question, go to the second question in 17. If you answer "no" to the second question, enter a zero in box 17b and proceed to 18. If more than 480,000 gallons of fuel oil was burned during the year, you should answer "yes" to the second question in 17 and cannot use the short form. Instead, you are required to use the regular fee reporting form and the instructions in the manual.
- G. Add up the amounts in boxes 14 through 17b and enter the result in box 18. The total should either be \$1000 (if the asphalt plant is subject to the NSPS) or 0 (if the asphalt plant is not subject to the NSPS).
- H. If you owe the \$ 1000 fee for NSPS for this asphalt plant, enter \$ 1000 in box 19 and send the completed form along with a check in the amount of \$1000 made payable to "Georgia Department of Natural Resources" in one of the self addressed return envelopes provided.
- I. The signature section should be completed with the name and title of the owner or authorized official. That person should sign and date the form.

6.0 WHERE TO GET HELP

Assistance related to Air Permit Fees can be obtained by calling the engineer within EPD's Air Protection Branch's Stationary Source Compliance Program who is assigned to your facility. If you do not know which engineer is assigned to your facility, call the Air Protection Branch at 404/363-7000 and ask for the compliance engineer assigned to your facility. Assistance is available from 8:30 AM to 4:00 PM, Monday through Friday, excluding Holidays.

APPENDIX A - EXAMPLES

ALL OF THE FOLLOWING EXAMPLES ARE FOR THE PURPOSE OF ILLUSTRATION ONLY AND ARE NOT INTENDED TO BE PART OF THE PROCEDURES FOR CALCULATING AIR PERMIT FEES.

EXAMPLE 1 - methods 3.22e, f and g and 3.25

A stationary source consists of the following pollutant emitting equipment:

1. Boiler A was constructed in 1965. It is a spreader stoker with a design heat input of 90 MMBtu/hr. During the calendar year the boiler burned 15,000 tons of bituminous coal. Approved fuel analysis showed that this coal had an average heat content of 12,500 Btu/lb and an average sulfur content of 1.2%, by weight. The boiler operated for a total of 6800 hours during the year. There are no emission limits for boiler A in the permit. This boiler was never tested for NO_x.
2. Boiler B was constructed in 1981 and has a design heat input of 300 MMBTU/hr. During the calendar year the boiler burned 7.5 million gallons of distillate oil and 500,000 gallons of residual oil. The distillate oil had an average sulfur content of 0.4%, by weight. The residual oil had an average sulfur content of 0.8%, by weight. The boiler operated for a total of 5000 hours during the year. The permit contains a sulfur dioxide limit of 0.9 lb/MMBtu for boiler B. This boiler is subject to NSPS Subpart D.

BOILER A

PARTICULATE MATTER emissions from Boiler A are limited by Georgia Air Quality Rule 391-3-1-.02(2)(d)1.(ii) [Rule (d)1.]. This is an example of using calculation method 3.22f. First, the owner or operator should calculate the average operating level (OL).

$$OL = \frac{(mass\ of\ fuel\ burned) \times (heat\ content\ of\ fuel)}{(total\ hours\ of\ operation)}$$

where:

mass of fuel burned = (15,000 tons of coal) x (2000 lb/ton) = 30,000,000 lb

average heat content of fuel = 12,500 Btu/lb

total hours of operation = 6800 hours

$$OL = \frac{(30,000,000\ lb) \times (12,500\ Btu/lb)}{(6800\ hours)} = 55.15\ MMBtu/hr$$

This OL (55.15 MMBtu/hr) is then used in Rule (d)1. to calculate the allowable particulate matter emission rate for fee calculation.

$$P = 0.7 \left(\frac{10}{55.15} \right)^{0.202} = 0.4958 \text{ lb/MMBtu}$$

Equation 2f1 is then used to calculate ER. The emission limit (EL) calculated above is 0.4958 lb/MMBtu. OL is 55.15 MMBtu/hr. HR/YR is 6800 hours.

$$ER = \frac{EL \times OL \times HR/YR}{2000} \quad (\text{equation 2f1})$$

$$ER = \frac{(0.4958 \text{ lb/MMBtu}) \times (55.15 \text{ MMBtu/hr}) \times (6800 \text{ hr/yr})}{2000}$$

$$ER = 92.97 \text{ tons/yr}$$

SULFUR DIOXIDE from Boiler A is limited by the sulfur in fuel limit of Georgia Air Quality Rule 391-3-1-.02(2)(g)2. This is an example of method 3.22g. Since this boiler has a design heat input of less than 100 MMBtu/hr, the sulfur content of the coal is limited to 2.5%, by weight.

