

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

FINAL APPROVAL OF June 6, 2003 REVISION

FIELD OPERATIONS MANUAL FOR AIR INSPECTORS
Air Standard Operating Procedures (ASOPs)

ASOP-11: THE NO_x TRADING PROGRAM

Per Collaboration Process Development Memo Dated July 20, 2000

- Revision coordinated by Manager, Office of Air Compliance Coordination
- Reviewed by regional Air Compliance Managers and designees
- Presented to Senior Management Team for review and comment
- Finalized by Manager, Office of Air Compliance Coordination



6/9/2003

Alice G. Nelson

Date

- Approved by Division Director of Air Programs



6/9/03

John M. Daniel, Jr.

Date

**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY**

FIELD OPERATIONS MANUAL FOR AIR INSPECTORS
Air Standard Operating Procedures (ASOPs)

**ASOP - 11
THE NO_x TRADING PROGRAM**

TABLE OF CONTENTS

I. INTRODUCTION.....	1
II. PURPOSE	2
III. REFERENCES	2
IV. DEFINITIONS.....	3
V. AFFECTED SOURCES.....	8
VI. EXEMPTIONS	8
VII. LOW MASS EMISSION UNITS.....	10
VIII. NO _x CEM PROGRAM REQUIREMENTS	10
IX. CERTIFICATION PROTOCOL AND MONITORING PLAN	13
X. CERTIFICATION OF NEW OR MODIFIED CEM SYSTEMS.....	15
XI. ROUTINE QA/QC REQUIREMENTS.....	17
XII. ROUTINE RECORDKEEPING AND REPORTING REQUIREMENTS.....	20
XIII. ON-GOING TASKS FOR DEQ STAFF	20

Appendix A - VADEQ Support Documents

Appendix B - Checklists and Notices

TABLES

Table 1 – Approved Methodologies for NO _x Mass Emission Rate Monitoring.....	11
Table 2 – Quality Assurance Requirements for Units Reporting on a Annual Basis.....	18
Table 3 – Substitution Criteria for CEM Missing Data Periods.....	19
Table 4 – Elements of Running the NO _x Budget Trading Program.....	21

I. INTRODUCTION

The USEPA made the determination between 1998 and 2000 that sources in 19 states and the District of Columbia emitted NO_x in amounts that significantly contribute to non-attainment of the ozone standard in one or more downwind states. EPA also required that each of the affected upwind states submit revisions to their State Implementation Plans prohibiting those amounts of NO_x emissions that significantly contribute to downwind air quality problems. Virginia was included as one of the upwind states.

The rulemaking, known as the NO_x SIP Call Rule, 40 CFR 51.121, also includes statewide NO_x emissions budget levels that each state must achieve by the year 2007. Virginia adopted regulations for implementation of the NO_x SIP Call and Trading Program in 9 VAC 5-140-10, et seq.

Continuous emissions monitoring (CEM) is instrumental in ensuring that the mandated reductions of NO_x are achieved. While traditional emissions limitation programs have required facilities to meet specific emissions rates, the NO_x SIP Call Program requires an accounting of each ton of emissions from each regulated unit. Compliance is then determined through a direct comparison of total annual NO_x emissions reported by CEM and allowances held for the unit. This program is known as the NO_x Allowance Budget Trading Program, or NO_x Trading Program.

Continuous emission monitoring is the continuous measurement of pollutants emitted into the atmosphere in exhaust gases from combustion or industrial processes. The USEPA has established requirements for the continuous monitoring of NO_x, volumetric flow, diluent gas (CO₂ or O₂) and opacity for units regulated under the NO_x Trading Program. In addition, procedures for monitoring or estimating carbon dioxide (CO₂) are specified. The CEM rule also contains requirements for equipment performance specifications, certification procedures, and record keeping and reporting.

II. PURPOSE

As part of its responsibility to administer the NO_x Trading Program under the SIP Call, the Clean Air Markets Division (CAMD) of the USEPA will record allowance allocations in the NO_x Allowance Tracking System (NATS) according to the specifications of each state. The purpose of this guidance document (ASOP-11) is to sort through the various federal/state oversight responsibilities of the program to determine which tasks are necessary for the DEQ air compliance staff to implement.

III. REFERENCES

- State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution (SAPCB Regulations), specifically 9 VAC 5, Chapter 140, Regulation for Emissions Trading
- Permit Writer's Guide to the NO_x Budget Trading Program, Amended June 2, 2003
- Permit Writer's Guide to the Acid Rain Permitting Program, Issued March 18, 2003
- 9 VAC 5-80-360 et seq. - Federal (Title V) Operating Permits for Acid Rain (Title IV) Sources, Article 3
- 40 CFR 72 Permits Regulation, July 2001
 - Subpart A - Acid Rain Program General Provisions
 - Subpart D - Acid Rain Compliance Plan and Compliance Options

