DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
DIVISION OF AIR QUALITY
Air Quality Management Section

1117 Source Monitoring, Record Keeping And Reporting

01/11/1993

1.0 Definitions and Administrative Principles

"**Actual emission**" means the actual rate of emissions of a pollutant from an emissions unit for the calendar year or seasonal period. Actual emission estimates must include upsets and downtime to parallel the documentation of these events in the emission inventory and must follow an acceptable emission estimation method.

"**AIRS**" means Aerometric Information Retrieval System (AIRS). EPA's mainframe database of state air emissions data.

"**Annual fuel/process rate**" means the actual or estimated annual fuel, process or solid waste operating rate. The AIRS facility subsystem source classification code table prescribes the units to be used with each source classification code (SCC).

"**Base year**" means the year of enactment of the Clean Air Act Amendments, calendar year 1990. Serves as the baseline year for ozone State Implementation Plan (SIP) emission inventories and attainment strategies.

"**Capture efficiency**" means the weight per unit time of a pollutant entering a capture system and delivered to a control device, divided by the weight per unit time of the total pollutant generated by a source of the pollutant, expressed as a percentage. The capture efficiency reflects how much of the pollutant is captured and routed to the control device. It should not be confused with the control efficiency, which is a reflection of how well the control device controls emissions.

"**Certifying individual**" means the individual responsible for the completion and certification of the Emission Statement (e.g., officer of the company) and who will take legal responsibility for the Emission Statement's accuracy.

"**Control efficiency**" means the weight per unit time of a pollutant entering the control device minus the weight per unit time of a pollutant leaving the control device, divided by the weight per unit time of the pollutant entering the control device, expressed as a percentage. The control efficiency reported for Emission Statements and SIP emission inventories should be the measured efficiency, adjusted to an annual average by reflecting any reduction in efficiency due to control equipment downtime and maintenance degradation occurring after the date of measurement. If the measured control efficiency is unavailable, the design efficiency, reduced by 10%, may be used. The downtime and maintenance degradation adjustments are then made to this figure. However, it should be clearly indicated that the design efficiency, and not the measured efficiency, is being reported.

"**Control equipment identification code**" means the AIRS code that defines the equipment (such as an incinerator or carbon absorber) used to reduce, by destruction or removal, the amount of air pollutant or pollutants in an air stream prior to discharge to the ambient air. Table 7-4 of this regulation describes the acceptable equipment codes for Emission Statements and SIP emission inventories.

"**Estimated emissions method code**" means a one digit code that identifies the estimation technique used in the calculation of estimated emissions. Table 7-1 of this regulation describes the acceptable emissions method codes for Emission Statements and SIP emission inventories.

"**Estimated emissions units**" means a two digit code that identifies the units associated with an estimated emissions value. Table 7-3 of this regulation gives the acceptable estimated emissions units for Emission Statements and SIP emission inventories.

"**Measured emissions method code**" means a one digit code that identifies the test method used to ascertain measured emissions. Table 7-2 of this regulation describes the acceptable measured emissions method codes for Emission Statements and SIP emission inventories.

"**Measured emissions units**" means a two digit code that identifies the units associated with a measured emissions value. Table 7-3 of this regulation gives the acceptable measured emissions units for Emission Statements and SIP emission inventories.

"**Peak ozone season**" means that period of the year when conditions for photochemical ozone formation are most favorable. It is characterized by sustained periods of direct sunlight (i.e., long days, small cloud cover) and warm temperatures. For Delaware, the peak ozone season is defined as the period from June 1 through August 31.

"**Percentage annual throughput**" means an estimate of the quarterly percentage of the annual throughput. For boilers, process heaters or similar combustion equipment the percent throughput for each quarter would be a percentage based on the total fuel burned for the entire reporting year. For a process or non-combustion activity the percent throughput for each quarter would be a percent based on the production, consumption or other throughput units of measure. The sum of the four percentages must equal 100%. For Emission Statements and SIP emission inventories the quarters are defined by EPA as follows:

a. January, February and December (e.g., January 1992, February 1992 and December 1992)
b. March through May
c. June through August
d. September through November

"**Periodic ozone SIP emission inventory**" means an inventory of all emissions to the atmosphere of VOC's, NOx, and CO from all categories of emission sources. A periodic ozone SIP inventory must be completed at least every three years after the base year (1990).

