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2010

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**AGENCY:** Department of Natural Resources/Environmental Protection  
Division  
**VERSION:** Proposed Rule  
**VERSION DATE:** 06/08/2010

**Chapter 391-3-1 Rules for Air Quality Control**

**PROPOSED AMENDMENTS TO THE RULES OF THE**

**DEPARTMENT OF NATURAL RESOURCES**

**ENVIRONMENTAL PROTECTION DIVISION**

**RELATING TO AIR QUALITY, CHAPTER 391-3-1**

The Rules of the Department of Natural Resources, Chapter 391-3-1, Air Quality Control are hereby amended, added to, repealed in part, revised, as hereinafter explicitly set forth in the attached amendments, additions, partial repeals, and revisions for specific rules, or such subdivisions thereof as may be indicated.

**Rule 391-3-1-.01(nnnn), "Procedures for Testing and Monitoring Sources of Air Pollutants,"** is amended to read as follows:

**(nnnn) "Procedures for Testing and Monitoring Sources of Air Pollutants"** or "PTM" means the Georgia Department of Natural Resources **Procedures for Testing and Monitoring Sources of Air Pollutants** dated ~~March 1, 2009~~ **March 1, 2010**.

**Rule 391-3-1-.02(2)(ss) "Gasoline Transport Vehicles and Vapor Collection Systems,"** is being amended to read as follows:

**(ss) Gasoline Transport Vehicles and Vapor Collection Systems.**

1. After the compliance date specified in paragraph 6. of this subparagraph, no person shall cause, let, permit, suffer, or allow the loading or unloading of gasoline from a gasoline transport vehicle of any size capacity unless:

(i) The tank sustains a pressure change of not more than three inches of water in five minutes when pressurized to 18 inches of water and evacuated to six inches of water as tested at least once per year in accordance with test procedures specified by the Division;

(ii) Displays a marking on the right front (passenger) side of the tank, in characters at least 2 inches high, which reads either P/V TEST DATE or EPA27 and the date on which the gasoline transport tank was last tested;

(iii) The tank has no visible liquid leaks and no gasoline vapor leaks as measured by a combustible gas detector;

(iv) The owner or operator of the gasoline transport vehicle has submitted to the Division within 30 days of the test date a data sheet in the format specified by the Division containing at a minimum the following information: name of person(s) or company that conducted the test, date of test, test results including a list of any repairs made to the transport vehicle to bring it into compliance and the manufacturer's vehicle identification number (VIN) of the tank truck or frame number of a trailer-mounted tank; and

(v) The transport vehicle has been equipped with fittings which are vapor tight and will automatically and immediately close upon disconnection so as to prevent release of gasoline or gasoline vapors, with a vapor return line and hatch seal designed to prevent the escape of gasoline or gasoline vapors while loading.

2. The owner or operator of a vapor collection and vapor control system shall:

(i) Design and operate the vapor collection and vapor control system and the gasoline loading equipment in a manner that prevents:

(I) Gauge pressure from exceeding 18 inches of water and vacuum from exceeding six inches of water in the gasoline tank truck;

(II) A reading equal to or greater than 100 percent of the lower explosive limit (LEL, measured as propane) at one inch from all points on the perimeter of a potential leak source when measured (in accordance with test procedures specified by the Division) during loading or unloading operations at gasoline dispensing facilities, bulk gasoline plants and bulk gasoline terminals; and

(III) Avoidable visible liquid leaks during loading and unloading operations at gasoline dispensing facilities, bulk gasoline plants and bulk gasoline terminals.

(ii) Within 15 days, repair and retest a vapor collection or vapor control system that exceeds the limits in Subparagraph (i) above.

3. Applicability: The requirements of this subparagraph shall apply only to those gasoline transport vehicles which load or unload gasoline at bulk gasoline terminals, bulk gasoline plants, and gasoline dispensing facilities subject to VOC vapor control requirements contained under section 391-3-1-.02(2).

4. The Division may require a pressure/vacuum retest or leak check for any gasoline transport vehicle, vapor collection system, vapor control system, and/or gasoline loading equipment subject to this subparagraph. A gasoline transport vehicle, vapor collection system, vapor control system, and/or gasoline loading equipment for which the Division has required a pressure/vacuum retest or leak check shall:

(i) Cease loading and unloading operations within fourteen (14) days of the date of the initial retest or leak check request unless the retest or leak check has been completed to the satisfaction of the Division;

(ii) Provide written advance notification to the Division of the scheduled time and place of the test in order to provide the Division an opportunity to have an observer present; and

(iii) Supply a copy of the results of all such tests to the Division within 30 days of the test date.

5. For the purpose of this subparagraph, the following definitions shall apply:

(i) "Combustible Gas Detector" means a portable VOC gas analyzer with a minimum range of 0-100 percent of the LEL as propane.

(ii) "Gasoline" means a petroleum distillate having a Reid vapor pressure of 4.0 psia or greater.

(iii) "Gasoline Transport Vehicle" means any mobile storage vessel including tank trucks and trailers used for the transport of gasoline from sources of supply to stationary storage tanks of gasoline dispensing facilities, bulk gasoline plants or bulk gasoline terminals.

(iv) "Gasoline Vapor Leak" means a reading of 100 percent or greater of the Lower Explosive Limit (LEL) of gasoline when measured as propane at a distance of one inch.

(v) "Vapor Collection System" means a vapor transport system, including any piping, hoses and devices, which uses direct displacement by the gasoline being transferred to force vapors from the vessel being loaded into either a vessel being unloaded or vapor control system or vapor holding tank.

(vi) "Vapor Control System" means a system, including any piping, hoses, equipment and devices, that is designed to control the release of volatile organic compounds displaced from a vessel during transfer of gasoline.

6. Compliance Dates.

(i) All gasoline transport vehicles and vapor collection systems operating in Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding and Rockdale counties shall be in compliance.

(ii) All gasoline transport vehicles and vapor collection systems operating in Catoosa, Richmond and Walker counties shall be in compliance with this subparagraph by May 1, 2006.

(iii) All gasoline transport vehicles and vapor collection systems operating in Barrow, Bartow, Carroll, Hall, Newton, Spalding, and Walton counties shall be in compliance with this subparagraph by June 1, 2008.

**Rule 391-3-1-.02(2)(sss) "Multipollutant Control for Electric Utility Steam Generating Units,"** is being amended to read as follows:

**(sss) Multipollutant Control for Electric Utility Steam Generating Units.**

1. **Effective December 31, 2008**, no person shall cause, let, permit, suffer or allow the operation of the following units except as specified below:

(i) Plant Bowen Unit 4 unless such source is equipped and operated with selective catalytic reduction and flue gas desulfurization.

(ii) Plant Bowen Unit 3 unless such source is equipped and operated with selective catalytic reduction and flue gas desulfurization.

(iii) Plant Wansley Unit 1 unless such source is equipped and operated with selective catalytic reduction and flue gas desulfurization.

- (iv) Plant Hammond Unit 1 unless such source is equipped and operated with flue gas desulfurization.
  - (v) Plant Hammond Unit 2 unless such source is equipped and operated with flue gas desulfurization.
  - (vi) Plant Hammond Unit 3 unless such source is equipped and operated with flue gas desulfurization.
  - (vii) Plant Hammond Unit 4 unless such source is equipped and operated with selective catalytic reduction and flue gas desulfurization.
  - (viii) Plant Yates Unit 1 unless such source is equipped and operated with flue gas desulfurization.
2. **Effective June 1, 2009**, no person shall cause, let, permit, suffer or allow the operation of the following units except as specified below:
- (i) Plant Bowen Unit 2 unless such source is equipped and operated with selective catalytic reduction (SCR) and flue gas desulfurization (FGD).
  - (ii) Plant Scherer Unit 2 unless such source is equipped and operated with sorbent injection and a baghouse.
  - (iii) Plant Scherer Unit 3 unless such source is equipped and operated with sorbent injection and a baghouse.
3. **Effective December 31, 2009**, no person shall cause, let, permit, suffer or allow the operation of the following units except as specified below:
- (i) Plant Scherer Unit 1 unless such source is equipped and operated with sorbent injection and a baghouse.
  - (ii) Plant Wansley Unit 2 unless such source is equipped and operated with selective catalytic reduction and flue gas desulfurization.
4. **Effective April 30, 2010**, no person shall cause, let, permit, suffer or allow the operation of the following units except as specified below:
- (i) Plant Scherer Unit 4 unless such source is equipped and operated with sorbent injection and a baghouse.
5. **Effective June 1, 2010**, no person shall cause, let, permit, suffer or allow the operation of the following units except as specified below:
- (i) Plant Bowen Unit 1 unless such source is equipped and operated with selective catalytic reduction (SCR) and flue gas desulfurization (FGD).
6. **Effective December 31, 2011**, no person shall cause, let, permit, suffer or allow the operation of the following units except as specified below:
- (i) Plant Scherer Unit 3 unless such source is equipped and operated with selective catalytic reduction, flue gas desulfurization, sorbent injection, and a baghouse; provided that the owner or operator is not required to operate the selective catalytic reduction system during the months of January through April and October through December of each year.
  - (ii) Plant McDonough Unit 2 unless such source is equipped and operated with selective catalytic reduction (SCR) and flue gas desulfurization (FGD).
7. **Effective April 30, 2012**, no person shall cause, let, permit, suffer or allow the operation of the following units except as specified below:
- (i) Plant McDonough Unit 1 unless such source is equipped and operated with selective catalytic reduction (SCR) and flue gas desulfurization (FGD).
8. **Effective December 31, 2012**, no person shall cause, let, permit, suffer or allow the operation of the following units except as specified below:
- (i) Plant Scherer Unit 4 unless such source is equipped and operated with selective catalytic reduction, flue gas desulfurization, sorbent injection, and a baghouse, provided that the owner or operator is not required to operate the selective catalytic reduction system during the months of January through April and October through December of each year.
9. **Effective December 31, 2013**, no person shall cause, let, permit, suffer or allow the operation of the following units except as specified below:
- (i) Plant Branch Unit 3 unless such source is equipped and operated with selective catalytic reduction (SCR) and flue gas desulfurization (FGD).
  - (ii) Plant Scherer Unit 2 unless such source is equipped and operated with selective catalytic reduction, flue gas desulfurization, sorbent injection, and a baghouse, provided that the owner or operator is not required to operate the selective catalytic reduction system during the months of January through April and October through December of each year.
10. **Effective June 1, 2014**, no person shall cause, let, permit, suffer or allow the operation of the following units except as specified below:
- (i) Plant Branch Unit 4 unless such source is equipped and operated with selective catalytic reduction (SCR) and flue gas desulfurization (FGD).
11. **Effective December 31, 2014**, no person shall cause, let, permit, suffer or allow the operation of the following units except as specified below:
- (i) Plant Branch Unit 1 unless such source is equipped and operated with selective catalytic reduction (SCR) and flue gas desulfurization (FGD).
  - (ii) Plant Branch Unit 2 unless such source is equipped and operated with selective catalytic reduction (SCR) and flue gas desulfurization (FGD).
  - (iii) Plant Scherer Unit 1 unless such source is equipped and operated with selective catalytic reduction, flue gas desulfurization, sorbent injection, and a baghouse; provided that the owner or operator is not required to operate the selective catalytic reduction system during the months of January through April and October through December of each year.
12. **Effective June 1, 2015**, no person shall cause, let, permit, suffer or allow the operation of the following units except as specified below:
- (i) Plant Yates Unit 6 unless such source is equipped and operated with selective catalytic reduction (SCR) and flue gas desulfurization (FGD).
  - (ii) Plant Yates Unit 7 unless such source is equipped and operated with selective catalytic reduction (SCR) and flue gas desulfurization (FGD).
13. **Effective January 1, 2018**, should the annual heat input (from coal combustion) of an affected unit or group of affected units exceed the levels specified in each Subparagraphs 13.(i) through 13.(iv), the owner/operator will comply with the requirements specified in Subparagraph 13.(v):
- (i) Plant Kraft Units 1, 2, and 3 with a total annual heat input of 17,911,898 million Btu;
  - (ii) Plant McIntosh Unit 1 with a total annual heat input of 14,557,638 million Btu;
  - (iii) Plant Mitchell Unit 3 with a total annual heat input of 8,621,580 million Btu;
  - (iv) Plant Yates Units 2, 3, 4, and 5 with a total annual heat input of 33,608,398 million Btu.
- (v) The owner/operator shall evaluate the economic and technical feasibility of additional mercury controls on the applicable affected unit(s) specified in Subparagraphs 13.(i) through 13.(iv), and submit a report on their findings to the Division no later than September 1 of the calendar year following the calendar year that the annual heat input exceeded the applicable level specified in Subparagraphs 13.(i) through 13.(iv).
- (vi) The Division will review the report submitted in accordance with Subparagraph 13.(v) and determine if additional mercury controls are required and, if additional mercury controls are required, establish deadlines for submission of a permit application(s) to the Division and for start-up of such mercury controls.
- (vii) The Division will document the results of its evaluation conducted in accordance with Subparagraph 13.(vi) and notify the owner and/or operator within a timely fashion whether additional mercury controls are required.
14. **Control Equipment Monitoring Design:** For the anticipated range of operations of the applicable EGUs specified in Subparagraphs 1. through 12., the designated representative shall follow the procedures given in Section 2.124 of the Division's Procedures for Testing and Monitoring Sources of Air Pollutants for the establishment of optimized operating parameters for the applicable control equipment installed as required in Subparagraphs 1. through 12.
15. **Alternative Control Technology:** The owner/operator of an affected unit specified in Subparagraphs 1. through 12. may operate alternative control technology or alternative method of emissions reductions from that which is specified in the applicable Subparagraphs 1. through 12. if the following requirements are met:
- (i) The Division has approved the operation of the alternative control technology or the alternative method of emission reductions as being capable of achieving reductions of NO<sub>x</sub>, SO<sub>2</sub> and/or mercury emissions equivalent to or greater than the control technology requirement specified in applicable Subparagraphs 1. through 12. for an individual emissions unit or the respective plant site as a whole; and
  - (ii) The owner/operator has submitted the appropriate permit application(s) to the Division at least twelve months before the effective date of the applicable Subparagraphs 1. through 12.
16. **The owner or operator of any EGU** subject to this subsection may submit a request to the Director to delay implementation of any of the controls required by Subparagraphs 1. through 12. for a specific EGU if there is a delay caused by reasonably unforeseen circumstances beyond the control of the owner operator. Any delay allowed under this subparagraph is subject to review and approval by the Division. Reasonably unforeseen circumstances beyond the control of the owner or operator shall include, without limitation,

the following:

- (i) Failure to secure timely and necessary federal, state or local approvals, responses, notifications or permits to install the controls, provided that such approvals or permits have been timely and diligently sought;
- (ii) Act of God, act of war, insurrection, civil disturbance, flood or other extraordinary weather conditions, vandalism, contractor or supplier strikes or bankruptcy, or unanticipated breakage or accident to machinery or equipment despite diligent maintenance; and
- (iii) Any other delay caused by unforeseeable circumstances beyond the reasonable control of owner or operator as reasonably determined by the Director.