Subpart I - Compliance Certification

- 40 CFR 75 Continuous Emission Monitoring, July 2001
 - Subpart F - Recordkeeping Requirements
 - Subpart G - Reporting Requirements
 - Subpart H – NO_x Mass Emissions Provisions
 - Appendixes A through J – Monitoring and Recordkeeping procedures
- 40 CFR 76 Acid Rain Nitrogen Oxides Emission Reduction Programs
- 40 CFR 96 NO_x Budget Trading Program for State Implementation Plans
- 40 CFR 60 Standards of Performance for New Stationary Sources, July 2001
 - Appendix B - Performance Specifications.
- USEPA Acid Rain Program Policy Manual – February 14, 2001
USEPA Guidance Memo – *Use of Acid Rain CEMS as NSPS CEMS*, John B. Rasnic,
Director Stationary Source Compliance Division
- USEPA Clean Air Market Program Internet Site
 - EPA's NO_x Budget Trading Program, NO_x Budget Program Implementation:
<http://www.epa.gov/airmarkt/fednox/index.html>
 - Continuous Emissions Monitoring Systems, Monitoring Guidance for All Programs:
<http://www.epa.gov/airmarkt/monitoring/index.html>
 - Continuous Emissions Monitoring Fact Sheet:
<http://www.epa.gov/airmarkt/monitoring/factsheet.html>
 - Monitoring Data Checking Software:
<http://www.epa.gov/airmarkt/monitoring/mdc/index.html>
 - CEM Field Audit Manual:
<http://www.epa.gov/airmarkt/monitoring/auditmanual/index.html>

IV. DEFINITIONS

This guidance is deemed to incorporate automatically the definition of terms as found in 9 VAC 5-140-20, 9 VAC 5-80-370, 40 CFR 72, and 40 CFR 75. The definition of some of the more significant terms have been provided below:

Account certificate of representation - means the completed and signed submission required by Article 2 (9 VAC 5-140-100 et seq.) for certifying the designation of a NO_x authorized account representative for a NO_x Budget source or a group of identified NO_x Budget sources who is authorized to represent the owners and operators of such source or sources and of the NO_x Budget units at such source or sources with regard to matters under the NO_x Budget Trading Program.

Automated Data Acquisition and Handling System or DAHS - means that component of the CEMS, or other emissions monitoring system approved for use under Article 8 (9 VAC 5-140-700 et seq.), designed to interpret and convert individual output signals from pollutant concentration monitors, flow monitors, diluent gas monitors, and other component parts of the

monitoring system to produce a continuous record of the measured parameters in the measurement units required by Article 8 (9 VAC 5-140-700 et seq.).

Calibration Drift – the difference in the CEMS output reading from a reference value after a period of operation during which no unscheduled maintenance, repair or adjustment took place.

Calibration / QA - refers to any period during which the monitoring system is out-of-service for purpose of calibration, routine or preventive maintenance, or other quality assurance related activity.

Combined cycle system - means a system comprised of one or more combustion turbines, heat recovery steam generators, and steam turbines configured to improve overall efficiency of electricity generation or steam production.

Combustion turbine - means an enclosed fossil or other fuel-fired device that is comprised of a compressor, a combustor, and a turbine, and in which the flue gas resulting from the combustion of fuel in the combustor passes through the turbine, rotating the turbine.

Common stack - means a single flue through which emissions from two or more units are exhausted.

Compliance account - means a NO_x Allowance Tracking System account, established by the administrator for a NO_x Budget unit under Article 6 (9 VAC 5-140-500 et seq.), in which the NO_x allowance allocations for the unit are initially recorded and in which are held NO_x allowances available for use by the unit for a control period for the purpose of meeting the unit's NO_x Budget emissions limitation.

Continuous Emission Monitoring System or CEMS - means the equipment required under Article 8 (9 VAC 5-140-700 et seq.) to sample, analyze, measure, and provide, by readings taken at least once every 15 minutes of the measured parameters, a permanent record of nitrogen oxides emissions, expressed in tons per hour for nitrogen oxides. The following systems are component parts included, consistent with 40 CFR Part 75, in a continuous emission monitoring system:

1. Flow monitor;
2. Nitrogen oxides pollutant concentration monitors;
3. Diluent gas monitor (oxygen or carbon dioxide) when such monitoring is required by Article 8 (9 VAC 5-140-700 et seq.) of this part;
4. A continuous moisture monitor when such monitoring is required by Article 8 (9 VAC 5-140-700 et seq.) of this part; and
5. An automated data acquisition and handling system.

Control period - means the period beginning May 1 of a year and ending on September 30 of the same year, inclusive, except for the calendar year 2004, the period shall begin May 31.

CEM Report – A report submitted to the Department by the Source on a pre-determined frequency (e.g. quarterly) which provides data on the Source's compliance with stated emission limits and operating parameters, and on the performance of the monitoring system. The applicable regulation or permit indicates what data must be contained in these reports.

CEM System - The total list of equipment required for the determination and recording of opacity, or a gas concentration or an emission rate.

EGU Unit – a fuel combustion emission source powering an electrical generator with a maximum designed electrical capacity of 25 MWe or greater. Non-EGU units are large boilers

or furnaces that do not power electrical generators greater than 25 MWe and have a maximum designed heat capacity above 250 mmBTU/hr.