"**Point**" means a physical emission point or activity within a facility that results in pollutant emissions.

"**Potential to emit**" means the capability of a source to emit any air pollutant at maximum design capacity, except as constrained by federally-enforceable conditions that include the effect of installed air pollution control equipment, restrictions on the hours of operation, and the type or amount of material burned, stored, or processed. Potential to emit is used for major source determinations under New Source Review (NSR).

"**Segment**" means components of a process or activity at a point, used in the computation of emissions. Each segment must have an associated SCC. For example, in a combustion process that can burn alternate fuels, each specific fuel is considered a segment, and each has a unique SCC.

"**Source classification code (SCC)**" means an eight digit code used by EPA to identify a process, activity, or segments of a process or activity creating emissions at a point.

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2.0 Sampling and Monitoring

2.1 Upon written request of the Department, an owner or operator of an air contaminant source shall, at his expense, install, maintain, and use emission monitoring devices, keep records, and make periodic reports to the Department on the nature and amount of emissions from such source. The Department shall make such data available to the public as reported and as correlated with any applicable emission standards or limitations.

2.2 Upon written request of the Department, an owner or operator of an air contaminant source shall, at his expense, sample the emissions of, or fuel used by, that source, maintain records and submit reports to the Department on the results of such sampling. The Department may make such data available to the public as reported and as correlated with any applicable emission standards or limitations.

2.3 The Department may conduct tests of emissions from or fuel used by any air contaminant source. Upon written request of the department, the owner or operator of the air contaminant source shall provide necessary holes in stacks or ducts, and such other safe and proper sampling and testing facilities, exclusive of instruments and sampling devices, if any are necessary, for proper determinations of the emission of air contaminants. The department shall have access to and use of monitoring, record-keeping and reporting required by federal regulations relating to emissions of air contaminants. The department may make such data available to the public as reported or received and as correlated with any applicable emissions standards or limitations.

2.4 Upon written request of the department, an owner or operator of an air contaminant source consisting of ships, boats or other waterborne craft engaged in a bulk transfer operation shall, at his expense, provide for the installation, operation and maintenance of such environmental monitoring equipment and appropriate laboratory or other scientific analyses which the Department deems necessary to determine the impact upon the environment of air contaminants emitted from the source.

In the event that the Department provides such monitoring and analytical services for the owner or operator, the Department may recover the cost of such environmental monitoring activities as a fee or fees for any construction or operation permit issued to the owner or operator by the Department.

When more than one bulk transfer operation is permitted to transfer the same solid material within the limits of Big Stone Anchorage, the amortized cost of environmental monitoring equipment and the annual cost of maintenance, operation and laboratory analysis accrued to the Department shall be shared equally by the owners of the bulk transfer operations. Whenever the owner or operator of the transfer facility accepts responsibility for monitoring and analysis activities as required by the department, the owner or operator shall be responsible for determining the shared costs.

The provisions of 2.4 of this regulation shall be applicable only to the transfer of bulk solid materials. Bulk solid material is defined as any solid material which is unpackaged.

2.5 All instrumentation, analytical techniques, calculations, records, and sampling locations and methods required by this regulation shall have the prior approval of the Department.

2.6 Reports required by this regulation shall be submitted in a form approved by the Department and shall be signed by a corporate officer or his designee whose signature shall constitute his own and employer's certification that the data are accurate and complete.

2.7 The reference methods used to determine compliance with the standards prescribed in 7 **DE Admin. Code** 1104; 1105; 1107; 3.0 of 7 **DE Admin. Code** 1108; 7 **DE Admin. Code** 1109 and 1114 shall be those set forth in 1.5 of 7 **DE Admin. Code** 1120 or such other method approved by the Department.