17. **On and after the effective date** of each Subparagraph 1. through 12. for a specific EGU, the applicable owner or operator is not required to operate the required control technology under the following conditions:

- (i) Restarting an EGU when all Electric Utility Steam Generating Units [as listed in Subparagraphs 1. through 12. and Subparagraph 13.(iv)] at a facility are down and off-site power is not available (also known as a "Black Start").
- (ii) Periods of startup of an EGU provided that such periods are consistent with the requirements of Paragraph 391-3-1-.02(2)(a)7.
- (iii) Periods of shutdown of an EGU provided that such periods are consistent with the requirements of Paragraph 391-3-1-.02(2)(a)7.
- (iv) Periods of scheduled and/or preventative maintenance of control technology equipment if such maintenance cannot reasonably be performed during a scheduled outage of the respective EGU.
- (v) Periods of malfunction of EGU and/or control technology equipment provided that such periods are consistent with the requirements of Paragraph 391-3-1-.02(2)(a)7.
- (vi) Periods when the owner/operator is required to conduct the Relative Accuracy Test Audit and any other necessary periodic quality assurance procedures on the Continuous Emissions Monitoring System located on the bypass stack pursuant to 40 CFR Part 75 or the Georgia Department of Natural Resources Procedures for Testing and Monitoring Sources of Air Pollutants.
- (vii) Periods when the owner/operator is required to conduct any performance tests on the bypass stack as required by state or federal air quality rules, air quality operating permits, or as ordered by the Division.
- (viii) Division-approved periods of research and development of emission control technologies, provided that the unit does not exceed other applicable emission limits. For purposes of this subparagraph, the owner/operator shall submit a request for approval under this subparagraph at least 120 days prior to such date as well as including the following items: (1) length of time of research and development (R&D) period; (2) identification of steps to take to minimize emissions in accordance with best operational practices during R&D period; (3) for periods of R&D lasting more than 48 hours during any 5-day period, a demonstration that any increase in emissions resulting from the R&D project that are above that which is allowed by this subparagraph (sss) will not cause or significantly contribute to a violation of any national ambient air quality standard or prevent compliance with any other applicable provisions.
- (ix) Any other occasion not covered by Subparagraphs 17.(i) through (viii), as approved by the Division.

18. **The requirements of Subparagraph 17** do not relieve the owner or operator from the requirement to comply with any other applicable requirements of Georgia Rules for Air Quality Control Chapter 391-3-1.

19. **Technology and Mercury Impact Review – Periodic Evaluation:** The Director shall submit a report to the Georgia Department of Natural Resources Board by December 31, 2023. The report shall constitute an evaluation of available and relevant information to determine if additional reductions of mercury emissions from EGUs are necessary or appropriate. This report shall include an evaluation that includes, but is not limited to, the following:

- (i) mercury concentrations in fish tissue in water bodies in the State and any changes or trends of such concentrations over time;
- (ii) the sources of mercury (including air, land, and water sources) that might influence in-state mercury concentrations in fish tissue;
- (iii) the state of the science regarding the relationship among sources of mercury, mercury speciation and mercury concentrations in fish tissue in water bodies in the State;
- (iv) the health impact of mercury contamination in fish tissue;
- (v) technically- and economically-feasible controls for the reduction of mercury emissions from coal-fired EGUs or other sources;
- (vi) whether additional reductions of mercury from coal-fired EGUs or other sources and/or whether additional time or study is appropriate and necessary in light of items (i) through (v);
- (vii) recommendations for any necessary revisions to Paragraph (sss) or other actions as needed to address other sources; and
- (viii) recommendations for an appropriate timeline for the development of any such additional regulations; provided, however, that implementation and operation of any such additional controls shall be required no earlier than January 1, 2027.

Rule 391-3-1-.02(8) "New Source Performance Standards," is being amended by re-adopting subparagraph (b) in its entirety as follows:

(b) New Source Performance Standards.

1. General Provisions. For purposes of applying New Source Performance Standards, 40 CFR, Part 60, Subpart A (excluding 60.4 and 60.9), as amended December 22, 2008, is hereby incorporated and adopted by reference. The word "Administrator" as used in regulations adopted in this paragraph shall mean the Director of EPD.
2. Standards of Performance for Fossil-fuel Fired Steam Generators: 40 CFR, Part 60, subpart D, as amended January 28, 2009, is hereby incorporated and adopted by reference.
3. Standards of Performance for Electric Utility Steam Generating Units: 40 CFR, Part 60, Subpart Da, as amended January 28, 2009, is hereby incorporated and adopted by reference.
4. Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units: 40 CFR, Part 60, Subpart Db, as amended January 28, 2009, is hereby incorporated and adopted by reference.
5. Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units: 40 CFR, Part 60, Subpart Dc, as amended January 28, 2009, is hereby incorporated and adopted by reference.
6. Standards of Performance for Incinerators: 40 CFR, Part 60, Subpart E, as amended May 10, 2006, is hereby incorporated and adopted by reference.
7. Standards of Performance for Municipal Waste Combustors: 40 CFR, Part 60, Subpart Ea, as amended October 17, 2000, is hereby incorporated and adopted by reference.
8. Standards of Performance for Portland Cement Plants: 40 CFR, Part 60, Subpart F, as amended October 17, 2000, is hereby incorporated and adopted by reference.
9. Standards of Performance for Nitric Acid Plants: 40 CFR, Part 60, Subpart G, as amended February 14, 1989, is hereby incorporated and adopted by reference.
10. Standards of Performance for Sulfuric Acid Plants: 40 CFR, Part 60, Subpart H, as amended October 17, 2000, is hereby incorporated and adopted by reference.
11. Standards of Performance for Asphalt Concrete Plants: 40 CFR, Part 60, Subpart I, as amended February 14, 1989, is hereby incorporated and adopted by reference.
12. Standards of Performance for Petroleum Refineries: 40 CFR, Part 60, Subpart J, as amended June 24, 2008, is hereby incorporated and adopted by reference.
13. Standards of Performance for Storage Vessels for Petroleum Liquids: 40 CFR, Part 60, Subpart K, as amended October 17, 2000, is hereby incorporated and adopted by reference.
14. Standards of Performance for Storage Vessels for Petroleum Liquids: 40 CFR, Part 60, Subpart Ka, as amended December 14, 2000, is hereby incorporated and adopted by reference.
15. Standards of Performance for Volatile Organic Liquid Storage Vessels: 40 CFR, Part 60, Subpart Kb, as amended October 15, 2003, is hereby incorporated and adopted by reference.
16. Standards of Performance for Secondary Lead Smelters: 40 CFR, Part 60, Subpart L, as amended October 17, 2000, is hereby incorporated and adopted by reference.
17. Standards of Performance for Secondary Brass and Bronze Ingot Production Plants: 40 CFR, Part 60, Subpart M, as amended October 17, 2000, is hereby incorporated and adopted by reference.
18. Standards of Performance for Iron and Steel Plants: 40 CFR, Part 60, Subpart N, as amended October 17, 2000, is hereby incorporated and adopted by reference.

19. Standards of Performance for Secondary Emissions from Basic Oxygen Process Steelmaking Facilities for Which Construction is Commenced After January 20, 1983: 40 CFR, Part 60, Subpart Na, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
20. Standards of Performance for Sewage Treatment Plants: 40 CFR, Part 60, Subpart O, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
21. Standards of Performance for Primary Copper Smelters: 40 CFR, Part 60, Subpart P, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
22. Standards of Performance for Primary Zinc Smelters: 40 CFR, Part 60, Subpart Q, as amended [February 14, 1989](#), is hereby incorporated and adopted by reference.
23. Standards of Performance for Primary Lead Smelters: 40 CFR, Part 60, Subpart R, as amended [February 14, 1989](#), is hereby incorporated and adopted by reference.
24. Standards of Performance for Primary Aluminum Reduction Plants: 40 CFR, Part 60, Subpart S, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
25. Standards of Performance for the Phosphate Fertilizer Industry: Wet-Process Phosphoric Acid Plants: 40 CFR, Part 60, Subpart T, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
26. Standards of Performance for the Phosphate Fertilizer Industry: Superphosphoric Acid Plants: 40 CFR, Part 60, Subpart U, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
27. Standards of Performance for the Phosphate Fertilizer Industry: Diammonium Phosphate Plants: 40 CFR, Part 60, Subpart V, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
28. Standards of Performance for the Phosphate Fertilizer Industry: Triple Superphosphate Plants: 40 CFR, Part 60, Subpart W, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
29. Standards of Performance for the Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities: 40 CFR, Part 60, Subpart X, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
30. Standards of Performance for Coal Preparation Plants: 40 CFR, Part 60, Subpart Y, as amended [October 8, 2009](#), is hereby incorporated and adopted by reference.
31. Standards of Performance for Ferroalloy Production Facilities: 40 CFR, Part 60, Subpart Z, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
32. Standards of Performance for Steel Plants: Electric Arc Furnaces: 40 CFR, Part 60, Subpart AA, as amended [February 22, 2005](#), is hereby incorporated and adopted by reference.
33. Standards of Performance for Steel Plants. Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After August 17, 1983: 40 CFR 60, Subpart AAa, as amended [February 22, 2005](#), is hereby incorporated and adopted by reference.
34. Standards of Performance for Kraft Pulp Mills: 40 CFR, Part 60, Subpart BB, as amended [September 21, 2006](#), is hereby incorporated and adopted by reference.
35. Standards of Performance for Glass Manufacturing Plants: 40 CFR, Part 60, Subpart CC, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
36. Standards of Performance for Grain Elevators: 40 CFR, Part 60, Subpart DD, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
37. Standards of Performance for Surface Coating of Metal Furniture: 40 CFR, Part 60, Subpart EE, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
38. Standards of Performance for Stationary Gas Turbines: 40 CFR, Part 60, subpart GG, as amended [February 24, 2006](#), is hereby incorporated and adopted by reference.
39. Standards of Performance for Lime Manufacturing Plants: 40 CFR, Part 60, subpart HH, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
40. Standards of Performance for Lead-Acid Battery Manufacturing Plants: 40 CFR, Part 60, subpart KK, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
41. Standards of Performance for Metallic Mineral Processing Plants: 40 CFR, Part 60, Subpart LL, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
42. Standards of Performance for Automobile and Light-Duty Truck Coating Operations: 40 CFR, Part 60, Subpart MM, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
43. Standards of Performance for Phosphate Rock Plants: 40 CFR, Part 60, Subpart NN, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
44. Standards of Performance for Ammonium Sulfate Manufacture: 40 CFR, Part 60, Subpart PP, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
45. Standards of Performance for Graphic Arts Industry: Publication Rotogravure Printing: 40 CFR, Part 60, Subpart QQ, as amended [April 9, 2004](#), is hereby incorporated and adopted by reference.
46. Standards of Performance for Pressure Sensitive Tape and Label Surface Coating Operations: 40 CFR, Part 60, Subpart RR, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
47. Standards of Performance for Industrial Surface Coating: Large Appliances: 40 CFR, Part 60, Subpart SS, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
48. Standards of Performance for Metal Coil Surface Coating: 40 CFR, Part 60, Subpart TT, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
49. Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture: 40 CFR, Part 60, Subpart UU, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
50. Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry: 40 CFR, Part 60, Subpart VV, as amended [June 2, 2008](#), is hereby incorporated and adopted by reference.
51. Standards of Performance for Beverage Can Surface Coating Industry: 40 CFR, Part 60, Subpart WW, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
52. Standards of Performance for Bulk Gasoline Terminals: 40 CFR, Part 60, Subpart XX, as amended [December 19, 2003](#), is hereby incorporated and adopted by reference.
53. Standards of Performance for Rubber Tire Manufacturing Industry: 40 CFR, Part 60, Subpart BBB, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
54. Standards of Performance for Volatile Organic Compound (VOC) Emission from Polymer Manufacturing Industry: 40 CFR, Part 60, Subpart DDD, as amended [December 14, 2000](#), is hereby incorporated and adopted by reference.
55. Standards of Performance for Flexible Vinyl and Urethane Printing and Coating: 40 CFR 60, Subpart FFF, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
56. Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries: 40 CFR, Part 60, Subpart GGG, as amended [June 2, 2008](#), is hereby incorporated and adopted by reference.
57. Standards of Performance for Synthetic Fiber Production Facilities: 40 CFR, Part 60, Subpart HHH, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
58. Standards of Performance for Volatile Organic Compounds (VOC) Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes: 40 CFR, Part 60, Subpart III, as amended [December 14, 2000](#), is hereby incorporated and adopted by reference.
59. Standards of Performance for Petroleum Dry Cleaners: 40 CFR, Part 60, Subpart JJJ, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
60. Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants: 40 CFR 60, Subpart KKK, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
61. Standards of Performance for Onshore Natural Gas Processing: 40 CFR, Part 60, Subpart LLL, as amended [October 17, 2000](#), is hereby incorporated and adopted by reference.
62. Standards of Performance for Volatile Organic Compounds (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operation: 40 CFR, Part 60, Subpart NNN, as amended [December 14, 2000](#), is hereby incorporated and adopted by reference.
63. Standards of Performance for Nonmetallic Mineral Processing Plants: 40 CFR, Part 60, Subpart OOO, as amended [promulgated April 28, 2009](#), is hereby incorporated and

adopted by reference.