Excess emissions - any tonnage of nitrogen oxides emitted by a NO_x Budget unit during a control period that exceeds the NO_x Budget emissions limitation for the unit.

Excess Emissions Report (EER) – Same as CEM REPORT above. The term EER historically referred to reports for Indirect Compliance Monitor data or opacity data.

Extractive CEMS – removes a sample of gas from the stack and transports it to an analyzer outside the stack.

In-Situ CEMS – designed to measure gas concentrations directly in the stack or duct, without extracting samples for external analysis.

Linearity Test - Quality assurance testing to be performed on Part 75 CEMs quarterly (unless unit operated less than 168 hours during that quarter).

Low Mass Emission Unit – An individual piece of fuel combustion equipment that releases between 25 and 50 tons of NO_x per NO_x Control Period and less than 100 tpy. The *LME Unit* must be limited to fuel oil or natural gas.

Maximum design heat input - ability of a unit to combust a stated maximum amount of fuel per hour on a steady state basis, as determined by the physical design and physical characteristics of the unit.

Maximum potential hourly heat input - hourly heat input used for reporting purposes when a unit lacks certified monitors to report heat input. If the unit intends to use appendix D of 40 CFR Part 75 to report heat input, this value should be calculated, in accordance with 40 CFR Part 75, using the maximum fuel flow rate and the maximum gross calorific value. If the unit intends to use a flow monitor and a diluent gas monitor, this value should be reported, in accordance with 40 CFR Part 75, using the maximum potential flowrate and either the maximum carbon dioxide concentration (in percent CO₂) or the minimum oxygen concentration (in percent O₂).

Maximum potential NO_x emission rate - the emission rate of nitrogen oxides (in lb/mmBtu) calculated in accordance with section 3 of appendix F of 40 CFR Part 75, using the maximum potential nitrogen oxides concentration as defined in section 2 of appendix A of 40 CFR Part 75, and either the maximum oxygen concentration (in percent O₂) or the minimum carbon dioxide concentration (in percent CO₂), under all operating conditions of the unit except for unit start up, shutdown, and upsets.

Maximum rated hourly heat input - means a unit-specific maximum hourly heat input (mmBtu) which is the higher of the manufacturer's maximum rated hourly heat input or the highest observed hourly heat input.

Monitoring system - means any monitoring system that meets the requirements of Article 8 (9 VAC 5-140-700 et seq.), including a continuous emissions monitoring system, an excepted monitoring system, or an alternative monitoring system.

Most stringent State or Federal NO_x emissions limitation - means the lowest NO_x emissions limitation (in lb/mmBtu) that is applicable to the unit under the Virginia Air Pollution Control Law or Federal law, regardless of the averaging period to which the emissions limitation applies. In cases where a unit is subject to a permit that provides for the use of multiple fuels, the primary fuel shall be used as the basis to determine the most stringent State or Federal NO_x emissions

limitation. The primary fuel shall be the fuel designated in the permit as such or as having the greatest throughput.

New source review program - program for the preconstruction review and permitting of new stationary sources or expansions to existing ones in accordance with regulations promulgated to implement the requirements of §§ 110 (a)(2)(C), 112 (relating to permits for hazardous air pollutants), 165 (relating to permits in prevention of significant deterioration areas), and 173 (relating to permits in nonattainment areas) of the CAA.

Non-Monitor Equipment Malfunction - refers to failures or problems with the strip chart recorder, data losses or problems with the computer data acquisition system. It includes all equipment other than the monitor equipment that is necessary to transfer, calculate averages, and record emissions data.

NO_x allowance - a limited authorization by the permitting authority or the administrator under the NO_x Budget Trading Program to emit up to one ton of nitrogen oxides during the control period of the specified year or of any year thereafter, except as provided under 9 VAC 5-140-550 B. No provision of the NO_x Budget Trading Program, the NO_x Budget permit application, the NO_x Budget permit, or an exemption under 9 VAC 5-140-40 B or 9 VAC 5-140-50 and no provision of law shall be construed to limit the authority of the United States or the State to terminate or limit such authorization, which does not constitute a property right.

NO_x Allowance Tracking System - means the system by which the administrator records allocations, deductions, and transfers of NO_x allowances under the NO_x Budget Trading Program.

NO_x Budget Permit - means the legally binding and federally enforceable written document, or portion of such document, issued by the permitting authority under this part, including any permit revisions, specifying the NO_x Budget Trading Program requirements applicable to a NO_x Budget source, to each NO_x Budget unit at the NO_x Budget source, and to the owners and operators and the NO_x authorized account representative of the NO_x Budget source and each NO_x Budget unit.

NO_x Budget source - means a source that includes one or more NO_x Budget units.

NO_x Budget Trading Program - means a multi-state nitrogen oxides air pollution control and emission reduction program established in accordance with this part and approved and administered by the administrator pursuant to 40 CFR 51.121 or established by the administrator pursuant to 40 CFR 52.34 as a means of mitigating the interstate transport of ozone and nitrogen oxides, an ozone precursor.

NO_x Budget unit - means a unit that is subject to the NO_x Budget emissions limitation under 9 VAC 5-140-40 or 9 VAC 5-140-800.