The 2.5% sulfur limit and the actual amount of coal burned is used in equation 2g1 to calculate the emission rate.

$$ER \text{ (tons } SO_2/\text{yr)} = \frac{(39S) \times (\text{tons coal burned during year})}{2000}$$

$$ER = \frac{(39 \times 2.5) \times (15,000)}{2000} = 731.3 \text{ tons/yr}$$

There are no permit or regulatory limits for **NITROGEN OXIDES** (NO_x) for boiler A. Therefore, the estimated actual emissions are used for determining fees (method 3.25). No test data is available for NO_x. The emission factor for NO_x for bituminous coal combustion in a spreader stoker boiler is 11 lb/ton coal. The emission rate is calculated as follows:

$$ER = 11 \text{ lb/ton coal} \times 15,000 \text{ tons coal/yr} = 165,000 \text{ lb/yr} = 82.50 \text{ tons/yr } NO_x$$

VOLATILE ORGANIC COMPOUND (VOC) emissions from Boiler A are exempt from calculations by exemption 3.17(c).

BOILER B

NSPS Subpart D limits the **PARTICULATE MATTER** emissions from boiler B to 0.10 lb/MMBtu. This is an example of method 3.22e. Equation 2e should be used. Note that particulate matter emissions from combustion of distillate oil is exempt from calculation by exemption 3.17(f) of this fee manual. Particulate matter emissions should only be calculated for residual oil.

$$ER = \frac{EL \times AOL}{2000}$$

Since EL is 0.10 lb/MMBtu, AOL must be in MMBtu/yr. This is calculated by multiplying the annual residual fuel oil consumption by its heat content. The heat content of the residual fuel oil is obtained from the table in method 3.22f.

$$\text{heat content} = 150,000 \text{ Btu/gal} \quad (\text{from table, method 2.22f})$$

$$AOL = 500,000 \text{ gal/yr} \times 150,000 \text{ Btu/gal} = 75,000 \text{ MMBtu/yr}$$

$$ER = \frac{0.10 \text{ lb/MMBtu} \times 75,000 \text{ MMBtu/yr}}{2000} = 3.750 \text{ tons/yr}$$

SULFUR DIOXIDE from boiler B is limited by permit condition to 0.9 lb/MMBtu. Method 3.22g states that the regulatory sulfur-in-fuel limit for distillate oil may be assumed to be 0.5%. Method 3.22g is used to calculate SO₂ from distillate oil and method 3.22e is used to calculate SO₂ emissions from residual oil.

Distillate Oil - method 3.22g

$$ER = \frac{(142 \times 0.5) \times (7.5 \text{ MMgal/yr})}{2 \times 10^6} = 266.3 \text{ tons}$$

Residual Oil - method 3.22e

Equation 2e is used to calculate ER.

$$ER = \frac{EL \times AOL}{2000}$$

EL is 0.9 lb/MMBtu. AOL was previously determined in the particulate matter calculation to be 75,000 MMBtu/yr.

$$ER = \frac{0.9 \text{ lb/MMBtu} \times 75,000 \text{ MMBtu/yr}}{2000} = 33.75 \text{ tons/yr}$$

Total SO₂ from Boiler B = 266.3 tons + 33.75 tons = 300.1 tons

NITROGEN OXIDES emissions from boiler B is limited to 0.3 lb/MMBtu by NSPS Subpart D. This is another example of method 3.22e.

$$EL = 0.3 \text{ lb/MMBtu}$$

$$\begin{aligned} \text{AOL} &= \text{AOL for residual oil} + \text{AOL for distillate oil} \\ &= 75,000 + (7.5 \text{ MM gal/yr} \times 141,000 \text{ Btu/gal}) = 1,132,500 \text{ MMBtu/yr} \end{aligned}$$

$$ER = \frac{0.3 \text{ lb/MMBtu} \times 1,132,500 \text{ MMBtu/yr}}{2000} = 169.9 \text{ tons/yr}$$

VOLATILE ORGANIC COMPOUND (VOC) emissions from Boiler B are exempt from calculations by exemption 3.17(b) and 3.17(c).