64. Standards of Performance for Wool Fiberglass Insulation Manufacturing Plants: 40 CFR 60, Subpart PPP, as amended October 17, 2000, is hereby incorporated and adopted by reference.

65. Standards of Performance for VOC Emissions from Petroleum Refinery Wastewater Systems: 40 CFR 60, Subpart QQQ, as amended October 17, 2000, is hereby incorporated and adopted by reference.

66. Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Process: 40 CFR 60, Subpart RRR, as amended December 14, 2000, is hereby incorporated and adopted by reference.

67. Standards of Performance for Magnetic Tape Coating: 40 CFR 60, Subpart SSS, as amended February 12, 1999, is hereby incorporated and adopted by reference.

68. Standards of Performance for Plastic Parts for Business Machine Coatings: 40 CFR 60, Subpart TTT, as amended October 17, 2000, is hereby incorporated and adopted by reference.

69. Standards of Performance for Calciners and Dryers in Mineral Industries: 40 CFR 60, Subpart UUU, as amended October 17, 2000, is hereby incorporated and adopted by reference.

70. Standards of Performance for Polymeric Coating of Supporting Substrates Facilities: 40 CFR 60, Subpart VVV, as amended promulgated September 11, 1989, is hereby incorporated and adopted by reference.

71. Standards of Performance for Municipal Waste Combustors for Which Construction is Commenced after September 20, 1994: 40 CFR, Part 60, Subpart Eb, as amended May 10, 2006, is hereby incorporated and adopted by reference.

72. Standards of Performance for Municipal Solid Waste Landfills: 40 CFR, Part 60, Subpart WWW, as amended September 21, 2006, is hereby incorporated and adopted by reference.

73. Standards of Performance for Hospital/Medical/Infectious Waste Incinerators for which construction is commenced after June 20, 1996: 40 CFR, Part 60, Subpart Ec, as amended October 6, 2009, is hereby incorporated and adopted by reference.

74. Standards of Performance for Small Municipal Waste Combustion Units for Which Construction is Commenced After August 30, 1999: 40 CFR 60, Subpart AAAA, as amended promulgated December 6, 2000, is hereby incorporated and adopted by reference.

75. Standards of Performance for Commercial and Industrial Solid Waste Incineration Units for Which Construction is Commenced After November 30, 1999: 40 CFR 60, Subpart CCCC, as amended September 22, 2005, is hereby incorporated and adopted by reference.

76. Standards of Performance for Other Solid Waste Incinerator Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006: 40 CFR Part 60 Subpart EEEE, as amended November 24, 2006, is hereby incorporated and adopted by reference.

77. Standards of Performance for Stationary Compression Ignition Internal Combustion Engines: 40 CFR Part 60 Subpart IIII, as amended promulgated July 11, 2006, is hereby incorporated and adopted by reference.

78. Standards of Performance for Stationary Combustion Turbines: 40 CFR Part 60 Subpart KKKK, as amended March 20, 2009, is hereby incorporated and adopted by reference.

79. Standards of Performance for Stationary Spark Ignition Internal Combustion Engines: 40 CFR Part 60 Subpart JJJJ, as amended October 8, 2008, is hereby incorporated and adopted by reference.

80. Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry For Which Construction, Reconstruction, or Modification Commenced after November 7, 2006: 40 CFR Part 60 Subpart VVa, as amended June 2, 2008, is hereby incorporated and adopted by reference.

81. Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries For Which Construction, Reconstruction, or Modification Commenced after November 7, 2006: 40 CFR Part 60 Subpart GGGA, as amended June 2, 2008, is hereby incorporated and adopted by reference.

82. Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007: 40 CFR Part 60 Subpart Ja, as amended December 22, 2008, is hereby incorporated and adopted by reference.

**Rule 391-3-1-.02(9) "Emission Standards for Hazardous Air Pollutants,"** is being amended by re-adopting Subparagraph (b) in its entirety adding subparagraphs 64, 166, 171, 172, 173 and 174 as follows:

**(b) Emission Standards for Hazardous Air Pollutants.**

1. Emission Standard for Beryllium: 40 CFR, Part 61, Subpart C, as amended October 17, 2000, is hereby incorporated and adopted by reference.

2. Emission Standard for Beryllium Rocket Motor Firing: 40 CFR, Part 61, Subpart D, as amended October 17, 2000, is hereby incorporated and adopted by reference.

3. Emission Standard for Mercury: 40 CFR, Part 61, Subpart E, as amended October 17, 2000, is hereby incorporated and adopted by reference.

4. Emission Standard for Vinyl Chloride: 40 CFR, Part 61, Subpart F, as amended October 17, 2000, is hereby incorporated and adopted by reference.

5. Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene: 40 CFR, Part 61, Subpart J, as amended December 14, 2000, is hereby incorporated and adopted by reference.

6. Emission Standard for Benzene Emissions from Coke Byproduct Recovery Plants: 40 CFR, Part 61, Subpart L, as amended October 17, 2000, is hereby incorporated and adopted by reference.

7. Emission Standard for Asbestos (including work practices): 40 CFR, Part 61, Subpart M, as amended July 20, 2004, is hereby incorporated and adopted by reference.

8. Emission Standard for Inorganic Arsenic Emissions from Glass Manufacturing Plants: 40 CFR, Part 61, Subpart N, as amended October 17, 2000, is hereby incorporated and adopted by reference.

9. Emission Standard for Inorganic Arsenic Emissions from Primary Copper Smelters: 40 CFR, Part 61, Subpart O, as amended October 17, 2000, is hereby incorporated and adopted by reference.

10. Emission Standard for Inorganic Arsenic Emissions from Arsenic Trioxide and Metallic Arsenic Production Facilities: 40 CFR, Part 61, Subpart P, as amended October 3, 1986, is hereby incorporated and adopted by reference.

11. Emission Standard for Equipment Leaks (Fugitive Emission Sources) [of VHAP]: 40 CFR, Part 61, Subpart V, as amended December 14, 2000, is hereby incorporated and adopted by reference.

12. Emission Standard for Benzene Emissions from Benzene Storage Vessels: 40 CFR, Part 61, Subpart Y, as amended December 14, 2000, is hereby incorporated and adopted by reference.

13. Emission Standard for Benzene Emissions from Benzene Transfer Operations: 40 CFR, Part 61, Subpart BB, as amended December 14, 2000, is hereby incorporated and adopted by reference.

14. Emission Standard for Benzene Waste Operations: 40 CFR, Part 61, Subpart FF, as amended December 4, 2003, is hereby incorporated and adopted by reference.

15. General Provisions. For purposes of applying Emission Standards for Hazardous Air Pollutants, 40 CFR, Part 63, Subpart A, as amended December 22, 2008, [excluding 63.13, and 63.15(a)(2)] is hereby incorporated and adopted by reference.

16. Requirements for Control Technology Determinations for Major Sources in Accordance with Clean Air Act Paragraph 112(g): 40 CFR, Parts 63.40 through 63.44, as amended June 30, 1999, is hereby incorporated and adopted by reference, subject to the following provisions:

(i) Terms used in this paragraph shall have the meaning given to them in the Clean Air Act, 40 CFR 63 Subparts A and B, and the Georgia Air Quality Act.

(ii) The "Effective Date of Paragraph 112(g)(2)(B)," as defined in 40 CFR 63.41, shall be June 29, 1998.

(iii) The "Notice of MACT Approval," as defined in 40 CFR 63.41, shall be the air construction permit issued by the Division.

(iv) The "Permitting Authority," as defined in 40 CFR 63.41, shall be the Division.

(v) In lieu of the administrative procedures for review of the Notice of MACT Approval, as set forth in 40 CFR 63.43(f)(1) through (5), the Division will act in accordance with the

permitting requirements as set forth in Chapter 391-3-1-.03 Permits, as amended, and administrative procedures for preconstruction review and approval established by the Division.

(vi) In lieu of the opportunity for public comment on the Notice of MACT Approval, as set forth in 40 CFR 63.43(h), the Division will provide opportunity for public comment on the Notice of MACT Approval pursuant to Chapter 391-3-1-.03 (2)(I).

(vii) The Notice of MACT Approval shall become effective upon issuance of the air construction permit by the Division.

17. Requirements for Control Technology Determinations for Major Sources in Accordance with the Clean Air Act sections 112(j): 40 CFR 63, Subpart B, Sections 63.50 through 63.56, as amended July 11, 2005, is hereby incorporated and adopted by reference.

18. [reserved]

19. Compliance Extensions for Early Reductions: 40 CFR, Part 63, Subpart D, as amended November 21, 1994, is hereby incorporated and adopted by reference.

20. Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry, 40 CFR 63, Subpart F, as amended December 21, 2006, is hereby incorporated and adopted by reference.

21. Emission Standards for Organic Hazardous Air Pollutants from Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater, 40 CFR 63, Subpart G, as amended December 22, 2008, is hereby incorporated and adopted by reference. Only procedures listed in 63.112(e) of 40 CFR 63, Subpart G, shall be used to comply with the emission standard in 63.112(a) unless otherwise specifically approved by the Director.

22. Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks, 40 CFR 63, Subpart H, as amended December 22, 2008, is hereby incorporated and adopted by reference.

23. Emission Standards for Organic Hazardous Air Pollutants for Certain Processes Subject to the Negotiated Regulation for Equipment Leaks, 40 CFR 63, Subpart I, as amended June 23, 2003, is hereby incorporated and adopted by reference.

24. Emission Standards for Polyvinyl Chloride and Copolymers Production, 40 CFR Part 63, Subpart J, as amended July 10, 2002, is hereby incorporated and adopted by reference.

25. [reserved]

26. Emission Standards for Coke Oven Batteries, 40 CFR 63, Subpart L, as amended April 20, 2005, is hereby incorporated and adopted by reference.

27. Perchloroethylene Air Emission Standards for Dry Cleaning Facilities, 40 CFR 63, Subpart M, as amended July 11, 2008, is hereby incorporated and adopted by reference.

28. Emission Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks, 40 CFR 63, Subpart N, as amended April 20, 2006, is hereby incorporated and adopted by reference.

29. Ethylene Oxide Emissions Standards for Sterilization Facilities, 40 CFR 63, Subpart O, as amended December 19, 2005, is hereby incorporated and adopted by reference.

30. [reserved]

31. Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers, 40 CFR 63, Subpart Q, as amended April 7, 2006, is hereby incorporated and adopted by reference.

32. Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations), 40 CFR 63, Subpart R, as amended December 22, 2008, is hereby incorporated and adopted by reference.

33. Emission Standards for Pulp & Paper Industries, 40 CFR 63, Subpart S, as amended April 13, 2004, is hereby incorporated and adopted by reference.

34. Emission Standards for Halogenated Solvent Cleaning, 40 CFR 63, Subpart T, as amended May 3, 2007, is hereby incorporated and adopted by reference.

35. Emission Standards for Hazardous Air Pollutant Emissions: Group I Polymers and Resins, 40 CFR 63, Subpart U, as amended December 22, 2008, is hereby incorporated and adopted by reference.

36. [reserved]

37. Emission Standards for Hazardous Air Pollutants for Epoxy Resins Production and Non- Nylon Polyamides Production, 40 CFR 63, Subpart W, as amended April 20, 2006, is hereby incorporated and adopted by reference.

38. Emission Standards for Hazardous Air Pollutants From Secondary Lead Smelting, 40 CFR 63, Subpart X, as amended June 23, 2003, is hereby incorporated and adopted by reference.

39. Emission Standards for Marine Tank Vessel Loading Operations, 40 CFR 63, Subpart Y, as amended April 20, 2006, is hereby incorporated and adopted by reference.

40. [reserved]

41. Emission Standards for Hazardous Air Pollutants from Phosphoric Acid Manufacturing Plants, 40 CFR 63, Subpart AA, as amended April 20, 2006, is hereby incorporated and adopted by reference.

42. Emission Standards for Hazardous Air Pollutants from Phosphate Fertilizers Production Plants, 40 CFR 63, Subpart BB, as amended April 20, 2006, is hereby incorporated and adopted by reference.

43. Emission Standards for Hazardous Air Pollutants from Petroleum Refineries, 40 CFR 63, Subpart CC, as amended ~~June 23, 2003~~ **October 28, 2009**, is hereby incorporated and adopted by reference. Only procedures listed in 63.642(k) of 40 CFR 63, Subpart CC shall be used to comply with the emission standard in 63.642(g).

44. Emission Standards for Hazardous Air Pollutants from Off-Site Waste and Recovery Operations, 40 CFR 63, Subpart DD, as amended April 20, 2006, is hereby incorporated and adopted by reference.

45. Emission Standards for Magnetic Tape Manufacturing Operations, 40 CFR 63, Subpart EE, as amended June 23, 2003, is hereby incorporated and adopted by reference.

46. [reserved]

47. Emission Standards for Aerospace Manufacturing and Rework Facilities, 40 CFR 63, Subpart GG, as amended April 20, 2006, is hereby incorporated and adopted by reference.

48. Emission Standards for Hazardous Air Pollutants for Source Categories: Oil & Natural Gas Production Facilities, 40 CFR 63, Subpart HH, as amended December 22, 2008, is hereby incorporated and adopted by reference.

49. Emission Standards for Shipbuilding and Ship Repair (Surface Coating), 40 CFR 63, Subpart II, as amended June 23, 2003, is hereby incorporated and adopted by reference.