NO_x Control Period – means the period beginning May 1 of a year and ending on September 30 of the same year, inclusive, except for the calendar year 2004, the period shall begin May 31.

Out of Control Period - A time period in which the monitoring data is determined to be "invalid".

Reference method -any direct test method of sampling and analyzing for an air pollutant as specified in 40 CFR Part 75.

RATA - Relative Accuracy Test Audit

Reporting periods of the applicable standards – CEMS which measure opacity shall reduce

all data to 6-minute averages and CEMS that measure gas shall reduce all data to 1-hour averages for time periods as defined in 40CFR60 §60.2.

Reporting of Malfunction information - periods of excess emissions, which occur during a malfunction of the process or control equipment, which occur for more than one hour. Each malfunction must be separately identified.

Retired Exempted Units – Fuel burning equipment that has been permanently taken out of service and is exempted from the NO_x Budget Trading program. Records confirming that the equipment is not a source of nitrogen oxide emissions must be kept on site for the previous five years.

Startup / Shutdown - as defined in 40 CFR Section 60.2 means "the setting in operation of an affected facility for any purpose" and "the cessation of operation of an affected facility for any purpose".

State trading program budget - means the total number of NO_x tons set forth in 9 VAC 5-140-900 and apportioned to all NO_x Budget units in accordance with the NO_x Budget Trading Program, for use in a given control period.

Sudden Unforeseeable Malfunction, or Malfunction of CEM - any period during which the monitor is not operating or is producing inaccurate data due to a sudden unforeseeable failure of any CEMS component.

Title V operating permit - means a permit issued under Article 1 (9 VAC 5-80-50 et seq.) or Article 3 (9 VAC 5-80-360 et seq.) of Part II of 9 VAC 5 Chapter 80.

“Ton” or “tonnage” - means any "short ton" (i.e., 2,000 pounds). For the purpose of determining compliance with the NO_x Budget emissions limitation, total tons for a control period shall be calculated as the sum of all recorded hourly emissions (or the tonnage equivalent of the recorded hourly emissions rates) in accordance with Article 8 (9 VAC 5-140-700 et seq.). With any remaining fraction of a ton equal to or greater than 0.50 ton deemed to equal one ton and any fraction of a ton less than 0.50 ton deemed to equal zero tons.

Unit - a fossil fuel-fired stationary boiler, combustion turbine, or combined cycle system.

Unit load - the total (i.e., gross) output of a unit in any control period (or other specified time period) produced by combusting a given heat input of fuel, expressed in terms of:

1. The total electrical generation (MWe) produced by the unit, including generation for use within the plant; or
2. In the case of a unit that uses heat input for purposes other than electrical generation, the total steam pressure (psia) produced by the unit, including steam for use by the unit.

Utilization - the heat input (expressed in mmBtu/time) for a unit. The unit's total heat input for the control period in each year shall be determined in accordance with 40 CFR Part 75 if the NO_x Budget unit was otherwise subject to the requirements of 40 CFR Part 75 for the year, or shall be based on the best available data reported to the administrator for the unit if the unit was not otherwise subject to the requirements of 40 CFR Part 75 for the year.

Valid Data - data that has been calculated and expressed in units of the applicable standard, has been quality assured, and is produced by a certified CEM.

V. AFFECTED SOURCES

The air emission sources regulated by the NO_x Trading Program are limited to large fuel combustion sources. These emission sources are divided into electrical generation units (EGU) and non-electrical generation units (non-EGU).

The simplified definitions of these types of units are:

-Electrical generation units (EGUs) with nameplate maximum capacity of 25 MWe or more and which produced electricity for sale to either the utility grid or a third party.

-Fuel combustion equipment (non-EGUs) installed before 1999, with a maximum heat input design capacity of over 250 mmBTU/hr and did not generate electricity for sale. After 1999, units that have a heat input design capacity greater than 250 mmBTU/hr and generate electricity with a maximum capacity below 25 MWe are included as non-EGUs.

These basic types of fuel combustion sources are further subdivided based on their installation dates and whether they sold their electricity to a utility grid or third parties. Refer to 9 VAC 5-140-40.A for more specific details about applicability.

Facilities falling under the NO_x Trading Program in Virginia will primarily be utility base load or “peaker” electrical generation stations or very large boilers and furnaces. It is important to remember that the definitions are based on the maximum capacities of the units, not the capacity at which the units normally operate.

VI. EXEMPTIONS

There are two exemptions allowed for in the NO_x Trading Program, 25-ton Exemption emission sources and Retired Unit Exemptions.

A. 25-ton Exemption

Fuel combustion sources normally meeting the definition of a NO_x Budget Unit can be exempted if they agree to restrict their NO_x Control Period emissions to under 25 tons (9 VAC 5-140-40 B.1)(40 CFR 96.4). The 25-ton exempted unit must be limited to fuel oil or natural gas. Sources burning coal, wood, or waste can not be exempted from the budget-trading program regardless of their emission rates.

This low NO_x emission rate will be due to an artificial limit on the unit’s operating schedule. The number of hours the unit will be allowed to operate will be determined by dividing 25 tons (or lower limit) by the unit’s maximum potential hourly NO_x mass emission rate. These restrictions will be included as part of a federally enforceable permit for the facility.