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3.0 Minimum Emission Monitoring Requirements for Existing Sources

3.1 Applicability - The person responsible for existing sources listed in 3.0 of this regulation shall install, calibrate, operate, and maintain all monitoring equipment necessary for the continuous monitoring of the pollutants specified in 3.0 of this regulation for the applicable source category and shall complete the installation and performance tests of the above equipment and begin monitoring and recording within 18 months of the date of plan approval or promulgation.

3.2 Fuel Burning Equipment - Fuel burning equipment except as provided in 3.2 through ~~3.5~~ 3.4 of this regulation, with an annual average capacity factor of greater than 30%, as reported to the Federal Power Commission for calendar year 1974, or as otherwise demonstrated to the Department by the owner or operator, shall conform with the following monitoring requirements:

3.2.1 A continuous monitoring system for the measurement of opacity which meets the performance specifications of 4.1.1 of this regulation shall be installed, calibrated, maintained, and operated in accordance with the procedures of 4.0 of this regulation by the owner or operator of any such equipment of greater than 250 million BTU per hour heat input (1.05 million kilogram-calories per minute) except where:

3.2.1.1 Gaseous fuel is the only fuel burned, or

3.2.1.2 Oil or a mixture of gas and oil are the only fuels burned and source is able to comply with the applicable particulate matter and opacity regulations without utilization of particulate matter collection equipment.

3.2.1.3 Waste heat boilers such as carbon monoxide boilers unless they derive greater than 250 million BTU per hour heat input from the firing of auxiliary fuel.

3.2.2 A continuous monitoring system for the measurement of sulfur dioxide which meets the performance specification of 4.1.3 of this regulation shall be installed, calibrated, maintained, and operated on any fuel burning equipment of greater than 250 million BTU per hour input which has installed sulfur dioxide control equipment.

3.2.3 A continuous monitoring system for the measurement of nitrogen oxides which meets the performance specification of 4.1.2 of this regulation shall be installed, calibrated, maintained, and operated on any fuel burning equipment or combination or such equipment discharging effluents through a common stack of greater than 1000 million BTU per hour heat input, (4.2 million kilogram-calories per minute) when such equipment is located in an Air Quality Control Region which is classified as Priority I with respect to nitrogen dioxide. This requirement shall not be applicable to any source owner or operator who demonstrates during source compliance tests as required by the Department that such a source emits nitrogen oxides at levels 30% or more below the applicable New Source Performance Standard.

3.2.4 A continuous monitoring system for the measurement of the percent oxygen or carbon dioxide shall be installed, calibrated, operated, and maintained on fuel burning equipment where measurements of oxygen or carbon dioxide in the flue gas are required to convert either sulfur dioxide or nitrogen oxides continuous emission monitoring data, or both, to units of the New Source Performance Standard. Measurement of the

percent oxygen or carbon dioxide shall meet the performance specifications of 4.1.4 or 4.1.5 of this regulation.

3.3 Sulfuric Acid Plants - Each sulfuric acid plant of greater than 300 tons per day production capacity shall install, calibrate, maintain and operate a continuous monitoring system for the measurement of sulfur dioxide which meets the performance specifications 4.1.3 of this regulation for each sulfuric acid producing facility within such plant.

3.4 Fluid bed catalytic cracking unit catalyst regenerators at petroleum refineries. Each catalyst regenerator for fluid bed catalytic cracking units of greater than 20,000 barrels per day fresh feed capacity shall install, calibrate maintain, and operate a continuous monitoring system for the measurement of opacity which meets the performance specifications of 4.1.1 of this regulation.

21 DE Reg. 885 (05/01/18)

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4.0 Performance Specifications

4.1 Any person who installs monitoring equipment to comply with this regulation shall demonstrate compliance with performance specifications set forth in Appendix B, 40 CFR Part 60, dated July 1, 1982, which are hereby adopted by reference:

4.1.1 For measuring opacity; Performance Specification 1;

4.1.2 For measuring NO or NO_x; Performance Specification 2;

4.1.3 For measuring SO_2; Performance Specification 2;

4.1.4 For measuring oxygen; Performance Specification 3;

4.1.5 For measuring carbon dioxide; Performance Specification 3.

4.2 Calibration gases and cycling time in continuous monitoring systems shall comply with the requirements set forth in paragraphs 3.3 and 3.4 of Appendix B in 40 CFR Part 51, dated July 1, 1982, which are hereby adopted by reference.