50. Emission Standards for Wood Furniture Manufacturing Operations, 40 CFR 63, Subpart JJ, as amended June 23, 2003, is hereby incorporated and adopted by reference.

51. Emission Standards for the Printing and Publishing Industry, 40 CFR 63, Subpart KK, as amended May 24, 2006, is hereby incorporated and adopted by reference.

52. Emission Standards for Hazardous Air Pollutants for Source Categories: Primary Aluminum Reduction Plants, 40 CFR 63, Subpart LL, as amended April 20, 2006, is hereby incorporated and adopted by reference.

53. Emission Standards for Hazardous Air Pollutants for Source Categories: Combustion Sources at Kraft, Soda, and Sulfite Pulp and Paper Mills, 40 CFR 63, Subpart MM, as amended April 20, 2006, is hereby incorporated and adopted by reference.

54. [reserved]

55. Emission Standards for Tanks-Level 1, 40 CFR 63, Subpart OO, as amended June 23, 2003, is hereby incorporated and adopted by reference.

56. Emission Standards for Containers, 40 CFR 63, Subpart PP, as amended June 23, 2003, is hereby incorporated and adopted by reference.

57. Emission Standards for Surface Impoundments, 40 CFR 63, Subpart QQ, as amended June 23, 2003, is hereby incorporated and adopted by reference.

58. Emission Standards for Individual Drain Systems, 40 CFR 63, Subpart RR, as amended June 23, 2003, is hereby incorporated and adopted by reference.

59. Emission Standards for Hazardous Air Pollutants from: Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or a Process, 40 CFR 63, Subpart SS, as amended April 20, 2006, is hereby incorporated and adopted by reference.

60. Emission Standards for Hazardous Air Pollutants from Equipment Leaks--Control Level 1, 40 CFR 63, Subpart TT, as amended July 12, 2002, is hereby incorporated and adopted by reference.

61. Emission Standards for Hazardous Air Pollutants from Equipment Leaks--Control Level 2 Standards, 40 CFR 63, Subpart UU, as amended July 12, 2002, is hereby incorporated and adopted by reference.

62. Emission Standards for Oil-Water Separators and Organic-Water Separators, 40 CFR 63, Subpart VV, as amended June 23, 2003, is hereby incorporated and adopted by reference.

63. Emission Standards for Hazardous Air Pollutants from Storage Vessels (Tanks)--Control Level 2, 40 CFR 63, Subpart WW, as amended July 12, 2002, is hereby incorporated and adopted by reference.

64. Emission Standards for Ethylene Manufacturing Process Units: Heat Exchange Systems and Waste Operations, 40 CFR Part 63, Subpart XX, as amended April 13, 2005, is hereby incorporated and adopted by reference.

6465. Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards, 40 CFR 63, Subpart YY, as amended April 20, 2006, is hereby incorporated and adopted by reference.

66. [reserved]

67. [reserved]

68. [reserved]

6569. Emission standards for Hazardous Air Pollutants for Source Categories: Steel Pickling -- HCl Process Facilities and Hydrochloric Acid Regeneration Plants, 40 CFR 63, Subpart CCC, as amended April 20, 2006, is hereby incorporated and adopted by reference.

6670. Emission Standards for Hazardous Air Pollutants for Source Categories: Mineral Wool Production, 40 CFR 63, Subpart DDD, as amended June 23, 2003, is hereby incorporated and adopted by reference.

6771. Emission Standards for Hazardous Air Pollutants for Source Categories: Hazardous Waste Combustors, 40 CFR 63, Subpart EEE, as amended October 28, 2008, is hereby incorporated and adopted by reference.

6872. [reserved]

6973. Emission Standards for Hazardous Air Pollutants for Source Categories: Pharmaceuticals Production, 40 CFR 63, Subpart GGG, as amended December 22, 2008, is hereby incorporated and adopted by reference.

7074. Emission Standards for Hazardous Air Pollutants for Source Categories: Natural Gas Transmission and Storage Facilities, 40 CFR 63, Subpart HHH, as amended December 22, 2008, is hereby incorporated and adopted by reference.

7175. Emission Standards for Hazardous Air Pollutants for Source Categories: Flexible Polyurethane Foam Production, 40 CFR 63, Subpart III, as amended June 23, 2003, is hereby incorporated and adopted by reference.

7276. Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins, 40 CFR 63, Subpart JJJ, as amended December 22, 2008, is hereby incorporated and adopted by reference.

7377. [reserved]

7478. Emission Standards for Hazardous Air Pollutants for Source Categories: Portland Cement Manufacturing Industry, 40 CFR 63, Subpart LLL, as amended December 20, 2006, is hereby incorporated and adopted by reference.

7579. Emission Standards for Hazardous Air Pollutants for Source Categories: Pesticide Active Ingredient Production, 40 CFR 63, Subpart MMM, as amended April 20, 2006, is hereby incorporated and adopted by reference.

7680. Emission Standards for Hazardous Air Pollutants for Source Categories: Wool Fiberglass Manufacturing, 40 CFR 63, Subpart NNN, as amended April 20, 2006, is hereby incorporated and adopted by reference.

7781. Emission Standards for Hazardous Air Pollutants for Source Categories: Amino/Phenolic Resins Production, 40 CFR 63, Subpart OOO, as amended April 20, 2006, is hereby incorporated and adopted by reference.

7882. Emission Standards for Hazardous Air Pollutants for Source Categories: Polyether Polyols Production, 40 CFR 63, Subpart PPP, as amended April 20, 2006, is hereby incorporated and adopted by reference.

7983. Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting, 40 CFR Part 63, Subpart QQQ, as amended April 20, 2006, is hereby incorporated and adopted by reference.

8084. Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production, 40 CFR, 63, Subpart RRR, as amended April 20, 2006, is hereby incorporated and adopted by reference.

8185. [reserved]

8286. Emission Standards for Hazardous Air Pollutants for Source Categories: Primary Lead Smelting, 40 CFR 63, Subpart TTT, as amended April 20, 2006, is hereby incorporated and adopted by reference.

8387. Emission Standards for Petroleum Refineries: Catalytic Cracking, Catalytic Reforming, and Sulfur Plant Units, 40 CFR Part 63, Subpart UUU, as amended April 20, 2006, is hereby incorporated and adopted by reference.

8488. Emission Standards for Hazardous Air Pollutants for Source Categories: Publicly Owned Treatment Works, 40 CFR 63, Subpart VVV, as amended December 22, 2008, is hereby incorporated and adopted by reference.

8589. [reserved]

8690. Emission Standards for Hazardous Air Pollutants for Source Categories: Ferroalloys Production: Ferromanganese and Silicomanganese, 40 CFR 63, Subpart XXX, as amended April 20, 2006, is hereby incorporated and adopted by reference.

8791. [reserved]

8892. [reserved]

8993. Emission Standards for Hazardous Air Pollutants for Source Categories: Municipal Solid Waste Landfills, 40 CFR Part 63, Subpart AAAA, as amended April 20, 2006, is hereby incorporated and adopted by reference.

9094. [reserved]

9195. Emission Standards for Hazardous Air Pollutants for Source Categories: Nutritional Yeast Manufacturing, 40 CFR Part 63, Subpart CCCC, as amended April 20, 2006, is hereby incorporated and adopted by reference.

9296. Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products, 40 CFR Part 63, Subpart DDDD, as amended October 29, 2007, is hereby incorporated and adopted for reference.

9397. Emission Standards for Hazardous Air Pollutants: Organic Liquid Distribution (non- gasoline), 40 CFR Part 63, Subpart EEEE, as amended December 22, 2008, is hereby incorporated and adopted for reference.

9498. Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing, 40 CFR Part 63, Subpart FFFF, as amended December 22, 2008, is hereby incorporated and adopted by reference.

9599. Emission Standards for Hazardous Air Pollutants for Source Categories: Vegetable Oil Production, 40 CFR Part 63, Subpart GGGG, as amended April 20, 2006, is hereby incorporated and adopted by reference.

96100. Emission Standards for Hazardous Air Pollutants for Wet Formed Fiberglass Mat Production, 40 CFR Part 63, Subpart HHHH, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~97~~101. Emission Standards for Hazardous Air Pollutants: Surface Coating of Automobiles and Light-Duty Trucks, 40 CFR Part 63, Subpart IIII, as amended April 24, 2007, is hereby incorporated and adopted by reference.

~~98~~102. Emission Standards for Hazardous Air Pollutants for Paper and Other Web Coatings, 40 CFR Part 63, Subpart JJJJ, as amended May 24, 2006, is hereby incorporated and adopted by reference.

~~99~~103. Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Cans, 40 CFR Part 63, Subpart KKKK, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~100~~104. [reserved]

~~101~~105. Emission Standards for Hazardous Air Pollutants: Surface Coating of Miscellaneous Metal Parts and Products, 40 CFR Part 63, Subpart MMMM, as amended December 22, 2006, is hereby incorporated and adopted by reference.

~~102~~106. Emission Standards for Hazardous Air Pollutants for Large Appliances Surface Coating Operations, 40 CFR Part 63, Subpart NNNN, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~103~~107. Emission Standards for Hazardous Air Pollutants: Printing, Coating, and Dyeing of Fabrics and Other Textiles, 40 CFR Part 63, Subpart OOOO, as amended May 24, 2006, is hereby incorporated and adopted by reference.

~~104~~108. Emission Standards for Hazardous Air Pollutants: Surface Coating of Plastic Parts and Products, 40 CFR Part 63, Subpart PPPP, as amended April 24, 2007, is hereby incorporated and adopted by reference.

~~105~~109. Emission Standards for Hazardous Air Pollutants: Surface Coating of Wood Building Products, 40 CFR Part 63, Subpart QQQQ, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~106~~110. Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Furniture, 40 CFR Part 63, Subpart RRRR, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~107~~111. Emission Standards for Hazardous Air Pollutants for Metal Coil Surface Coating Operations, 40 CFR Part 63, Subpart SSSS, as amended March 17, 2003, is hereby incorporated and adopted by reference.

~~108~~112. Emission Standards for Hazardous Air Pollutants for Leather Finishing Operations, 40 CFR Part 63, Subpart TTTT, as amended February 7, 2005, is hereby incorporated and adopted by reference.

~~109~~113. Emission Standards for Hazardous Air Pollutants for Cellulose Products Manufacturing, 40 CFR Part 63, Subpart UUUU, as amended December 22, 2008, is hereby incorporated and adopted by reference.

~~110~~114. Emission Standards for Hazardous Air Pollutants for Source Categories: Boat Manufacturing, 40 CFR Part 63, Subpart VVVV, as amended October 3, 2001, is hereby incorporated and adopted by reference.

~~111~~115. Emission Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production, 40 CFR Part 63, Subpart WWWW, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~112~~116. Emission Standards for Hazardous Air Pollutants for Tire Manufacturing, 40 CFR Part 63, Subpart XXXX, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~113~~117. Emission Standards for Hazardous Air Pollutants for Stationary Combustion Engines, 40 CFR Part 63, Subpart YYYY, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~114~~118. Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines, 40 CFR Part 63, Subpart ZZZZ, as amended ~~January 18, 2008~~ March 3, 2010, is hereby incorporated and adopted by reference.

~~115~~119. Emission Standards for Hazardous Air Pollutants for Lime Manufacturing Plants, 40 CFR Part 63, Subpart AAAAA, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~116~~120. Emission Standards for Hazardous Air Pollutants: Semiconductor Manufacturing, 40 CFR Part 63, Subpart BBBB, as amended July 22, 2008, is hereby incorporated and adopted by reference.

~~117~~121. Emission Standards for Hazardous Air Pollutants for Coke Ovens: Pushing, Quenching, and Battery Stacks, 40 CFR Part 63, Subpart CCCCC, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~118~~122. [reserved]

~~119~~123. Emission Standards for Hazardous Air Pollutants for Iron and Steel ~~Foundries~~Foundries, 40 CFR 63, Subpart EEEEE, as amended February 7, 2008, is hereby incorporated by reference.

~~120~~124. Emission Standards for Hazardous Air Pollutants: Integrated Iron and Steel Manufacturing, 40 CFR Part 63, Subpart FFFFF, as amended July 13, 2006, is hereby incorporated and adopted by reference.

~~121~~125. Emission Standards for Hazardous Air Pollutants: Site Remediation, 40 CFR Part 63, Subpart GGGGG, as amended December 22, 2008, is hereby incorporated and adopted by reference.

~~122~~126. Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing, 40 CFR Part 63, Subpart HHHHH, as amended December 22, 2008, is hereby incorporated and adopted by reference.

~~123~~127. Emission Standards for Hazardous Air Pollutants: Mercury Emissions from Mercury Cell Chlor-Alkali Plants, 40 CFR Part 63, Subpart IIIII, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~124~~128. [reserved]

~~125~~129. [reserved]

~~126~~130. Emission Standards for Hazardous Air Pollutants: Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR Part 63, Subpart LLLLL, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~127~~131. Emission Standards for Hazardous Air Pollutants: Flexible Polyurethane Foam Fabrication Operations, 40 CFR Part 63, Subpart MMMMM, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~128~~132. Emission Standards for Hazardous Air Pollutants: Hydrochloric Acid Production, 40 CFR Part 63, Subpart NNNNN, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~129~~133. [reserved]

~~130~~134. Emission Standards for Hazardous Air Pollutants: Engine Test Cells/Stands, 40 CFR Part 63, Subpart PTTTT, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~131~~135. Emission Standards for Hazardous Air Pollutants for Friction Materials Manufacturing Facilities, 40 CFR Part 63, Subpart QQQQQ, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~132~~136. Emission Standards for Hazardous Air Pollutants: Taconite Iron Ore Processing, 40 CFR Part 63, Subpart RRRRR, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~133~~137. Emission Standards for Hazardous Air Pollutants for Refractory Products Manufacturing, 40 CFR Part 63, Subpart SSSSS, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~134~~138. Emission Standards for Hazardous Air Pollutants for Primary Magnesium Manufacturing, 40 CFR Part 63, Subpart TTTTT, as amended April 20, 2006, is hereby incorporated and adopted by reference.