The facility will maintain a record of the hours of their operations during the NO_x Control Period for at least the five previous years. This information will be reported to the USEPA as part of the annual compliance report due on November 1 (9 VAC 5-140-40 B.4). These units do not need to be included in the quarterly reports. A 25-ton exempted

unit can not be an “opt-in” source. More information on the permitting requirements of these units will be provided in the Permit Writer's Guide to the NO_x Budget Trading Program.

Units that operate during a NO_x Control Period prior to receiving their 25-ton exemption will still need to include the unit in their USEPA account and have the necessary allowances to allow the unit to have air emissions up to the date it reduced operations (9 VAC 5-140-40 B.2). The exemption will come into effect on the date the exemption is issued. The unit will be removed from the trading account during the next control period. All other federally enforceable permits will be amended immediately to include the exemption.

The unit will lose its 25-ton exemption on any of the following dates (9 VAC 5-140-40 B.4.f):

- the date it exceeds its operational limitations,
- the date it fails to properly record its compliance to its operational limitations,
- the date the facility otherwise loses its federally enforceable permit containing the operational limitations.

NOTE: Virginia's Chapter 140 NO_x Trading Program Regulation does not incorporate the August 2002 federal revision to 40 CFR Part 75, which differentiates between a 25-ton exempted unit and a Low Mass Emission (LME) Unit. Until the DEQ regulation is revised to match the CFR definition of LME, this document and the permit writer's guide set policy on this subject.

B. Retired Unit Exemption

The term “*Retired Unit Exemption*” is applied to existing *NO_x Budget Units* (with active trading accounts) that have been shut down and will no longer emit any NO_x (9 VAC 5-140-50 B). Units that are permanently shut down at the time the facility applies for its NO_x Allowance Budget Trading Permit are not required to submit a retired unit application form.

Units that are still operating during a NO_x Control Period prior to receiving their retirement exemption will still need to include the unit in their USEPA account and have the necessary allowances to allow the unit to have air emissions up to the date it halted operations (9 VAC 5-140-50 B.2). The unit will be removed from the trading account during the next control period. All other federally enforceable permits will be amended immediately to include the retirement. (9 VAC 5-140-50 B.3).

Records for retired units will be maintained for the previous five years by the owner that will show that the unit has not emitted any NO_x (9 VAC 5-140-50 C.5). Record keeping can stop after five years for Retired Units that are physically removed from the site. If a Retired Unit is to be restarted, a NO_x trading budget permit application must be submitted 18-months prior to resumption of operations (9 VAC 5-140-50 C.2). A Retired Unit can not be used as an “opt-in” source (9 VAC 5-140-50 C.4).

Further information on permitting of NO_x Budget Sources, registration of exemption units, and completion of application forms is provided in the VADEQ's "Permit Writers Guide to the NO_x Budget Trading Program", issued in November 2002, revised June 2, 2003.

VII. LOW MASS EMISSION UNITS

One NO_x Budget Unit that is allowed to utilize optional non-CEM methods to calculate annual and control period emissions are the "*Low Mass Emission (LME) Units*". For the NO_x Allowance Budget Trading Program a *LME Unit* is one that releases between 25 and 50 tons of NO_x per NO_x Control Period and less than 100 tpy (40 CFR 75.19)(9 VAC 5-140-710 B). The *LME Unit* must be limited to fuel oil or natural gas. Sources burning coal, wood, or waste can not be defined as a *LME Unit*.

This low NO_x emission rate can be due to either an artificial limit on production and operating time, the physical capacity of the equipment, and/or the use of air pollutant emission controls. The "optional procedures" for calculating *LME* emissions are included in 40 CFR 75.19. *LME Units* will record their hours of operations and heat input or fuel usage data to show that their emissions are below LME thresholds for a period of five years previous to the current date.

The *LME Units* will be included in the budget-trading program and must be included in all quarterly and annual reports.

VIII. NO_x CEM PROGRAM REQUIREMENTS

A. Options for Monitoring NO_x

The following Table 1 shows the monitoring options for the NO_x Trading Program. For the particular unit type, "Case 1" is the most preferred method, but EPA allows alternatives.

Low Mass Emission Units are exempted from the requirement of using CEM systems for NO_x emission determination. They do need to provide evidence to show that they are maintaining their NO_x Control Period emission below the exemption level. They will have to submit to the USPEA and the VADEQ a certification application and monitoring plan to demonstrate how they will monitor NO_x emissions. As shown in Table 1, this evidence is based on a previously agreed upon emission factor. Further detail on LME Unit exemptions are provided in 40 CFR 75.19.