4.3 Zero and span drift in continuous monitoring systems shall comply with the requirements set forth in paragraphs 3.7 and 3.8 of Appendix P, 40 CFR Part 51, dated July 1, 1982, which are hereby adopted by reference.

4.4 Analytical Reference Methods 3.6 and 7 in 40 CFR Part 60, Appendix A dated July 1, 1982, are hereby adopted by reference.

4.5 Alternative procedures and requirements for continuous monitoring systems may be submitted for Department approval for the situations set forth in paragraph 3.9.1, 3.9.2, 3.9.3, 3.9.4, 3.9.5 and paragraphs 6.1 through 6.4 of Appendix P, 40 CFR Part 51, dated July 1, 1982, which are hereby adopted by reference with the word substitutions "Department" for "State" and "Regulation" for "Appendix." The Department approves the alternative data reduction procedures using wet basis pollutant and oxygen data set forth in paragraphs a and b in the Federal Register, Volume 41, Number 198, dated Tuesday, October 12, 1976.

4.6 Exemptions

4.6.1 Any source which has purchased an emission monitoring system or systems prior to September 11, 1974, may be exempt from meeting such test procedures prescribed in this regulation for a period not to exceed five years from plan approval or promulgation.

4.6.2 Any source which is regulated under 7 **DE Admin. Code** 1120, New Source Performance Standards, shall be exempt from this regulation.

4.6.3 Any source which is regulated under 7 **DE Admin. Code** 1124, Control of Volatile Organic Compound Emissions, shall be exempt from the provisions of this regulation, except for 7.0 of this regulation.

4.7 Monitor Location - Any person who is required to install continuous monitoring systems or monitoring devices pursuant to this regulation shall install such systems or devices such that representative measurements of emissions or process parameters (i.e., oxygen, or carbon dioxide) from the affected facility are obtained.

4.8 Combined Effluents - When the effluents from two or more affected facilities of similar design and operating characteristics are combined before being released to the atmosphere, the owner or operator may install, as determined by the Department, monitoring systems on the combined effluent. When the affected facilities are not of similar design or operating characteristics, or when the effluent from one affected facility is released to the atmosphere through more than one point, the owner or operator may with prior written approval of the Department establish alternative procedures to implement the intent of these requirements.

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5.0 Minimum Data Requirements

5.1 Owners or operators of facilities required to install continuous monitoring systems shall submit a written report of excess emissions for each calendar quarter and the nature and cause of the excess emissions, if known. The averaging period used for data reporting shall correspond to the averaging period specified in the emission test method used to determine compliance with an emission standard for the pollutant/source category in question. The required report shall include, as a minimum, the data stipulated in this regulation.

5.2 For opacity measurements, the summary shall consist of the magnitude in actual percent of all one-minute (or such other time period deemed appropriate by the Department) averages of opacity greater than the opacity standard in the applicable plan for each hour of operation of the facility. Average values may be obtained by integration over the averaging period or arithmetically averaging a minimum of four equally spaced instantaneous opacity measurements per minute. Any time period exempted shall be considered before determining the excess averages of opacity (e.g., whenever a regulation allows two minutes of opacity measurements in excess of the standard, the Department shall require the source to report all opacity averages in any one hour, in excess of the standard, minus the two-minute exemption). If more than one opacity standard applies, excess emissions data must be submitted in relation to all such standards.

5.3 For gaseous measurements, the summary shall consist of emission averages, in the units of the applicable standard, for each averaging period during which the applicable standard was exceeded.

5.4 The date and time identifying each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of system repairs or adjustments shall be reported. Proof of continuous monitoring system performance whenever system repairs of adjustments have been made shall be required by the Department.

5.5 When no excess emissions have occurred and the continuous monitoring system or systems have not been inoperative, repaired, or adjusted, such information shall be included in the report.

5.6 Owners or operators of affected facilities shall maintain a file of all information reported in the quarterly summaries, and all other data collected either by the continuous monitoring system or as necessary to convert monitoring data to the units of the applicable standard for a minimum of two years from the date of collection of such data or submission of such summaries.