~~135~~139. [reserved]

~~136~~140. [reserved]

~~137141~~. Emission Standards for Hospital Ethylene Oxide Sterilizers, 40 CFR Part 63, Subpart WWWW, as promulgated December 28, 2007, is hereby incorporated and adopted by reference.

~~138142~~. [reserved]

~~139143~~. Emission Standards for Hazardous Air Pollutants for Area Sources: Electric Arc Furnace Steelmaking Facilities, 40 CFR Part 63, Subpart YYYYY, as promulgated December 28, 2007, is hereby incorporated and adopted by reference.

~~140144~~. Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources, 40 CFR Part 63, Subpart ZZZZ, as promulgated January 2, 2008, is hereby incorporated and adopted by reference.

~~141145~~. [reserved]

~~142146~~. Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Bulk Terminals, Bulk Plants, and Pipeline Facilities, 40 CFR Part 63, Subpart BBBB, as amended March 7, 2008, is hereby incorporated and adopted by reference.

~~143147~~. Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities, 40 CFR Part 63, Subpart CCCCC, as amended June 25, 2008, is hereby incorporated and adopted by reference.

~~144148~~. Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production Area Sources, 40 CFR Part 63, Subpart DDDDD, as promulgated January 23, 2007, is hereby incorporated and adopted by reference.

~~145149~~. Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting Area Sources, 40 CFR Part 63, Subpart EEEEE, as amended July 3, 2007, is hereby incorporated and adopted by reference.

~~146150~~. Emission Standards for Hazardous Air Pollutants for Secondary Copper Smelting Area Sources, 40 CFR Part 63, Subpart FFFFF, as amended July 3, 2007, is hereby incorporated and adopted by reference.

~~147151~~. Emission Standards for Hazardous Air Pollutants for Primary Nonferrous Metals Area Sources – Zinc, Cadmium, and Beryllium, 40 CFR Part 63, Subpart GGGGG, as promulgated January 23, 2007, is hereby incorporated and adopted by reference.

~~148152~~. Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources, 40 CFR Part 63, Subpart HHHHH, as amended February 13, 2008, is hereby incorporated and adopted by reference.

~~149153~~. [reserved]

~~150154~~. [reserved]

~~151155~~. [reserved]

~~152156~~. Emission Standards for Hazardous Air Pollutants for Acrylic and Modacrylic Fibers Production Area Sources, 40 CFR Part 63, Subpart LLLLL, as amended March 26, 2008, is hereby incorporated and adopted by reference.

~~153157~~. Emission Standards for Hazardous Air Pollutants for Carbon Black Production Area Sources, 40 CFR Part 63, Subpart MMMM, as amended March 26, 2008, is hereby incorporated and adopted by reference.

~~154158~~. Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources: Chromium Compounds, 40 CFR Part 63, Subpart NNNNN, as amended March 26, 2008, is hereby incorporated and adopted by reference.

~~155159~~. Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production and Fabrication Area Sources, 40 CFR Part 63, Subpart OOOOO, as amended March 26, 2008, is hereby incorporated and adopted by reference.

~~156160~~. Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources, 40 CFR Part 63, Subpart PTTTT, as amended March 26, 2008, is hereby incorporated and adopted by reference.

~~157161~~. Emission Standards for Hazardous Air Pollutants for Wood Preserving Area Sources, 40 CFR Part 63, Subpart QQQQ, as amended March 26, 2008, is hereby incorporated and adopted by reference.

~~158162~~. Emission Standards for Hazardous Air Pollutants for Clay Ceramics Manufacturing Area Sources, 40 CFR Part 63, Subpart RRRRR, as promulgated December 26, 2007, is hereby incorporated and adopted by reference.

~~159163~~. Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources, 40 CFR Part 63, Subpart SSSSS, as promulgated December 26, 2007, is hereby incorporated and adopted by reference.

~~160164~~. Emission Standards for Hazardous Air Pollutants for Secondary Nonferrous Metals Processing Area Sources, 40 CFR Part 63, Subpart TTTTT, as promulgated December 26, 2007, is hereby incorporated and adopted by reference.

~~161165~~. [reserved]

~~162-[reserved]166~~. Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources, 40 CFR Part 63, Subpart VVVVV, as promulgated October 29, 2009, is hereby incorporated and adopted by reference.

~~163167~~. Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations, 40 CFR Part 63, Subpart WWWW, as promulgated July 1, 2008, is hereby incorporated and adopted by reference.

~~164168~~. Emission Standards for Hazardous Air Pollutants: Area Source Standards for Nine Metal Fabrication and Finishing Source Categories, 40 CFR Part 63, Subpart XXXXX, as promulgated July 23, 2008, is hereby incorporated and adopted by reference.

~~165169~~. Emission Standards for Hazardous Air Pollutants for Area Sources: Ferroalloys Production Facilities, 40 CFR Part 63, Subpart YYYYY, as promulgated December 23, 2008, is hereby incorporated and adopted by reference.

~~166170~~. National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries, 40 CFR Part 63, Subpart ZZZZZ, as promulgated June 25, 2009, amended September 10, 2009, is hereby incorporated and adopted by reference.

~~171~~. Emission Standards for Hazardous Air Pollutants for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR Part 63, Subpart AAAAAA, as amended March 5, 2010, is hereby incorporated and adopted by reference.

~~172~~. Emission Standards for Hazardous Air Pollutants for Area Sources: Chemical Preparations Industry, 40 CFR Part 63, Subpart BBBB, as promulgated December 30, 2009, is hereby incorporated and adopted by reference.

~~173~~. Emission Standards for Hazardous Air Pollutants for Area Sources: Paints and Allied Products Manufacturing, 40 CFR Part 63, Subpart CCCCC, as amended March 18, 2010, is hereby incorporated and adopted by reference.

~~174~~. Emission Standards for Hazardous Air Pollutants: Area Source Standards for Prepared Feeds Manufacturing, 40 CFR Part 63, Subpart DDDDD, as promulgated January 5, 2010, is hereby incorporated and adopted by reference.

**Rule 391-3-1-.14 "General Conformity,"** is being amended to read as follows:

40 CFR Part 51, Subpart W, as published amended November 30, 1993 in 58 Federal Register page 63247, as amended April 5, 2010, is hereby incorporated and adopted by reference for the purpose of implementing Section 176 (c) of the Clean Air Act, with respect to the conformity of general federal actions to the applicable implementation plan.

Authority: O.C.G.A. Section 12-9-1 et seq., as amended.

## PROCEDURES FOR

### TESTING AND MONITORING

### SOURCES OF AIR POLLUTANTS

[REVISED: March 1, 2010]

**Note:** This document contains revisions to the March 1, 2009 procedures.

**Georgia Department of Natural Resources**

**Environmental Protection Division**

**Air Protection Branch**

**4244 International Parkway, Suite 120**

**Atlanta, Georgia 30354-3906**

**2.119 Fuel Burning Equipment**

2.119.1 Applicability and Definition of Affected Facility

(a) The affected facility to which this source category applies is any fuel burning equipment which is subject to the Georgia Rules for Air Quality Control, (Georgia Rule), Chapter 391-3-1.02(2)(III), including rule 391-3-1.02(6)(a)2.(xii).

2.119.2 Compliance and Performance Testing for Nitrogen Oxides

(a) In conducting the performance tests required in Section 1.2, the owner or operator shall use as reference methods and procedures the test methods in Appendix A of this test or other methods and procedures as specified in this section, except as provided in Section 1.2(b). Acceptable alternative methods and procedures are given in Section 2.119.2(d). Affected facilities that meet the criteria described in 40 CFR 60.44b(k)\* are not required to install the continuous monitoring systems described in this paragraph and shall use the testing procedures specified in paragraph 2.119.2(b) to determine compliance with the applicable standard.

(b) For affected facilities with a maximum design heat input capacity below 100 million BTU/hr, the owner or operator shall determine compliance as follows:

(1) Sample points shall be located as specified in Method 7E, Section 8.1.2.

(2) Method 3B shall be used for the determination of the oxygen concentration. For each run, the multi-point, integrated sampling and analytical procedure of Method 3B shall be used. The sample shall be taken simultaneously with, and at the same location, as the NO<sub>x</sub> sample.

(3) Method 7 shall be used to determine the NO<sub>x</sub> concentration.

(i) Each run shall consist of a minimum of four grab samples, with each sample taken at about 15-minute intervals. The NO<sub>x</sub> concentration shall be the arithmetic average of the four grab samples.

(ii) The NO<sub>x</sub> concentration shall be corrected to 3 percent oxygen using the following equation:

$$C_{\text{corr}} = C_{\text{meas}} (20.9-3)/(20.9-\%O_2)$$

where:

C<sub>corr</sub> = corrected pollutant concentration, ppm corrected to 3 percent oxygen;

C<sub>meas</sub> = pollutant concentration measured on a dry basis;

(20.9-3) = 20.9 percent oxygen - 3 percent oxygen (defined oxygen correction basis);

20.9 = oxygen concentration in air, percent; and

%O<sub>2</sub> = oxygen concentration measured on a dry basis, percent.

(c) To determine compliance with the emission limits for nitrogen oxides for affected emissions units with a maximum design heat input capacity equal to or greater than 100 million BTU/hr, the owner or operator of an affected facility shall conduct the performance test as required under Section 1.2 using the continuous monitoring system for nitrogen oxides as specified in Section 2.119.3(a).

(1) For the initial performance test, nitrogen oxides from the unit are monitored for 30 successive operating days and the 30-day average emission rate is used to determine compliance with the nitrogen oxides emission standards. The 30-day average emission rate is calculated as the average of all hourly emissions data recorded by the monitoring system during the 30-day test period.

(2) For each hour of operation, the owner or operator shall compute the concentration of nitrogen oxides corrected to 3 percent oxygen using the equation in paragraph 2.119.2(b) (3)(ii) of this section.

(3) Except as provided in paragraph 2.119.2(c)(4) of this section, following the date on which the initial performance test is completed or required to be completed under Section 1.2, whichever date comes first, the owner or operator of an affected facility shall, upon request, determine compliance with the applicable nitrogen oxides standards through the use of a 30-day performance test. During periods when performance tests are not requested, nitrogen oxides emissions data collected pursuant to Section 2.119.3(a)(4)(i) or (ii) are used to calculate a 30-day rolling average emission rate on a daily basis and to prepare excess emission reports. A new 30-day rolling average emission rate is calculated each operating day as the average of all of the hourly nitrogen oxides emission data for the preceding 30 operating days.

(4) In the event there are less than 30 operating days by the end of the period from May 1 to September 30, then the performance test or monitoring averaging period shall include all the operating days for that period.

(d) As an alternative to Method 7, Method 7A, 7C, 7D, or 7E may be used.

(e) For the purposes of this section, an operating day shall be defined as a 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time in the affected unit. It is not necessary for fuel to be combusted continuously for the entire 24-hour period.

2.119.3 Emission Monitoring

(a) The owner or operator of an affected facility, with a maximum design heat input capacity equal to or greater than 100 million BTU/hr, shall install, calibrate, maintain, and operate a continuous monitoring system for measuring nitrogen oxides and oxygen concentration discharged to the atmosphere and record the output of the system. Affected facilities that meet the criteria described in 40 CFR 60.44b(k)\* are not required to install the continuous monitoring systems described in this paragraph and shall follow the monitoring procedures specified in paragraph 2.119.3(b) to monitor emissions of nitrogen oxides.

(1) The continuous monitoring systems shall be operated and data recorded during all periods of operation of the affected facility except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments.

(2) The 1-hour average nitrogen oxides emission rates measured by the continuous nitrogen oxides monitor shall be expressed in parts per million by volume (ppm) corrected to 3 percent oxygen and shall be used to calculate the average emission rate. The 1-hour averages shall be calculated using the data points required under Section 1.4(h). At least 2 data points must be used to calculate each 1-hour average.

(3) The procedures under Section 1.4 shall be followed for installation, evaluation, and operation of the continuous monitoring systems. The span value for nitrogen oxides shall be set at 90 ppm.

(4) The owner or operator of an affected facility may elect to:

(i) Comply with the provisions of paragraphs 2.119.3(a)(1), (2), and (3), of this section, or

(ii) Monitor operating conditions and predict nitrogen oxides emission rates as specified in a plan submitted pursuant to Section 2.119.4(d).

(b) The owner or operator of an affected facility, with a maximum design heat input capacity equal to or greater than 10 million BTU/hr, but less than 100 million BTU/hr, shall monitor the emissions of nitrogen oxides during the period from May 1 through September 30 each year by performing a tune-up to demonstrate that the nitrogen oxides concentrations of the emissions are below 30 ppm corrected to 3 percent oxygen. The tune-up shall use the following procedures:

(1) The tune-up shall be performed no earlier than March 1 and no later than May 1 of each calendar year. In case of initial startups that occur during the period from May 1 to September 30, a tune-up shall be performed within the first 120 hours of operation. The tune-up shall be performed at the normal maximum operating load expected during the period from May 1 to September 30 of each year.

(2) The tune-up shall be performed using the manufacturer recommended settings for reduced NO<sub>x</sub> emissions or by using a NO<sub>x</sub> analyzer. Adjustments shall be made, as needed, so that NO<sub>x</sub> emissions are reduced in a manner consistent with good combustion practices and safe fuel-burning equipment operation.

(3) Following the adjustments, or determining adjustments are not required, the owner and/or operator shall carry out a measurement consisting of a minimum of three test runs to demonstrate that the average emissions are less than or equal to 30 ppm corrected to 3 percent oxygen. Each test run shall be a minimum of 30 minutes of operational data in length. Following emissions measurements in which the average is determined to be greater than 30 ppm corrected to 3 percent oxygen, the owner and/or operator shall make adjustments to the affected facility and conduct a new measurement prior to May 1, or within one day if the initial measurement is conducted during the period of May 1 through September 30. Subsequent adjustments followed by measurements shall be continued until another measurement (average of three test runs) shows the nitrogen oxides emissions are less than or equal to 30 ppm corrected to 3 percent oxygen.