Table 1			
Approved Methodologies for NOx Mass Emission Rate Monitoring			
Unit Type	Case	NOx Mass Monitoring Methodology	Heat Input Methodology
Coal-Fired or unit that burns fuel(s) other than oil and gas	Case 1	CEMS for NOx emission rate and heat input rate	Stack flow monitor and diluent gas monitor (O2 or CO2)
	Case 2	NOx concentration CEMS and stack flow monitor	Stack flow monitor and diluent gas monitor (O2 or CO2)
Gas or Oil-Fired Units	Case 1	CEMS for NOx emission rate and heat input rate	Stack flow monitor and diluent gas monitor (O2 or CO2)
	Case 2	CEMS for NOx emission rate and Appendix D for heat input rate	Appendix D, hourly fuel flow measurement and Fuel GCV ¹
	Case 3	NOx concentration CEMS and stack flow monitor	Stack flow monitor and diluent gas monitor (O2 or CO2)
	Case 4	NOx concentration CEMS and stack flow monitor	Appendix D, hourly fuel flow measurement and Fuel GCV ¹
	Case 5	Appendix E for NOx emission rate and Appendix D for heat input rate	Appendix D, hourly fuel flow measurement and Fuel GCV ¹
Low Mass Emission Units (40 CFR75)	Case 1	Unit/fuel specific NOx emission rate and unit heat input	Maximum rated hourly heat input for each operating hour
	Case 2	Unit/fuel specific NOx emission rate and unit heat input	Apportioned hourly heat input from long term fuel flow
	Case 3	Generic default NOx emission rate and unit heat input	Maximum rated hourly heat input for each operating hour
	Case 4	Generic default NOx emission rate and unit heat input	Apportioned hourly heat input from long term fuel flow

¹ GCV - gross calorific value

Source: Monitor Certification Guidelines for the NOx SIP Call and Section 126 Trading Program, USEPA, 10/1/2001

B. Technical Requirements of CEM Systems

The NO_x Trading Program requires that the actual amount of nitrogen oxides emitted during the NO_x Control Period be measured and reported. Except for LME units, the installation of CEM systems is required under Article 8, 9 VAC 5-140-700 et seq. The CEMS must be able “to sample, analyze, measure, and provide, by readings taken at least once every 15 minutes of the measured parameters, a permanent record of nitrogen oxides emissions, expressed in tons per hour for nitrogen oxides.”

The following systems are the component parts consistent with 40 CFR Part 75, in a continuous emission monitoring system:

- Flow monitor;
- Nitrogen oxides pollutant concentration monitor(s);
- Diluent gas monitor (oxygen or carbon dioxide) when such monitoring is required by Article 8 (9 VAC 5-140-700 et seq.) of this part;
- A continuous moisture monitor when such monitoring is required by Article 8 (9 VAC 5-140-700 et seq.) of this part; and
- A computer-based data acquisition and handling system (DAHS) for recording and performing calculations with the data.

For most existing EGU and non-EGU facilities the CEM monitoring systems currently used for Part 60 compliance can be adapted to meet Part 75 needs. The hardware deficiency, which the USEPA expects to be the most common, will be with the DAHS system. Many Part 60 CEM data recording systems can not meet the recording and automatic calculation of emission requirements. Some upgrades may be necessary.

Alternative methods of emission monitoring are acceptable under pre-described conditions. Alternative methods and the petition procedures will not be addressed in this document. They are presented in both the state and the federal regulations (40 CFR 75.30 to 75.37) for the NO_x Trading Program. If an owner wishes to use an alternative monitoring technique to those listed, they must submit a petition to the USEPA and VADEQ requesting approval to use an alternative method prior to its installation and testing (9 VAC 5-140-750).

The installation and certification of an emission monitoring system is a prerequisite to the final approval of the NO_x Allowance Budget Trading permit that DEQ will issue. Further details on the background of the NO_x SIP Call and the permitting requirements of the program is covered in the “*Permit Writer’s Guide to the NO_x Budget Trading Program*”, revised June 2, 2003.

C. Schedule for Certifying the CEM Systems

A detailed schedule is included in Appendix A of the ASOP. In brief, the schedule is as follows:

Step 1-At least 45 days prior to initial certification testing, facility submits CEM Certification Protocol and Emissions Monitoring Plan electronically to EPA, by hard copy to DEQ and EPA Region III. The documents will include proposed test dates. If the CEMs have been previously certified under the Acid Rain Trading Program, the facility need only certify that the CEMS can convert to mass in pounds per hour, report data in the proper format, and perform the calculations necessary to insert missing data values.

CEDS Data Entry 1: Verify that the facility has submitted a permit application for the NOx Trading Program. Enter dates in the CEDS Event "AIR4SIPCEM"= "NOx Trading CEMS, DEQ Permit Appl due/rec'd".

Step 2-Facility conducts initial CEM certification testing (prior to May 1, 2003). DEQ staff observes the RATA testing on site.

CEDS Data Entry 2: Track the date that initial CEM certification testing is scheduled and later conducted (for Acid Rain units, enter the date that the CEMs were initially certified for that program). Enter dates in the CEDS Event "AIR4SIPCMS"= "NOx Trading CEMS, Initial Cert or Mass Conv".

Step 3-Facility submits certification test results and related data to DEQ within 45 days after testing.

Step 4-DEQ has 120 days from the receipt date the certification test report to review and approve the certification results, issuing an official approval/disapproval notice to both the facility and to EPA(9 VAC 5-140-700). See Appendix B Approval Form.