Totaling the Emissions and Calculating Fee

Finally, the total calculated emissions are added together for each pollutant. Fees are calculated for all pollutants over 100 tons.

	Particulate Matter	Sulfur Dioxide	Nitrogen Oxides
Boiler A	82.50 tons	731.3 tons	105.0 tons
Boiler B	3.750 tons	300.1 tons	169.9 tons
Total	86.25	1031.4	274.9
Round off to nearest ton	86 tons	1031 tons	275 tons

The fee calculations are as follows:

$$\text{Particulate Matter} = 86 \text{ tons } \$0 \text{ (no fee due for less than 100 tons)}$$

$$\text{Sulfur Dioxide} = 1031 \text{ tons} \times \$28/\text{ton} = \$28,868$$

$$\text{Nitrogen Oxides} = 275 \text{ tons} \times \$28/\text{ton} = \$7700$$

$$\text{Volatile Organic Compounds} = \$0 \text{ (exemption 2 and 3)}$$

No fees are due for VOC emissions since all VOC emissions from this stationary source are exempt from permit fee calculations.

The total fee due is $\$28,868 + \$7700 = \$36,568$. Since calculations show that a fee is due, the minimum fees for Title V and NSPS are not applicable. The total calculated emissions and fee due for each of the pollutants and the total fee due should be entered in the appropriate spaces on the Georgia Emissions Fee Reporting Form.

EXAMPLE 2 - methods 3.22e and f

A stationary source manufactures metal furniture. Parts of the furniture are machined to specification, sand blasted, and then painted. Particulate matter emissions from machining and sandblasting are controlled by baghouses. There are two painting lines. One is an older line subject to Georgia Air Quality Rule 391-3-1-.02(2)(y), "VOC Emissions from Metal Furniture Coating," [Rule (y)]. The other line is newer and is subject to NSPS Subpart EE, "Standards of Performance for Surface Coating of Metal Furniture." There are no emission limits in the permit. A total of 30,000 tons of metal parts were machined and sandblasted during the year. The machining operation ran 8 hours per day, 5 days per week, for 51 weeks during the year. The sandblasting operation ran 4 hours per day, 5 days per week, for 51 weeks during the year. The machining and sandblasting equipment was installed in 1965. The air quality application for the machining and sandblasting operations list the maximum particulate matter emission rates at 4 lb/hr each. Rotating head electrostatic spray is used on both coating lines. No transfer efficiency testing has been done on the paint lines.

The following coatings were used on the lines during the year. The content of each coating is also listed.

Coating	Density (lb/gal)	Weight % VOC	Weight % Water	Volume % Solids	Usage (gal)	Thinner (gal)	VOC Pure Density (#/gal)
black	10.1	27	0	62.1	10,000	500	7.2
white	10.0	25	0	65.0	60,000	6500	7.2
brown	10.2	27	1	60.5	40,000	0	7.2

Coating	Density (lb/gal)	Weight % VOC	Weight % Water	Volume % Solids	Usage (gal)	Thinner (gal)	VOC Pure Density (#/gal)
blue	8.5	28	2	64.9	10,000	500	7.2
green	8.5	27	2	66.1	20,000	1000	7.2
yellow	8.4	27	0	68.5	20,000	1000	7.2

The emissions of **PARTICULATE MATTER** from the machining operation are subject to Georgia Air Quality Rule 391-3-1-.02(2)(e), [Rule (e)]. Method 3.22f is used for this calculation.