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6.0 Data Reduction

Owners or operators of affected facilities shall use the following procedures for converting monitoring data to units of the standard where necessary.

6.1 For fuel burning equipment the procedures to be used to convert gaseous emission monitoring data to units of the standard, where necessary, shall be those set forth in paragraphs 5.1.1, 5.1.2 and 5.1.3 of Appendix P, 40 CFR Part 51 dated July 1, 1982, which are hereby adopted by reference with the word or phrase substitutions "Regulation" for "Appendix", "subsection numbers" for "subparagraph", and "3.1.4 of this regulation" for "paragraph 2.1.4 of this Appendix". Factors F and Fc shall be determined by methods approved by the Secretary.

6.2 For sulfuric acid plants the owner or operator shall:

Report the average sulfur dioxide concentration (ppm), production rate (tons H_2SO_4 produced/day), and the SO_2 emission rate (lbs. SO_2/hour) whenever the one-hour average exceeds the applicable standard of 2.1 of 7 **DE Admin. Code** 1109. For excess SO_2 emissions lasting for more than three consecutive hours, the owner or operator shall summarize the data. The data shall be reported to the Department at the end of each calendar quarter.

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7.0 Emission Statement

7.1 Emission Statement requirements apply to all stationary sources located in an ozone nonattainment area that emit nitrogen oxides (NO_x) or volatile organic compounds (VOCs) to the atmosphere. The Department may, with EPA approval, waive the Emission Statement requirements for classes or categories of stationary sources with facility-wide actual emissions of less than 25 tons/year of NO_x or VOCs if the class or category is included

in the Base Year and Periodic Ozone SIP Emission Inventories, and the actual emissions were calculated using EPA-approved emission factors or other methods acceptable to the EPA. Emission Statement requirements also apply to all stationary sources located in ozone attainment areas that emit or have the potential to emit 50 tons/year or more of NO_x or VOCs.

7.2 An Emission Statement shall contain data elements addressing source identification information, operating data, actual emissions data, control equipment information and process rate information. Each Emission Statement shall include a certification of the data to ensure that the information contained in the statement is accurate to the best knowledge of the individual certifying the statement. The individual certifying the statement shall be an official of the facility who will take legal responsibility for the Emission Statement's accuracy.

7.2.1 The source identification information provided by the source to the Department shall as a minimum include:

7.2.1.1 Full name;

7.2.1.2 Physical location;

7.2.1.3 Mailing address of the facility.

7.2.2 The minimum operating data provided by the source to the Department shall include:

7.2.2.1 Percentage annual throughput (percentage of annual activity);

7.2.2.2 Hours per day on both the normal operating schedule and during peak ozone season of June 1 through August 31 (if different from the normal operating schedule);

7.2.2.3 Days per week on both the normal operating schedule and during peak ozone season of June 1 through August 31 (if different from the normal operating schedule)

7.2.2.4 Weeks per year on both the normal operating schedule and during peak ozone season of June 1 through August 31 (if different from the normal operating schedule);

7.2.2.5 Start time on both the normal operating schedule and during the peak ozone season from June 1 through August 31;

7.2.2.6 End time on both the normal operating schedule and during the peak ozone season from June 1 through August 31.

7.2.3 The minimum emissions information provided by the source to the Department shall include:

7.2.3.1 Actual volatile organic compound or nitrogen oxide emissions at the process level, in tons per year for an annual emission rate and pounds per day during the peak ozone season from June 1 to August 31 (estimated or measured).

7.2.3.2 Emissions method code for estimated or measured emissions. Valid emissions estimation and measurement method codes and units codes are presented in Table 7-1 and Table 7-2 of this regulation.

7.2.3.3 Units code to identify the units (tons per year or pounds per day) for the units measured or estimated, are presented in Table 7-3 of this regulation.