CEDS Data Entry 3: Track the date that DEQ provides final approval of the CEMS. Enter date in the CEDS Event "AIR4SIPAPP"= "NOx Trading CEMS, Final Approval by DEQ".

IX. CERTIFICATION PROTOCOL AND MONITORING PLAN

A. Action Required by the Affected Facility

The owner must create two documents for submission to the USEPA and the VADEQ - A Certification Protocol (Application) and a Monitoring Plan. The certification application is a summary of the testing procedures that will be used to confirm the proper setup and operation of the CEM systems as listed in 40 CFR 75.20. The CEM monitoring plan is the summary of the technical and operational aspects of CEM system as per Subpart H of 40 CFR 75.

These documents and the planned test date for the CEM system will be submitted by the

facility at least 45 days prior to the CEM certification test date (9 VAC 5-140-730 and 40 CFR 75.61). The facility submits the information directly to USEPA electronically. VADEQ will receive a hard copy of the documents, at the DEQ regional office responsible for that facility.

The creation of the certification application and monitoring plan has been greatly simplified by the USEPA. The USEPA has produced software packages to insure that the documents meet state and federal requirements, are presented in a standardized format, and can be submitted to the Clean Air Market Division in an electronic format as required by 40 CFR 75.53.

The Monitoring Data Checking (MDC) Software is a tool developed by EPA's Clean Air Markets Division (CAMD) to allow regulated industry and State agencies to enter, analyze, print and export the electronic monitoring plan, certification and quality assurance data as per 40 CFR 75 Subpart H. The software also allows regulated sources to submit Monitoring Plans and certification data to EPA via electronic means.

NOTE: All sites will enter the following code "9VAC5140(blank space)(blank space)" into Column 32 for the State Regulation Code, and "VA" for Column 42 for the State Agency Code.

DEQ may obtain access to the electronic submittals for their facilities at: <http://www.epa.gov/airmarkt/monitoring/mdc/index.html>. However, staff is not required to conduct reviews of submittals that are being scrutinized by CAMD already. When anomalies or problems are discovered by CAMD, these concerns are forwarded to EPA Region III and DEQ as appropriate.

B. Action Required by DEQ Air Compliance Staff

Regional DEQ air compliance staff, not central office, are responsible for approving the CEM systems and their certification. Although EPA maintains oversight, official approval of the CEM system is made by the state.

Two checklists have been developed for use by DEQ inspectors in evaluating the Certification Application and the Monitoring Plan (see Appendix B). After DEQ completes the evaluation of these documents, and of the final certification test results, approval or disapproval is issued using a form created for this purpose (VADEQ CONTINUOUS EMISSION MONITORING SYSTEM-MONITORING PLAN AND CEM CERTIFICATION APPROVAL/DISAPPROVAL NOTICE, also in Appendix B). Copies of the approval/disapproval notice are sent both to the facility and to EPA (mailing address: U.S.EPA NOx Budget Trading Program (6204N), 1200 Pennsylvania Avenue, NW, Washington, D.C. 20460).

DEQ regional compliance staff have 120 days from receiving certification results to send final approval/disapproval notices. Final compliance determinations are documented as Partial Compliance Evaluations (PCEs) in the inspection module of CEDS. Included as attachments to the CEDS inspection report are the completed checklists (mentioned

above) and a copy of the final approval/disapproval notice.

C. Provisional certification

During DEQ's review of the CEM certification, the CEMs will be allowed to operate and collect data as needed. This time period will be considered a "provisional certification" period. If the certification documents are approved by DEQ, and quality assurance procedures followed per Part 75, the data collected during the provisional period will be considered valid. If the certification application is disapproved, the data will be thrown out and standard emission estimation techniques will be used to calculate NO_x emissions during the period. Facilities have 30 days to re-certify their CEM systems if disapproved (9 VAC 5-140-710B(3)).

X. CERTIFICATION OF NEW OR MODIFIED CEM SYSTEMS

For the majority of CEM systems expected for this program the following performance certification tests will be required (though there are some exemptions):

- A 7-day calibration error test for each monitor. (40 CFR 75, Appendix A, 6.3)
- A linearity check for each pollutant concentration monitor. (40 CFR 75, Appendix A, 6.2)
- A relative accuracy test audit (RATA) for each monitor. (40 CFR 75, Appendix A, 6.5)
- A bias test for each flow monitor and the NO_x CEM system. (40 CFR 75, Appendix A, 6.5)
- A cycle time test for each pollutant concentration monitor. (40 CFR 75, Appendix A, 6.4)
- A daily interference test for flow monitors. (40 CFR 75, Appendix B, 2.1.2)
- An accuracy test is required for fuel flow meters. Stack tests are required for a NO_x emission correlation for gas- and oil-fired peaking units. (40 CFR 75, Appendix I, reserved)
- For all monitoring methods, the DAHS must be tested. (40 CFR 75, Appendix J, reserved)

Electronic versions of the certification will be sent to the USEPA using the MDC software described earlier. The VADEQ will receive hard copies of all documents related to CEM certification. These documents will include all supporting materials needed to support the applications, such as equipment specifications, calibration gas certifications, monitoring location schematic diagrams, etc.