(4) All measurements of NO<sub>x</sub> and oxygen concentrations in paragraphs 2.119.3(b)(2) and (b)(3) of this section shall be conducted using the procedures of the American Society for Testing and Materials Standard (ASTM) *Test Method for Determination of NO<sub>x</sub>, Carbon Monoxide (CO), and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers*, ASTM D 6522-00; or procedures of Gas Research Institute Method GRI-96/0008, EPA/EMC Conditional Test Method (CTM-30) *Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Emissions from Natural Gas-Fired Engines, Boilers and Process Heaters Using Portable Analyzers*, or Procedures of EPA Reference Methods 7E and 3A.

(5) The owner and/or operator shall maintain records of all tune-ups performed in accordance with this section. These records shall indicate the date and time the tune-up was performed, the NO<sub>x</sub> and Oxygen values determined during the measurement, state what operating parameters were adjusted to minimize NO<sub>x</sub> emissions and explain how those settings were determined.

(6) Following the tune-up, from the period May 1 through September 30 of each year, the owner and/or operator shall operate the affected facility using the settings determined during the annual tune-up. If no parameters can be monitored to indicate the performance of the affected facility, the owner and/or operator shall certify that no adjustments have been made to the affected facility by the owner, operator and/or any third party since the measurements in Section 2.119.3(b)(3) were conducted. This certification shall be made in writing no later than October 15 of each year and shall be maintained with the records required to be maintained in paragraph 2.119.3(b)(5) of this section.

(c) As an alternative to complying with the annual tune-up requirement of Section 2.119.3(b), the owner or operator of an affected source capable of operating with a NO<sub>x</sub> emission rate of less than or equal to 15 ppm corrected to 3 percent oxygen may conduct measurements of NO<sub>x</sub> at a reduced frequency following a tune-up and verification demonstrating that the affected facility is capable of a NO<sub>x</sub> emission rate of less than or equal to 15 ppm corrected to 3 percent oxygen. The Permittee may conduct subsequent tune-ups at 48 calendar month intervals. Measurements of NO<sub>x</sub> and oxygen concentrations shall be conducted demonstrating the NO<sub>x</sub> concentration of the emissions of the affected unit to be less than 15 ppm corrected to 3 percent oxygen using the procedures of the American Society for Testing and Materials Standard (ASTM) *Test Method for Determination of NO<sub>x</sub>, Carbon Monoxide (CO), and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers*, ASTM D 6522-00, or procedures of Gas Research Institute Method GRI-96/0008, EPA/EMC Conditional Test Method (CTM-30) *Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Emissions from Natural Gas-Fired Engines, Boilers and Process Heaters Using Portable Analyzers*, or Procedures of EPA Reference Methods 7E and 3A. The owner/operator shall continue to make annual certifications of no adjustments since the previous tune-up.

#### 2.119.4 Reporting and Recordkeeping Requirements

(a) All records required under Section 2.119 shall be maintained by the owner or operator of the affected facility for a period of 5 years following the date of such record.

(b) The owner or operator of an affected facility subject to the continuous monitoring requirements for nitrogen oxides under Section 2.119.3(a) shall maintain records of the following information for each operating day:

(1) Calendar date.

(2) The average hourly nitrogen oxides emission rates (expressed as ppm corrected to 3 percent oxygen), unless the affected facility was not in operation for the day.

(3) The 30-day average nitrogen oxides emission rates (expressed as ppm corrected to 3 percent oxygen) calculated at the end of each operating day from the measured hourly nitrogen oxide emission rates for the preceding 30 operating days.

(4) Identification of any operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions limits with the reasons for such excess emissions as well as a description of corrective actions taken.

(5) Identification of any operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken.

(6) Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data.

(7) Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system.

(8) Description of any modifications to the continuous monitoring system that could affect the ability of the continuous monitoring system to comply with Performance Specification 2 or 3.

(c) The owner or operator of any affected facility subject to the continuous monitoring requirements for nitrogen oxides under Section 2.119.3(a) shall submit a quarterly report containing the information recorded under paragraph (b) of this section with the exception of item (b)(2). All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.

(d) The owner or operator of each affected facility who seeks to demonstrate compliance with the applicable nitrogen oxides emissions standards through the monitoring of operating conditions under the provisions of Section 2.119.3(a)(4)(ii) shall submit to the Director for approval a plan that identifies the operating conditions to be monitored under Section 2.119.3(a)(4)(ii). This plan shall be submitted to the Director for approval within 360 days of the initial startup of the affected facility. The plan shall:

(1) Identify the specific operating conditions to be monitored and the relationship between these operating conditions and nitrogen oxides emission rates (i.e., ppm corrected to 3 percent oxygen). Operating conditions include, but are not limited to, the degree of staged combustion (i.e., the ratio of primary air to secondary and/or tertiary air) and the level of excess air (i.e., flue gas oxygen level);

(2) Include the data and information that the owner or operator used to identify the relationship between nitrogen oxides emission rates and these operating conditions;

(3) Identify how these operating conditions, including load, will be monitored under Section 2.119.3(a)(4) on an hourly basis by the owner or operator during the period of operation of the affected facility and the quality assurance procedures or practices that will be employed to ensure that the data generated by monitoring these operating conditions will be representative and accurate.

If the plan is approved, the owner or operator shall maintain records of predicted nitrogen oxide emission rates and the monitored operating conditions, including load, identified in the plan.

\*Code of Federal Regulations, Title 40, Part 60

### 2.120 Stationary Gas Turbines and Stationary Engines used to Generate Electricity

#### 2.120.1 Applicability

(a) The affected facility to which this section applies is any stationary gas turbine or stationary engine which is subject to the requirements of the Georgia Rules for Air Quality Control (Georgia Rule), Chapter 391-3-1-.02(2)(mmm).

#### 2.120.2 Compliance and Performance Testing for Nitrogen Oxides

(a) In conducting the performance tests required in Section 1.2, the owner and/or operator shall use as reference methods and procedures the test methods in Appendix A of this text or other methods and procedures as specified in this section, except as provided in Section 1.2(b).

(b) The owner and/or operator shall determine compliance with the applicable nitrogen oxides emission standards as follows:

(1) Sample points shall be located as specified in Method 7E, Section 8.1.2.

(2) Method 3B shall be used for the determination of the oxygen concentration. For each run, the multi-point, integrated sampling and analytical procedure of Method 3B shall be used. The sample shall be taken simultaneously with, and at the same location, as the NO<sub>x</sub> sample.

(3) Method 7E shall be used to determine the NO<sub>x</sub> concentration.

(i) The sampling time for each run shall be at least 60 minutes.

(ii) The NO<sub>x</sub> concentration shall be adjusted to 15 percent oxygen using the following equation:

$$C_{adj} = C_{meas} (20.9 - 15) / (20.9 - \% O_2)$$

where:

$C_{adj}$  = pollutant concentration adjusted to 15 percent oxygen;

$C_{meas}$  = pollutant concentration measured on a dry basis;

$(20.9-15)$  = 20.9 percent oxygen - 15 percent oxygen (defined oxygen correction basis);

20.9 = oxygen concentration in air, percent; and

%O<sub>2</sub> = oxygen concentration measured on a dry basis, percent.

(4) The performance test shall be performed at 100 percent of maximum load which for purposes of this section is 100 percent of the maximum manufacturer's design capacity at engine site conditions (Site Rated Horsepower).

#### 2.120.3 Emission Monitoring

(a) The owner and/or operator of an affected facility which uses a Non Selective Catalytic Reduction (NSCR) or Selective Catalytic Reduction (SCR) system to achieve the Nitrogen Oxides emission standard shall install, calibrate, maintain, and operate a system to continuously monitor ~~and record~~ the catalyst inlet temperature. Data shall be recorded each hour or portion of during each hour of operation of the catalyst.

(b) The owner and/or operator of an affected facility which uses a NSCR or SCR system to achieve the Nitrogen Oxides emission standard shall install, calibrate, maintain, and operate a monitoring device to measure the pressure drop across the catalyst.

(c) The owner and/or operator of an affected facility which uses a NSCR or SCR system to achieve the Nitrogen Oxides emission standard shall install, calibrate, maintain and operate a system to continuously monitor the reagent injection rate. Data shall be recorded each hour or portion of each hour of operation of the injection system.

(d) Following the initial performance test, the owner or operator of an affected facility shall monitor the emissions of Nitrogen Oxides during the period from May 1 through September 30 each year by performing a test measurement to demonstrate that the Nitrogen Oxides concentrations corrected to 15 percent Oxygen are below the applicable standard. The test measurements shall use the following procedures:

(1) The measurements shall be performed no earlier than March 1 and no later than May 1 of each calendar year. Should an affected facility become operational during the period from May 1 to September 20, a measurement shall be performed within the first 120 hours of operation.

(2) The measurement shall be performed using the manufacturer recommended settings for reduced Nitrogen Oxides emissions. In the event an SCR is also used to achieve the Nitrogen Oxides emissions standard, the settings for reagent (e.g., urea or ammonia) injection rate at each load level shall be recorded and maintained. Should a change in the reagent injection rate be required at any load, a new measurement at that load range shall be conducted to demonstrate that the Nitrogen Oxides concentrations of the emissions are below the applicable standard. The operation and maintenance of the SCR shall be conducted in a manner consistent with good operation practices and in a manner to minimize excess emissions of ammonia.

(3) The owner and/or operator shall carry out a measurement consisting of a minimum of three test measurements to demonstrate that the average emissions are less than or equal to the applicable standards. Each test measurement shall be a minimum of 30 minutes in length. One test measurement shall be conducted at the minimum load during the past 12 months, one test measurement at the highest load operated during the past 12 months, and one test measurement at the average load operated during the past 12 months

(4) All measurements of Nitrogen Oxides emissions and Oxygen concentrations shall be conducted using the procedures of the American Society for Testing and Materials Standard (ASTM) *Test Method for Determination of NO<sub>x</sub>, Carbon Monoxide (CO), and Oxygen Concentrations in emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers*, ASTM D 6522; or procedures of Gas Research Institute Method GRI-96-0008, EPA/EMC Conditional Test Method (CTM-30) *Determination of NO<sub>x</sub>, Carbon Monoxide (CO), and Oxygen Concentrations in emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers* or the Procedures of EPA Reference Methods 7E and 3A.

(5) The owner and/or operator shall maintain records of all measurements performed in accordance with this section. These records shall indicate the date and time the measurements were performed, the Nitrogen Oxides and Oxygen values determined during the measurements, the reagent injection rate settings of the SCR (at 10% - 100% load as tested), if applicable, the average inlet temperature to the catalyst bed, and the pressure drop across the catalyst bed at the beginning of the measurement.

(6) Following the measurements, from the period May 1 through September 30 of each year, the owner and/or operator shall operate the affected facility using the settings determined during the annual measurement. The owner and/or operator shall certify that no adjustments have been made to the affected facility by the owner, operator and/or any third party since the measurements in Section 2.120.3(c)(3) were conducted. This certification shall be made in writing no later than October 15 of each year and shall be maintained with the records required to be maintained in paragraph 2.120.3(c)(5).

## METHOD 2

### DETERMINATION OF STACK GAS VELOCITY AND VOLUMETRIC

#### FLOW RATE (TYPE S PITOT TUBE)

**NOTE:** This method does not include all of the specifications (e.g., equipment and supplies) and procedures (e.g., sampling) essential to its performance. Some material is incorporated by reference from other methods in this part. Therefore, to obtain reliable results, persons using this method should have a thorough knowledge of at least the following additional test method: Method 1.

#### 1.0 Scope and Application

1.1 This method is applicable for the determination of the average velocity and the volumetric flow rate of a gas stream.

1.2 This method is not applicable at measurement sites that fail to meet the criteria of Method 1, Section 11.1. Also, the method cannot be used for direct measurement in cyclonic or swirling gas streams; Section 11.4 of Method 1 shows how to determine cyclonic or swirling flow conditions. When unacceptable conditions exist, alternative procedures, subject to the approval of the Administrator Director, must be employed to produce accurate flow rate determinations. Examples of such alternative procedures are: (1) to install straightening vanes; (2) to calculate the total volumetric flow rate stoichiometrically, or (3) to move to another measurement site at which the flow is acceptable.

1.3 Data Quality Objectives. Adherence to the requirements of this method will enhance the quality of the data obtained from air pollutant sampling methods.

#### 2.0 Summary of Method

2.1 The average gas velocity in a stack is determined from the gas density and from measurement of the average velocity head with a Type S (Stausscheibe or reverse type) pitot tube.

#### 3.0 Definitions [Reserved]

#### 4.0 Interferences [Reserved]

#### 5.0 Safety

5.1 Disclaimer. This method may involve hazardous materials, operations, and equipment. This test method may not address all of the safety problems associated with its use. It is the responsibility of the user of this test method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to performing this test method.

#### 6.0 Equipment and Supplies

Specifications for the apparatus are given below. Any other apparatus that has been demonstrated (subject to approval of the Administrator Director) to be capable of meeting the specifications will be considered acceptable.

#### 6.1 Type S Pitot Tube.

6.1.1 Pitot tube made of metal tubing (e.g., stainless steel) as shown in Figure 2- 1. It is recommended that the external tubing diameter (dimension D<sub>t</sub>, Figure 2-2b) be between 0.48 and 0.95 cm (3/16 and 3/8 inch). There shall be an equal distance from the base of each leg of the pitot tube to its face-opening plane (dimensions P<sub>A</sub> and P<sub>B</sub>, Figure 2-2b); it is recommended that this distance be between 1.05 and 1.50 times the external tubing diameter. The face openings of the pitot tube shall, preferably, be aligned as shown in Figure 2-2; however, slight misalignments of the openings are permissible (see Figure 2-3).