7.2.3.4 Calendar year for the emissions.

7.2.4 The minimum control equipment information provided by the source to the Department shall include:

7.2.4.1 Current primary and secondary control equipment identification codes. Valid control equipment identification codes are presented in Table 7-4 of this regulation;

7.2.4.2 Current control equipment efficiencies (%);

7.2.4.3 Capture efficiency (%).

7.2.5 The minimum process rate data provided by the source to the Department shall include:

7.2.5.1 Annual fuel/process rate (annual throughput if not a combustion process). For a combustion process, the annual fuel usage must be in units corresponding to the specific Source Classification Code (SCC) for each fuel (e.g., tons for coal, million cubic feet (MMCF) for natural gas). For a noncombustion process, the annual throughput must be given in units of measure corresponding to the specific SCC for the process (e.g., tons of solvent in coating used for metal furniture painting).

7.2.5.2 Peak ozone season daily process rate.

7.2.5.3 Design capacity.

7.2.5.4 Fuel use data (i.e., heat content).

7.2.5.5 Tank data (i.e., vapor pressure, vapor mole weight, diameter, height, age, loading type, color, roof and seal type).

7.2.5.6 Solvent usage data (i.e., solvent purchased and solvent recovered).

TABLE 7-1
ESTIMATED EMISSIONS METHOD CODE

1. User-calculated based on source test or other measurements.
2. User-calculated based on material balance using engineering knowledge of the process.
3. User-calculated based on AP-42.
4. User-calculated by best guess/engineering judgment.
5. User-calculated based on a state or local agency emission factor.
7. Source closed, operation ceased.
8. Computer calculated based on standard emission factor (SCC emission factor file).
9. Computer calculated based on user-supplied emission factor.

TABLE 7-2
MEASURED EMISSIONS METHOD CODE

1. U. S. EPA reference method.
3. Liquid Absorption technique.
4. Solid absorption technique.
5. Freezing-out method.
6. Gram sampling (intermittent) technique.
9. Other, specify in comment.

TABLE 7-3
ESTIMATED AND MEASURED UNITS CODE

PD - Pounds per Day.
TY - Tons per Year.

TABLE 7-4
CONTROL EQUIPMENT CODES

000 - No Equipment	054 - Process Enclosed
019 - Catalytic Afterburner	060 - Process Gas Recovery
020 - Catalytic Afterburner – Heat Exchanger	065 - Catalytic Reduction
	066 - Molecular Sieve
021 - Direct Flame Afterburner	072 - Shell and Tube Condenser
022 - Direct Flame Afterburner – Heat Exchanger	073 - Refrigerated Condenser
	074 - Barometric Condenser
023 - Flaring	078 - Baffle

024 - Modified Furnace/Burner	080 - Chemical Oxidation
025 - Staged Combustion	081 - Chemical Reduction
026 - Flue Gas Recirculation	082 - Ozonation
027 - Reductive Combustion – Air Preheater	083 - Chemical Neutralization
	084 - Activated Clay Adsorption
028 - Steam or Water Injection	087 - Nitrogen Blanket
029 - Low/Excess - Air Firing	088 - Conservation Vent
030 - Fuel - Low Nitrogen Content	089 - Bottom Filling
031 - Air Injection	090 - Conversion to Variable
032 - Ammonia Injection	091 - Conversion to Floating Roof Tank
033 - Control of % O_2 in Combustion Air	092 - Conversion to Pressurized Tank
046 - Process Change Tank	093 - Submerged Filling
047 - Vapor System Recovery	094 - Underground Tank
048 - Activated Carbon Adsorption	095 - White Paint
049 - Liquid Filtration System	096 - Vapor Lock Balance Recovery System
050 - Packed-Gas Absorption	099 - Miscellaneous Control Devices
051 - Tray -Type Gas Absorption Column	
053 - Venturi Scrubber	

7.3 Annual emissions statements are due on April 30 for the preceding calendar year beginning with April 30, 1993 for calendar year 1992. The Department may require more frequent submittal, if the Department determines that either:

7.3.1 A more frequent submission is required by the Environmental Protection Agency; or

7.3.2 Analysis of the data on a more frequent basis is necessary to implement the requirements of 7 **Del.C.** Chapter 60.

12 DE Reg. 347 (09/01/08)
21 DE Reg. 885 (05/01/18)