First, calculate the annual average process input weight rate (P) using equation 2f5.

$$P = \frac{c}{d} \quad (\text{equation } 2f5)$$

Where: c = total weight of material input to the process during the calendar year in tons

d = total hours of operation of process equipment during the calendar year

c = 30,000 tons

d = 8 hr/day x 5 days/week x 51 weeks/yr = 2040 hours/yr

$$P = \frac{c}{d} = \frac{30,000 \text{ tons/yr}}{2040 \text{ hr/yr}} = 14.71 \text{ tons/hr}$$

This P is used in Rule (e) to calculate the allowable particulate matter emission limit. Since the machining equipment was installed prior to 1968, the formula for existing equipment is used.

$$E = 4.1 P^{0.67}$$

Where: E = particulate matter emissions limit in pounds per hour

P = process input weight rate in tons per hour = 14.7 tons/hr

$$E = 4.1 P^{0.67} = 4.1 (14.71)^{0.67} = 24.84 \text{ lb/hr}$$

Next equation 2f2 is used.

$$ER = \frac{EL \times OF}{2000} = \frac{24.84 \text{ lb/hr} \times 2040 \text{ hr/yr}}{2000} = 25.34 \text{ tons/yr}$$

The maximum particulate matter emission rate for the machining operation is listed in the air quality permit application at 4 lb/hr. There are no indications that the actual emissions are higher than this. Method 3.22f allows for the use of this application data for calculating fees.

$$ER = \frac{4 \text{ lb/hr} \times 2040 \text{ hr/yr}}{2000} = 4.080 \text{ tons/yr}$$

The emissions of **PARTICULATE MATTER** from the sandblasting operation are also subject to Georgia Air Quality Rule 391-3-1-.02(2)(e), [Rule (e)]. Method 3.22f is used for this calculation.

First, calculate the annual average process input weight rate (P) using equation 2f5.

$$P = \frac{c}{d} \quad (\text{equation } 2f5)$$

Where: c = total weight of material input to the process during the calendar year in tons

d = total hours of operation of process equipment during the calendar year

c = 30,000 tons

d = 4 hr/day x 5 days/week x 51 weeks/yr = 1020 hours/yr

$$P = \frac{c}{d} = \frac{30,000 \text{ tons/yr}}{1020 \text{ hr/yr}} = 29.41 \text{ tons/hr}$$

This P is used in Rule (e) to calculate the allowable particulate matter emission limit. Since the machining equipment was installed prior to 1968, the formula for existing equipment is used.

$$E = 4.1 P^{0.67}$$

Where: E = particulate matter emissions limit in pounds per hour

P = process input weight rate in tons per hour = 29.41 tons/hr

$$E = 4.1 P^{0.67} = 4.1 (29.41)^{0.67} = 39.51 \text{ lb/hr}$$

Next equation 2f2 is used.

$$ER = \frac{EL \times OF}{2000} = \frac{39.51 \text{ lb/hr} \times 1020 \text{ hr/yr}}{2000} = 20.15 \text{ tons/yr}$$

The maximum particulate matter emission rate listed in the permit application for the sandblasting operation is 4 lb/hr. However, performance testing subsequent to construction determined that the particulate matter emissions were above 4 lb/hr. (It was still in compliance with Rule (e).) Because the actual emissions are above that listed in the application, the application data cannot be used to calculate fees. 20.15 tons/yr is used as the particulate matter emissions from sand blasting.

VOLATILE ORGANIC COMPOUND (VOC) emissions are calculated using method 3.22e. First, the emissions from the old line are calculated. Equation 2e is used.

$$ER = \frac{EL \times AOL}{2000} \quad (\text{equation 2e})$$

The emission limit (EL) for the old line is set by Rule (y) at 3.0 lb/gallon, excluding water, delivered to the applicator. According to fee calculation method 3.22e, if the source uses any non-compliance coatings this limit must be converted to lb VOC/gallon of coating solids delivered to the applicator.