6.1.2 The Type S pitot tube shall have a known coefficient, determined as outlined in Section 10.0. An identification number shall be assigned to the pitot tube; this number shall be permanently marked or engraved on the body of the tube. A standard pitot tube may be used instead of a Type S, provided that it meets the specifications of Sections 6.7 and 10.2. Note, however, that the static and impact pressure holes of standard pitot tubes are susceptible to plugging in particulate-laden gas streams. Therefore, whenever a standard

pitot tube is used to perform a traverse, adequate proof must be furnished that the openings of the pitot tube have not plugged up during the traverse period. This can be accomplished by comparing the velocity head ( $\Delta p$ ) measurement recorded at a selected traverse point (readable  $\Delta p$  value) with a second  $\Delta p$  measurement recorded after "back purging" with pressurized air to clean the impact and static holes of the standard pitot tube. If the before and after  $\Delta p$  measurements are within 5 percent, then the traverse data are acceptable. Otherwise, the data should be rejected and the traverse measurements redone. Note that the selected traverse point should be one that demonstrates a readable  $\Delta p$  value. If "back purging" at regular intervals is part of a routine procedure, then comparative  $\Delta p$  measurements shall be conducted as above for the last two traverse points that exhibit suitable  $\Delta p$  measurements.

6.2 Differential Pressure Gauge. An inclined manometer or equivalent device. Most sampling trains are equipped with a 10 in. (water column) inclined-vertical manometer, having 0.01 in.  $H_2O$  divisions on the 0 to 1 in. inclined scale, and 0.1 in.  $H_2O$  divisions on the 1 to 10 in. vertical scale. This type of manometer (or other gauge of equivalent sensitivity) is satisfactory for the measurement of  $\Delta p$  values as low as 1.27 mm (0.05 in.)  $H_2O$ . However, a differential pressure gauge of greater sensitivity shall be used (subject to the approval of the Administrator/ Director), if any of the following is found to be true: (1) the arithmetic average of all  $\Delta p$  readings at the traverse points in the stack is less than 1.27 mm (0.05 in.)  $H_2O$ ; (2) for traverses of 12 or more points, more than 10 percent of the individual  $\Delta p$  readings are below 1.27 mm (0.05 in.)  $H_2O$ ; or (3) for traverses of fewer than 12 points, more than one  $\Delta p$  reading is below 1.27 mm (0.05 in.)  $H_2O$ . Reference 18 (see Section 17.0) describes commercially available instrumentation for the measurement of low-range gas velocities.

6.2.1 As an alternative to criteria (1) through (3) above, Equation 2-1 (Section 12.2) may be used to determine the necessity of using a more sensitive differential pressure gauge. If  $T$  is greater than 1.05, the velocity head data are unacceptable and a more sensitive differential pressure gauge must be used.

**NOTE:** If differential pressure gauges other than inclined manometers are used (e.g., magnehelic gauges), their calibration must be checked after each test series. To check the calibration of a differential pressure gauge, compare  $\Delta p$  readings of the gauge with those of a gauge-oil manometer at a minimum of three points, approximately representing the range of  $\Delta p$  values in the stack. If, at each point, the values of  $\Delta p$  as read by the differential pressure gauge and gauge-oil manometer agree to within 5 percent, the differential pressure gauge shall be considered to be in proper calibration. Otherwise, the test series shall either be voided, or procedures to adjust the measured  $\Delta p$  values and final results shall be used, subject to the approval of the Administrator/ Director.

6.3 Temperature Sensor. A thermocouple, liquid-filled bulb thermometer, bimetallic thermometer, mercury-in-glass thermometer, or other gauge capable of measuring temperatures to within 1.5 percent of the minimum absolute stack temperature. The temperature sensor shall be attached to the pitot tube such that the sensor tip does not touch any metal; the gauge shall be in an interference-free arrangement with respect to the pitot tube face openings (see Figure 2-1 and Figure 2-4). Alternative positions may be used if the pitot tube-temperature gauge system is calibrated according to the procedure of Section 10.0. Provided that a difference of not more than 1 percent in the average velocity measurement is introduced, the temperature gauge need not be attached to the pitot tube. This alternative is subject to the approval of the Administrator/ Director.

6.4 Pressure Probe and Gauge. A piezometer tube and mercury- or water-filled U-tube manometer capable of measuring stack pressure to within 2.5 mm (0.1 in.) Hg. The static tap of a standard type pitot tube or one leg of a Type S pitot tube with the face opening planes positioned parallel to the gas flow may also be used as the pressure probe.

6.5 Barometer. A mercury, aneroid, or other barometer capable of measuring atmospheric pressure to within 2.54 mm (0.1 in.) Hg.

**NOTE:** The barometric pressure reading may be obtained from a nearby National Weather Service station. In this case, the station value (which is the absolute barometric pressure) shall be requested and an adjustment for elevation differences between the weather station and sampling point shall be made at a rate of minus 2.5 mm (0.1 in.) Hg per 30 m (100 ft) elevation increase or plus 2.5 mm (0.1 in.) Hg per 30 m (100 ft.) for elevation decrease.

6.6 Gas Density Determination Equipment. Method 3 equipment, if needed (see Section 8.6), to determine the stack gas dry molecular weight, and Method 4 (reference method) or Method 5 equipment for moisture content determination. Other methods may be used subject to approval of the Administrator/ Director.

6.7 Calibration Pitot Tube. When calibration of the Type S pitot tube is necessary (see Section 10.1), a standard pitot tube shall be used for a reference. The standard pitot tube shall, preferably, have a known coefficient, obtained either (1) directly from the National Institute of Standards and Technology (NIST), Gaithersburg MD 20899, (301) 975-2002, or (2) by calibration against another standard pitot tube with an NIST-traceable coefficient. Alternatively, a standard pitot tube designed according to the criteria given in Sections 6.7.1 through 6.7.5 below and illustrated in Figure 2-5 (see also References 7, 8, and 17 in Section 17.0) may be used. Pitot tubes designed according to these specifications will have baseline coefficients of  $0.99 \pm 0.01$ .

6.7.1 Standard Pitot Design.

6.7.1.1 Hemispherical (shown in Figure 2-5), ellipsoidal, or conical tip.

6.7.1.2 A minimum of six diameters straight run (based upon  $D$ , the external diameter of the tube) between the tip and the static pressure holes.

6.7.1.3 A minimum of eight diameters straight run between the static pressure holes and the centerline of the external tube, following the  $90^\circ$  bend.

6.7.1.4 Static pressure holes of equal size (approximately  $0.1 D$ ), equally spaced in a piezometer ring configuration.

6.7.1.5  $90^\circ$  bend, with curved or mitered junction.

6.8 Differential Pressure Gauge for Type S Pitot Tube Calibration. An inclined manometer or equivalent. If the single-velocity calibration technique is employed (see Section 10.1.2.3), the calibration differential pressure gauge shall be readable to the nearest 0.127 mm (0.005 in.)  $H_2O$ . For multiveLOCITY calibrations, the gauge shall be readable to the nearest 0.127 mm (0.005 in.)  $H_2O$  for  $\Delta p$  values between 1.27 and 25.4 mm (0.05 and 1.00 in.)  $H_2O$ , and to the nearest 1.27 mm (0.05 in.)  $H_2O$  for  $\Delta p$  values above 25.4 mm (1.00 in.)  $H_2O$ . A special, more sensitive gauge will be required to read  $\Delta p$  values below 1.27 mm (0.05 in.)  $H_2O$  (see Reference 18 in Section 16.0).

7.0 Reagents and Standards [Reserved]

8.0 Sample Collection and Analysis

8.1 Set up the apparatus as shown in Figure 2-1. Capillary tubing or surge tanks installed between the manometer and pitot tube may be used to dampen  $\Delta p$  fluctuations. It is recommended, but not required, that a pretest leak-check be conducted as follows: (1) blow through the pitot impact opening until at least 7.6 cm (3.0 in.)  $H_2O$  velocity head registers on the manometer; then, close off the impact opening. The pressure shall remain stable for at least 15 seconds; (2) do the same for the static pressure side, except using suction to obtain the minimum of 7.6 cm (3.0 in.)  $H_2O$ . Other leak-check procedures, subject to the approval of the Administrator/ Director, may be used.

8.2 Level and zero the manometer. Because the manometer level and zero may drift due to vibrations and temperature changes, make periodic checks during the traverse (at least once per hour). Record all necessary data on a form similar to that shown in Figure 2-6.

8.3 Measure the velocity head and temperature at the traverse points specified by Method 1. Ensure that the proper differential pressure gauge is being used for the range of  $\Delta p$  values encountered (see Section 6.2). If it is necessary to change to a more sensitive gauge, do so, and remeasure the  $\Delta p$  and temperature readings at each traverse point. Conduct a post-test leak-check (mandatory), as described in Section 8.1 above, to validate the traverse run.

8.4 Measure the static pressure in the stack. One reading is usually adequate.

8.5 Determine the atmospheric pressure.

8.6 Determine the stack gas dry molecular weight. For combustion processes or processes that emit essentially  $CO_2$ ,  $O_2$ ,  $CO$ , and  $N_2$ , use Method 3. For processes emitting essentially air, an analysis need not be conducted; use a dry molecular weight of 29.0. For other processes, other methods, subject to the approval of the Administrator, must be used.

8.7 Obtain the moisture content from Method 4 (reference method, or equivalent) or from Method 5.

8.8 Determine the cross-sectional area of the stack or duct at the sampling location. Whenever possible, physically measure the stack dimensions rather than using blueprints. Do not assume that stack diameters are equal. Measure each diameter distance to verify its dimensions.

9.0 Quality Control

Section	Quality Control Measure	Effect
10.1-10.4	Sampling equipment calibration	Ensure accurate measurement of stack gas flow rate, sample volume
10.0	Calibration and Standardization	

10.1 Type S Pitot Tube. Before its initial use, carefully examine the Type S pitot tube top, side, and end views to verify that the face openings of the tube are aligned within the specifications illustrated in Figures 2-2 and 2-3. The pitot tube shall not be used if it fails to meet these alignment specifications. After verifying the face opening alignment, measure and record the following dimensions of the pitot tube: (a) the external tubing diameter (dimension  $D_t$ , Figure 2-2b); and (b) the base-to-opening plane distances (dimensions  $P_A$  and  $P_B$ , Figure 2-2b). If  $D_t$  is between 0.48 and 0.95 cm (3/16 and 3/8 in.), and if  $P_A$  and  $P_B$  are equal and between 1.05 and 1.50  $D_t$ , there are two possible options: (1) the pitot tube may be calibrated according to the procedure outlined in Sections 10.1.2 through 10.1.5, or (2) a baseline (isolated tube) coefficient value of 0.84 may be assigned to the pitot tube. Note, however, that if the pitot tube is part of an assembly, calibration may still be required, despite knowledge of the baseline coefficient value (see

Section 10.1.1). If  $D_v$ ,  $P_A$ , and  $P_B$  are outside the specified limits, the pitot tube must be calibrated as outlined in Sections 10.1.2 through 10.1.5.

10.1.1 Type S Pitot Tube Assemblies. During sample and velocity traverses, the isolated Type S pitot tube is not always used; in many instances, the pitot tube is used in combination with other source-sampling components (e.g., thermocouple, sampling probe, nozzle) as part of an "assembly." The presence of other sampling components can sometimes affect the baseline value of the Type S pitot tube coefficient (Reference 9 in Section 17.0); therefore, an assigned (or otherwise known) baseline coefficient value may or may not be valid for a given assembly. The baseline and assembly coefficient values will be identical only when the relative placement of the components in the assembly is such that aerodynamic interference effects are eliminated. Figures 2-4, 2-7, and 2-8 illustrate interference-free component arrangements for Type S pitot tubes having external tubing diameters between 0.48 and 0.95 cm (3/16 and 3/8 in.). Type S pitot tube assemblies that fail to meet any or all of the specifications of Figures 2-4, 2-7, and 2-8 shall be calibrated according to the procedure outlined in Sections 10.1.2 through 10.1.5, and prior to calibration, the values of the intercomponent spacings (pitot-nozzle, pitot-thermocouple, pitot-probe sheath) shall be measured and recorded.

**NOTE:** Do not use a Type S pitot tube assembly that is constructed such that the impact pressure opening plane of the pitot tube is below the entry plane of the nozzle (see Figure 2-6B).

10.1.2 Calibration Setup. If the Type S pitot tube is to be calibrated, one leg of the tube shall be permanently marked A, and the other, B. Calibration shall be performed in a flow system having the following essential design features:

10.1.2.1 The flowing gas stream must be confined to a duct of definite cross-sectional area, either circular or rectangular. For circular cross sections, the minimum duct diameter shall be 30.48 cm (12 in.); for rectangular cross sections, the width (shorter side) shall be at least 25.4 cm (10 in.).

10.1.2.2 The cross-sectional area of the calibration duct must be constant over a distance of 10 or more duct diameters. For a rectangular cross section, use an equivalent diameter, calculated according to Equation 2-2 (see Section 12.3), to determine the number of duct diameters. To ensure the presence of stable, fully developed flow patterns at the calibration site, or "test section," the site must be located at least eight diameters downstream and two diameters upstream from the nearest disturbances.

**NOTE:** The eight- and two-diameter criteria are not absolute; other test section locations may be used (subject to approval of the Administrator/ Director), provided that the flow at the test site has been demonstrated to be or found stable and parallel to the duct axis.

10.1.2.3 The flow system shall have the capacity to generate a test-section velocity around 910 m/min (3,000 ft/min). This velocity must be constant with time to guarantee steady flow during calibration. Note that Type S pitot tube coefficients obtained by single-velocity calibration at 910 m/min (3,000 ft/min) will generally be valid to  $\pm 3$  percent for the measurement of velocities above 300 m/min (1,000 ft/min) and to  $\pm 6$  percent for the measurement of velocities between 180 and 300 m/min (600 and 1,000 ft/min). If a more precise correlation between the pitot tube coefficient ( $C_p$ ) and velocity is desired, the flow system should have the capacity to generate at least four distinct, time-invariant test-section velocities covering the velocity range from 180 to 1,500 m/min (600 to 5,000 ft/min), and calibration data shall be taken at regular velocity intervals over this range (see References 9 and 14 in Section 17.0 for details).

10.1.2.4 Two entry ports, one for each of the standard and Type S pitot tubes, shall be cut in the test section. The standard pitot entry port shall be located slightly downstream of the Type S port, so that the standard and Type S impact openings will lie in the same cross-sectional plane during calibration. To facilitate alignment of the pitot tubes during calibration, it is advisable that the test section be constructed of Plexiglas™ or some other transparent material.

10.1.3 Calibration Procedure. Note that this procedure is a general one and must not be used without first referring to the special considerations presented in Section 10.1.5. Note also that this procedure applies only to single-velocity calibration. To obtain calibration data for the A and B sides of the Type S pitot tube, proceed as follows:

10.1.3.1 Make sure that the manometer is properly filled and that the oil is free from contamination and is of the proper density. Inspect and leak-check all pitot lines; repair or replace if necessary.

10.1.3.2 Level and zero the manometer. Switch on the fan, and allow the flow to stabilize. Seal the Type S pitot tube entry port.

10.1.3.3 Ensure that the manometer is level and zeroed. Position the standard pitot tube at the calibration point (determined as outlined in Section 10.1.5.1), and align the tube so that its tip is pointed directly into the flow. Particular care should be taken in aligning the tube to avoid yaw and pitch angles. Make sure that the entry port surrounding the tube is properly sealed.

10.1.3.4 Read  $\Delta p_{std}$ , and record its value in a data table similar to the one shown in Figure 2-9. Remove the standard pitot tube from the duct, and disconnect it from the manometer. Seal the standard entry port.

10.1.3.5 Connect the Type S pitot tube to the manometer and leak-check. Open the Type S tube entry port. Check the manometer level and zero. Insert and align the Type S pitot tube so that its A side impact opening is at the same point as was the standard pitot tube and is pointed directly into the flow. Make sure that the entry port surrounding the tube is properly sealed.

10.1.3.6 Read  $\Delta p_s$ , and enter its value in the data table. Remove the Type S pitot tube from the duct, and disconnect it from the manometer.

10.1.3.7 Repeat Steps 10.1.3.3 through 10.1.3.6 until three pairs of  $\Delta p$  readings have been obtained for the A side of the Type S pitot tube.

10.1.3.8 Repeat Steps 10.1.3.3 through 10.1.3.7 for the B side of the Type S pitot tube.

10.1.3.9 Perform calculations as described in Section 12.4. Use the Type S pitot tube only if the values of  $\sigma_A$  and  $\sigma_B$  are less than or equal to 0.01 and if the absolute value of the difference between the mean of  $C_{p(A)}$  and the mean of  $C_{p(B)}$  is 0.01 or less.

10.1.4 Special Considerations.

10.1.4.1 Selection of Calibration Point.

10.1.4.1.1 When an isolated Type S pitot tube is calibrated, select a calibration point at or near the center of the duct, and follow the procedures outlined in Section 10.1.3. The Type S pitot coefficients measured or calculated, [i.e. the mean of  $C_{p(A)}$  and the mean of  $C_{p(B)}$ ] will be valid, so long as either: (1) the isolated pitot tube is used; or (2) the pitot tube is used with other components (nozzle, thermocouple, sample probe) in an arrangement that is free from aerodynamic interference effects (see Figures 2-4, 2-7, and 2-8).

10.1.4.1.2 For Type S pitot tube-thermocouple combinations (without probe assembly), select a calibration point at or near the center of the duct, and follow the procedures outlined in Section 10.1.3. The coefficients so obtained will be valid so long as the pitot tube-thermocouple combination is used by itself or with other components in an interference-free arrangement (Figures 2-4, 2-7, and 2-8).

10.1.4.1.3 For Type S pitot tube combinations with complete probe assemblies, the calibration point should be located at or near the center of the duct; however, insertion of a probe sheath into a small duct may cause significant cross-sectional area interference and blockage and yield incorrect coefficient values (Reference 9 in Section 17.0). Therefore, to minimize the blockage effect, the calibration point may be a few inches off-center if necessary. The actual blockage effect will be negligible when the theoretical blockage, as determined by a projected-area model of the probe sheath, is 2 percent or less of the duct cross-sectional area for assemblies without external sheaths (Figure 2-10a), and 3 percent or less for assemblies with external sheaths (Figure 2-10b).

10.1.4.2 For those probe assemblies in which pitot tube-nozzle interference is a factor (i.e., those in which the pitot-nozzle separation distance fails to meet the specifications illustrated in Figure 2-7A), the value of  $C_{p(s)}$  depends upon the amount of free space between the tube and nozzle and, therefore, is a function of nozzle size. In these instances, separate calibrations shall be performed with each of the commonly used nozzle sizes in place. Note that the single-velocity calibration technique is acceptable for this purpose, even though the larger nozzle sizes (>0.635 cm or 1/4 in.) are not ordinarily used for isokinetic sampling at velocities around 910 m/min (3,000 ft/min), which is the calibration velocity. Note also that it is not necessary to draw an isokinetic sample during calibration (see Reference 19 in Section 17.0).

10.1.4.3 For a probe assembly constructed such that its pitot tube is always used in the same orientation, only one side of the pitot tube need be calibrated (the side which will face the flow). The pitot tube must still meet the alignment specifications of Figure 2-2 or 2-3, however, and must have an average deviation (s) value of 0.01 or less (see Section 10.1.4.4).

10.1.5 Field Use and Recalibration.

10.1.5.1 Field Use.

10.1.5.1.1 When a Type S pitot tube (isolated or in an assembly) is used in the field, the appropriate coefficient value (whether assigned or obtained by calibration) shall be used to perform velocity calculations. For calibrated Type S pitot tubes, the A side coefficient shall be used when the A side of the tube faces the flow, and the B side coefficient shall be used when the B side faces the flow. Alternatively, the arithmetic average of the A and B side coefficient values may be used, irrespective of which side faces the flow.

10.1.5.1.2 When a probe assembly is used to sample a small duct, 30.5 to 91.4 cm (12 to 36 in.) in diameter, the probe sheath sometimes blocks a significant part of the duct cross-section, causing a reduction in the effective value of  $C_{p(s)}$ . Consult Reference 9 (see Section 17.0) for details. Conventional pitot-sampling probe assemblies are not recommended for use in ducts having inside diameters smaller than 30.5 cm (12 in.) (see Reference 16 in Section 17.0).

10.1.5.2 Recalibration.

10.1.5.2.1 Isolated Pitot Tubes. After each field use, the pitot tube shall be carefully reexamined in top, side, and end views. If the pitot face openings are still aligned within the

specifications illustrated in Figure 2-2 and Figure 2-3, it can be assumed that the baseline coefficient of the pitot tube has not changed. If, however, the tube has been damaged to the extent that it no longer meets the specifications of Figure 2-2 and Figure 2-3, the damage shall either be repaired to restore proper alignment of the face openings, or the tube shall be discarded.

10.1.5.2.2 Pitot Tube Assemblies. After each field use, check the face opening alignment of the pitot tube, as in Section 10.1.5.2.1. Also, remeasure the intercomponent spacings of the assembly. If the intercomponent spacings have not changed and the face opening alignment is acceptable, it can be assumed that the coefficient of the assembly has not changed. If the face opening alignment is no longer within the specifications of Figure 2-2 and Figure 2-3, either repair the damage or replace the pitot tube (calibrating the new assembly, if necessary). If the intercomponent spacings have changed, restore the original spacings, or recalibrate the assembly.

10.2 Standard Pitot Tube (if applicable). If a standard pitot tube is used for the velocity traverse, the tube shall be constructed according to the criteria of Section 6.7 and shall be assigned a baseline coefficient value of 0.99. If the standard pitot tube is used as part of an assembly, the tube shall be in an interference-free arrangement (subject to the approval of the Administrator Director).

### 10.3 Temperature Sensors.

10.3.1 After each field use, calibrate dial thermometers, liquid-filled bulb thermometers, thermocouple-potentiometer systems, and other sensors at a temperature within 10 percent of the average absolute stack temperature. For temperatures up to 405°C (761°F), use an ASTM mercury-in-glass reference thermometer, or equivalent, as a reference. Alternatively, either a reference thermocouple and potentiometer (calibrated against NIST standards) or thermometric fixed points (e.g., ice bath and boiling water, corrected for barometric pressure) may be used. For temperatures above 405°C (761°F), use a reference thermocouple-potentiometer system calibrated against NIST standards or an alternative reference, subject to the approval of the Administrator Director.

10.3.2 The temperature data recorded in the field shall be considered valid. If, during calibration, the absolute temperature measured with the sensor being calibrated and the reference sensor agree within 1.5 percent, the temperature data taken in the field shall be considered valid. Otherwise, the pollutant emission test shall either be considered invalid or adjustments (if appropriate) of the test results shall be made, subject to the approval of the Administrator Director.

10.4 Barometer. Calibrate the barometer used against a mercury barometer.

### 11.0 Analytical Procedure

Sample collection and analysis are concurrent for this method (see Section 8.0).

### 12.0 Data Analysis and Calculations.

Carry out calculations, retaining at least one extra significant figure beyond that of the acquired data. Round off figures after final calculation.

#### 12.1 Nomenclature.

A = Cross-sectional area of stack, m<sup>2</sup> (ft<sup>2</sup>).

B<sub>ws</sub> = Water vapor in the gas stream [from Method 4 (reference method) or Method 5], proportion by volume.

C<sub>p</sub> = Pitot tube coefficient, dimensionless.

C<sub>p(s)</sub> = Type S pitot tube coefficient, dimensionless.

C<sub>p(std)</sub> = Standard pitot tube coefficient; use 0.99 if the coefficient is unknown and the tube is designed according to the criteria of Sections 6.7.1 to 6.7.5 of this method.

D<sub>e</sub> = Equivalent diameter.

K = 0.127 mm H<sub>2</sub>O (metric units).

= 0.005 in. H<sub>2</sub>O (English units).

K<sub>p</sub> = Velocity equation constant.

L = Length.

M<sub>d</sub> = Molecular weight of stack gas, dry basis (see Section 8.6), g/g-mole (lb/lb-mole).

M<sub>s</sub> = Molecular weight of stack gas, wet basis, g/g-mole (lb/lb-mole).

n = Total number of traverse points.

P<sub>bar</sub> = Barometric pressure at measurement site, mm Hg (in. Hg).

P<sub>g</sub> = Stack static pressure, mm Hg (in. Hg).

P<sub>s</sub> = Absolute stack pressure (P<sub>bar</sub> + P<sub>g</sub>), mm Hg (in. Hg),

P<sub>std</sub> = Standard absolute pressure, 760 mm Hg (29.92 in. Hg).

Q<sub>sd</sub> = Dry volumetric stack gas flow rate corrected to standard conditions, dscm/hr (dscf/hr).

T = Sensitivity factor for differential pressure gauges.

T<sub>s</sub> = Stack temperature, °C (°F).

T<sub>s(abs)</sub> = Absolute stack temperature, °K (°R).

= 273 + T<sub>s</sub> for metric units,

= 460 + T<sub>s</sub> for English units.

T<sub>std</sub> = Standard absolute temperature, 293 °K (528 °R).

v<sub>s</sub> = Average stack gas velocity, m/sec (ft/sec).

W = Width.

Δp = Velocity head of stack gas, mm H<sub>2</sub>O (in. H<sub>2</sub>O).

Δp<sub>i</sub> = Individual velocity head reading at traverse point "i", mm (in.) H<sub>2</sub>O.

Δp<sub>std</sub> = Velocity head measured by the standard pitot tube, cm (in.) H<sub>2</sub>O.

Δp<sub>s</sub> = Velocity head measured by the Type S pitot tube, cm (in.) H<sub>2</sub>O.

3600 = Conversion Factor, sec/hr.

18.0 = Molecular weight of water, g/g-mole (lb/lb-mole).

#### 12.2 Calculate T as follows:

$$D_e = \frac{2LW}{L+W}$$

12.3 Calculate  $D_e$  as follows:

12.4 Calibration of Type S Pitot Tube.

12.4.1 For each of the six pairs of  $\Delta p$  readings (i.e., three from side A and three from side B) obtained in Section 10.1.3, calculate the value

of the Type S pitot tube coefficient according to Equation 2-3:

12.4.2 Calculate the mean of  $C_{p(A)}$ , the mean A-side coefficient, and the mean of  $C_{p(B)}$ , the mean B-side coefficient. Calculate the difference between these two average values.

12.4.3 Calculate the deviation of each of the three A-side values of  $C_{p(s)}$  from the mean of  $C_{p(A)}$ , and the deviation of each of the three B-side values of  $C_{p(s)}$  from the mean of  $C_{p(B)}$ , using Equation 2-4:

Deviation =  $C_{p(s)}$  - the mean of  $C_{p(A)}$  or  $C_{p(B)}$  **Equation 2-4**

12.4.4 Calculate  $\sigma$ , the average deviation from the mean, for both the A and B

sides of the pitot tube. Use Equation 2-5:

12.5 Molecular Weight of Stack Gas.

$M_s = M_d (1 - B_{ws}) + 18.0 B_{ws}$  **Equation 2-6**

12.6 Average Stack Gas Velocity.

12.7 Average Stack Gas Dry Volumetric Flow Rate.

13.0 Method Performance [Reserved]

14.0 Pollution Prevention [Reserved]

15.0 Waste Management [Reserved]

16.0 References

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17.0 Tables, Diagrams, Flowcharts, and Validation Data