It has already been determined that none of the coatings are non-compliant coatings. This is done by calculating the pounds of VOC in the coating, adding the pounds of VOC from the thinner and dividing this total by the volume of the coating plus thinner (excluding the water). The calculation for the brown coating follows:

brown: VOC from coating = 40,000 gal x 10.2 lb/gal x 0.27 (wt. % VOC) = 110,160 lb
 VOC from thinner = 0
 total VOC = 110,160 lb
 gallons of coating = 40,000 (1% water)
 lb of water = 40,000 gal x 10.2 lb/gal x 0.01 = 4080 lb
 gallons of water = 4080 lb ÷ 8.34 lb/gal = 489 gallons
 gallons of coating minus water = 40,000 - 489 = 39,511 gallons
 lb VOC/gallon coating (excluding water) = 110,160 lb/39,511 gal = 2.79 lb/gal

The AOL for equation 2e is the total gallons used, excluding water:

Total gallons = 10,000 (black paint) + 60,000 (white paint) + 40,000 (brown paint) = 110,000 gallons
 Total gallons of water = 40,000 gallons (brown paint) x 0.01 = 400 gallons
 (neither the black or white paint contain water)
 Total gallons minus water = 110,000 - 400 = 109,600 gallons

Use equation 2e to calculate emissions:

$$ER = \frac{3.0 \times 109,600}{2000} = 164.4 \text{ tons}$$

If any of the coatings were non-compliant coatings, you would use the equation in Appendix B of this manual to convert the 3.0 lb VOC/gallon limit to a lb VOC/gallon of coating solids basis. You would then calculate the amount of solids used as is done in the first step for calculating VOC emissions from the new line (below) and multiply these two numbers together and divide by 2000 lb/ton.

Next the VOC emissions from the new line are calculated. The allowable emission limit in NSPS Subpart EE is 0.9 kg VOC per liter of solids applied. First, the gallons of solids sprayed is calculated:

blue = 10,000 gal/yr @ 64.9% solids = 6490 gallons of solids/yr
 green = 20,000 gal/yr @ 66.1% solids = 13,220 gallons of solids/yr
 yellow = 20,000 gal/yr @ 68.5% solids = 13,700 gallons of solids/yr
 total solids sprayed = 6490 + 13,220 + 13,700 = 33,410 gallons of solids sprayed/yr

The transfer efficiency specified in NSPS Subpart EE is 80%. This is used to calculate the amount of solids applied since an alternate transfer efficiency has not been approved.

$$33,410 \text{ gallons of solids/yr} \times 80\% \text{ transfer efficiency} = 26,728 \text{ gallons solids applied/yr}$$

The emission rate (ER) is calculated using equation 2e.

$$ER = \frac{EL \times AOL}{2000} \quad (\text{equation } 2e)$$

EL = 0.90 kg/liter solids applied

AOL = 26,728 gallons solids applied/yr = 101,176 liter solids applied/yr

ER = 0.9 kg VOC/liter solids applied x 101,176 liter solids applied/yr = 91,058 kg/yr

ER = 91,058 kg/yr = 200,748 lb/yr = 100.4 tons/yr VOC

There are no **SULFUR DIOXIDE** or **NITROGEN OXIDES** emissions from this stationary source. Total calculated emissions from this facility are shown below.

	Particulate Matter	Volatile Organic Compounds
machining operation	4.080 tons	-
sand blasting operation	20.15 tons	-
old coating line	-	164.4 tons
new coating line	-	100.4 tons
Total	24.23 tons	264.8 tons
Round off to nearest ton	24 tons	265 tons

The fees are calculated as follows:

Particulate Matter = 24 tons = \$0 (no fee due for less than 100 tons)

Volatile Organic Compounds = 265 tons x \$28/ton = \$7420

Since fees are due only for criteria pollutants which are emitted in excess of the threshold levels listed in section 3.16 (100 tons for particulate matter), no fee is due for particulate matter. The total permit fee due for this stationary source is \$7420. Since calculations show that a fee is due, the minimum fees for Title V and NSPS are not applicable.

EXAMPLE 4 - Methods 3.22d and f and 3.25

A kaolin plant contains a kaolin spray dryer as well as other equipment. **This example will calculate the fee for the spray dryer only.** The emissions from the rest of the equipment should be calculated and added to the emissions from this spray dryer before calculating the total fees due from the entire stationary source.

The kaolin spray dryer can process up to 44 tons/hr of kaolin/water slurry or 30 tons/hr on a dry basis. During the calendar year, the spray dryer processed a total of 210,000 tons (dry basis). The burner is rated at 70 MMBtu/hr and burns natural gas with no. 2 fuel oil as a back-up. The spray dryer was installed in 1968. The air quality permit has limits of 0.025 grains/dry standard cubic feet (gr/dscf) for particulate matter and 10% opacity for the spray dryer.

During the calendar year 475,590,000 cubic feet of natural gas was burned. No fuel oil was burned. The dryer operated 8300 hours. The design gas flow out of the stack under normal operating conditions is 84,000 actual cubic feet per minute (acfm), 24.5% moisture (by volume), with an exit temperature of 210 °F.

The kaolin plant is subject to Georgia Air Quality Control Rule 391-3-1-.02(2)(p), "Particulate Emissions from Kaolin and Fuller's Earth Processes," [Rule (p)]. Since the spray dryer was constructed prior to January 1, 1972, the particulate emissions from the spray dryer are limited by the rule for existing equipment up to and including 30 tons per hour. Calculation method 3.22f should be used here.

$$E = 4.1 P^{0.67}$$

where: E = allowable emission rate in pounds per hour

P = process input weight rate in tons per hour, excluding water

$$P = \frac{210,000 \text{ tons}}{8300 \text{ hours}} = 25.30 \text{ tons/hr}$$

$$E = 4.1 (25.30)^{0.67} = 35.70 \text{ lb/hr}$$

Since the permit contains a limit on particulate matter emissions from the spray dryer, this limit may be used for calculating fees instead of Rule (p), above. The permitted emission limit is 0.025 gr/dscf. Calculation method 3.22d should be used with this limit.

According to calculation method 3.22d, the gr/dscf limit should be converted to a mass per unit time limit (lb/hr). The design air flow rate is used to do this. First the acfm must be converted to dscfm.

$$dscfm = acfm \times (\text{temperature correction}) \times (\text{moisture correction})$$

$$dscfm = 84,000 \text{ acfm} \times \left(\frac{460+68}{460+210} \right) \times (1-0.245) = 49,979 \text{ dscfm}$$

The gr/dscf limit is multiplied by the normal air flow rate in dscfm to obtain a limit in mass per unit time.

$$\begin{aligned} \text{emission limit} &= 0.025 \text{ gr/dscf} \times 49,979 \text{ dscf/min} \times 1 \text{ lb/7000 gr} \times 60 \text{ min/hr} \\ &= 10.71 \text{ lb/hr} \end{aligned}$$

Since the permit limit for particulate matter from the spray dryer is lower than Rule (p), the owner or operator may elect to use the permit limit for calculating fees.

$$\text{calculated emission rate} = \frac{10.71 \text{ lb/hr} \times 8300 \text{ hr/yr}}{2000 \text{ lb/ton}} = 44.45 \text{ tons/yr}$$

NITROGEN OXIDES emissions are calculated using AP-42 emission factors. This is an example of calculation method 3.25(f)1. The AP-42 emission factor for NO_x emissions from natural gas combustion is 100 lb/MM ft³ of natural gas burned.

$$\begin{aligned} \text{calculated emission rate} &= 100 \text{ lb/MM ft}^3 \times 475.59 \text{ MM ft}^3/\text{yr} = 47,559 \text{ lb/yr} \\ &= 23.78 \text{ tons/yr} \end{aligned}$$

SULFUR DIOXIDE and **VOLATILE ORGANIC COMPOUND** emissions from combustion of natural gas in the spray dryer is exempt from fee calculations by exemptions 3.17(b) and 3.17(c).

The calculated emissions of particulate matter and NO_x from the kaolin spray dryer are 44.45 tons and 23.78 tons, respectively. These emission rates should be added to the calculated emission rates from the other process and fuel burning equipment at the plant prior to calculating the fees due.

APPENDIX B - EXCERPT FROM DIVISION'S PROCEDURES FOR TESTING AND MONITORING SOURCES OF AIR POLLUTION

Procedure for converting emission limits in terms of lb VOC/gallon of coating to lb VOC/gallon of solids. The following is section 1.8(b)(2) as stated in the Division's Procedures for Testing and Monitoring Sources of Air Pollution.

1.8 (b) (2) Calculate the emission limitation on a solids basis according to the following equation:

$$S = \frac{C}{1 - \left(\frac{C}{d}\right)}$$

where:

- S = VOC emission limitation in terms of kg VOC/L of coating solids (lb. VOC/gal. coating solids);
- C = the VOC emission limitation in terms of kg VOC/L of coating (lbs./gal.), minus water and exempt compounds; and
- d = the density of VOC for converting emission limitation to a solids basis. The density equals 0.882 kg/L (7.36 lb./gal.), unless otherwise approved or specified in a specific case.

APPENDIX C - USE OF CONTINUOUS EMISSIONS MONITORING SYSTEMS FOR CALCULATING EMISSIONS

An owner or operator who chooses to determine pollutant mass emissions rates using continuous emissions monitoring systems shall comply with the following procedures and methods:

- I. Continuous emissions monitoring systems (CEMS) shall meet all applicable performance specifications contained in the Georgia Department of Natural Resources **Procedures for Testing and Monitoring Sources of Air Pollutants**.
- II. The quality assurance procedures of Appendix F contained in the Georgia Department of Natural Resources **Procedures for Testing and Monitoring Sources of Air Pollutants** shall be used to establish the validity of all CEMS data which are used to calculate mass emissions.
- III. The mass emissions for a stationary source, individual process or piece of fuel-burning equipment shall be calculated for each calendar month in the reporting period. A calendar month is defined as any of the 12 months of the calendar year. The total mass emissions for the reporting period shall be the sum of the mass emissions for each calendar month in the reporting period. Mass emissions for a calendar month shall be calculated using hourly average pollutant emission rates for each hour of operation. An hour of operation is defined as any of the 24 equal parts of the 24-hour period between 12:00 midnight and the following midnight during which a stationary source, individual process or piece of fuel-burning equipment is operated.
- IV. An owner or operator shall use the following procedures and methods for calculating mass emissions for a stationary source, individual process or piece of fuel-burning equipment using CEMS data, or the Division may approve on a case-by-case basis other procedures or methods if the owner or operator can demonstrate that the alternate procedures and methods yield comparable results and comparable accuracy.

A. **Fossil Fuel-Fired Equipment**

- 1) The continuous emission monitoring system shall measure pollutant concentrations and either oxygen (O₂) or carbon dioxide (CO₂) concentrations. The pollutant emission rate expressed as pounds per million BTU heat input shall be calculated using the F-factor equations and values in Method 19 of the Division's **Procedures for Testing and Monitoring Sources of Air Pollutants** for each hour of operation. Each one-hour average pollutant emission rate (lbs./million BTU) must be based on more than 30 minutes of fuel-fired equipment operation and include at least 2 data points with each representing a 15-minute period, otherwise the data for that hour is considered to be invalid.

- 2) Hourly average pollutant emission rates (lbs./MM BTU) are calculated using appropriate F-factor equations of the form shown below. Method 19 shall be used to determine the specific equation for reducing the CEMS data to pounds per million BTU depending on the moisture basis of the measurements:

$$EH = FC \frac{20.9}{20.9 - \%O_2} \quad (\text{Equation 1})$$

where:

F = oxygen based F-factor

C = pollutant concentration

%O₂ = oxygen concentration

OR,

$$EH = FC \frac{100}{\%CO_2} \quad (\text{Equation 2})$$

where:

F = carbon dioxide based F-factor

C = pollutant concentration

%CO₂ = carbon dioxide concentration

For equipment which combusts combinations of fuels, a composite F-factor shall be calculated using Equation 19-18 contained in Method 19.

3) The pollutant mass emissions rate for a calendar month shall be calculated by:

$$ER = [EH \times QM] + [EL \times QL] \quad (\text{Equation 3})$$

ER = mass emission rate, pounds/month

EH = hourly average emission rate from CEMS data for the month calculated using the appropriate F-factor equation, lbs./MM BTU

QM = total heat input during periods of operation for which valid emissions data have been obtained for the month, MM BTU

EL = allowable emissions limit specified in the permit, rule or regulation for the pollutant, lbs./MM BTU

QL = total heat input during periods of operation for which valid pollutant emissions data have not been obtained for the month, MM BTU

Heat input (QM, QL) shall be calculated using the following equation:

$$QM, QL = \sum_{i=1}^N Q_i W_i \quad (\text{Equation 4})$$

where:

Q_i = heat content of fuel, BTU/lb., BTU/gal., BTU/CF

W_i = quantity of fuel combusted during each period of operation, lbs., gals., CF

B. Recovery Furnaces

1) The continuous emissions monitoring system shall measure pollutant concentrations and oxygen concentrations. The pollutant emission rate shall be calculated using Equations 5 or 6 for each hour of operation. Each one-hour average pollutant emission rate expressed as pounds per pound of black liquor solids must be based on more than 30 minutes of Recovery Furnace operation and include at least 2 data points with each representing a 15-minute period.

2) Hourly average pollutant emission rates shall be calculated by:

a. Dry Basis--

$$EH = C_d F_d \frac{20.9}{20.9 - \%O_{2d}} \quad (\text{Equation 5})$$

where:

C_d = pollutant concentration, lbs./dscf

F_d = F factor - established by performance tests, dscf/lb.-black liquor solids

$\%O_{2d}$ = oxygen concentration, dry basis

OR,

b. Wet Basis--

$$EH = C_w F_w \frac{20.9}{20.9 - \%O_{2w}} \quad (\text{Equation 6})$$

where:

C_w = pollutant concentration, lbs./actual standard cubic foot

F_w = F-factor - established by performance tests, actual standard cubic feet/lb.-black liquor solids

$\%O_{2w}$ = oxygen concentration, wet basis

3) The pollutant mass emissions rate for a calendar month shall be calculated by:

$$ER = [EH \times BS] + [EL \times H] \quad \text{(Equation 7)}$$

where:

ER = mass emission rate, pounds/month

EH = hourly average emission rate from CEMS data for the month, lbs./lb-black liquor solids

BS = total black liquor solids fired during periods of furnace operations for which valid emissions data have been obtained for the month, lbs.-black liquor solids

EL = allowable emissions limit, specified by permit, rule or regulation, lbs./hr.

H = number of hours of furnace operation for which valid emissions data have not been obtained for the month

C. Determination of Pollutant Mass Emission Rates using Continuous Flow Monitors

- 1) Continuous flow monitors which are used in a continuous emissions monitoring system for determining pollutant mass emission rates shall conform to all installation and performance specifications published in 40CFR75, Appendix A.
- 2) The continuous emissions monitoring system shall include a monitor for measuring pollutant concentration. The pollutant emission rate shall be calculated using Equation 8. Each one-hour average pollutant emission rate expressed as pounds per hour must be based on more than 30 minutes of process operation and include at least 2 data points with each representing a 15-minute period, otherwise the data for that hour is considered invalid.
- 3) Hourly average pollutant mass emission rates in terms of pounds per hour shall be calculated by:

$$ERH = Flow \times C_w \quad \text{(Equation 8)}$$

where:

Flow = flow monitor output, actual standard cubic feet per hour

C_w = pollutant concentration, pounds per actual standard cubic foot, wet basis

[Note: Pollutant concentrations measured on a dry basis must be corrected to a wet basis using a moisture correction factor approved by the Division.]

- 4) Total pollutant mass emissions for the reporting period shall be calculated by:

$$ER = \left(\sum ERH_i \right) + (EL \times H) \quad \text{(Equation 9)}$$

where:

ER = mass emissions rate, lbs./month

ERH = hourly average pollutant mass emissions from CEMS data, lbs./hr.

EL = allowable emissions limit, lbs/hr

H = hours of operation for which valid emission data have not been obtained during periods of process operations