The VADEQ has 120 days after receipt of the testing results to complete the review and issue a notice of approval or disapproval (9 VAC 5-140-710 B.3). Copies of this notice will be issued to both the facility and the USEPA. A copy of this notice is provided in Appendix B.

Initial certification and re-certification procedures are covered in 9 VAC 5-140-710.

A. Initial certifications for existing units

DEQ air compliance staff will attempt to be present to observe the initial certification RATA testing of the CEM systems at affected NO_x Trading Program facilities.

Certification of the CEM system can begin officially after the VADEQ receives the permit application and the owner has applied for an Allowance Trading Account and chosen an Account Representative. All NO_x Budget Units must have in place a NO_x mass monitoring methodology that conforms to the requirements of 40 CFR Part 75, Subpart H. Virginia regulations on compliance certification of NO_x Budget Trading Sources are located in Article 4 of Chapter 140 (9 VAC 5-140-300 and 310). Citations on certification procedures and reporting is provided in Article 8 (9 VAC 5-140-710).

All required monitor certification testing for the affected units must be commenced by the applicable certification deadline. For all EGU and non-EGU facilities in operation before January 1, 2003 this deadline is May 1, 2003, as described above.

The specific monitor certification and quality assurance (QA) requirements that must be met by the deadline will depend on the monitoring methodology selected by the owner. An initial VADEQ permitting and certification schedule and a list of EGU and non-EGU facilities are provided in Appendix A.

B. Initial certifications for new units

For units that begin operation after January 1, 2003 the following deadlines for CEM certification applications (9 VAC 5-140-700 C) apply:

- 180-days after the unit commences operation for Non-EGU facilities
- 90-days after the unit commences operation for EGU facilities

These time limitations include completion of the certification testing itself. These certification deadlines apply both to facilities that will be reporting on an annual basis and those reporting only on a control period basis. The division between these groups is covered in 9 VAC 5-140-740 D and 40 CFR 75.74. Non-EGU facilities that do not have a Title IV Acid Rain Operating Permit, and are not under any other regulatory program requirement to reduce emissions, may be allowed to limit air emission monitoring to the NO_x Control Period only.

At this time, the definition of “commences operations” as per 9 VAC 5-140-20 should be pointed out. The official date for commencing operations will be the first day the unit burns fuel. This date does not have to be within a *NO_x Control Period*. Unlike other air quality programs, an initial testing shake down period is not taken into account. All NO_x emissions from a permitted *NO_x Budget Unit* must be accounted for.

C. Recertifications

Whenever the facility makes a replacement, modification or change in a certified

emission monitoring system that may significantly affect the ability of the system to accurately measure or record NOx mass emissions, the owner must recertify the CEMS (9 VAC 5-140-710B2).

Examples of changes requiring recertification include replacement of analyzer, complete replacement of an existing CEM system, change in location or orientation of sampling probe or site.

The CEM Monitoring plan also must be updated and resubmitted when such changes or modifications occur.

D. Duration of a certification

The initial certification of the CEM system will be in effect as long as the required routine QA/QC procedures are followed. If any significant changes are made in the CEM equipment, the stack or flue gas handling system, or the concentration profile of the gas, the CEM system will need to be re-certified (9 VAC 5-140-710 B.2). The state and federal agencies will have to be notified prior to the re-certification testing (9 VAC 5-140-730) according to the schedules provided in 40 CFR 75.61. In cases of emergencies, notification can be after testing has been completed, to reduce the amount of lost data to a minimum.

XI. ROUTINE QA/QC REQUIREMENTS

To use the monitoring results of the CEM systems as a basis for allowance trading, the operator must perform periodic audits of the equipment. These will include daily calibration error tests, daily interference tests for flow monitors, quarterly linearity checks, and semi-annual (or annual) RATA and bias tests. A summary of the minimum QA checks that must be performed is provided in Table 2.

Table 2 Quality Assurance Requirements for Units Reporting on a Annual Basis			
Frequency	QA Test	Equipment	Qualifications and Exceptions
Daily Assessments	Daily Calibration Tests	Each CEM system	None
	Daily interference checks	Flow Monitor	None
Quarterly Assessments	Quarterly linearity checks	Each gas monitor	<ul style="list-style-type: none"> • Required only in “QA operating quarters”¹ • Not required if NOx gas monitor has a span of less than 30 ppm
	Quarterly flow to load ratio tests	Flow Monitor	<ul style="list-style-type: none"> • Required only in “QA operating quarters” • Complex configurations may be exempted by petition (40 CFR 75.66)
	Quarterly leak checks	Differential pressure-type Flow Monitor	Required only in “QA operating quarters”
Semi-annual and Annual Assessments	<ul style="list-style-type: none"> • Semiannual or annual relative accuracy test audit • Bias test (NOx and flow systems only) 	<ul style="list-style-type: none"> • NOx diluent CEMS • NOx concentration CEMS • Flow Monitoring • Moisture monitor • Diluent monitoring used for heat input rate 	Depending on results of previous RATA test, RATA is required either every 2 QA operating quarters or every 4 QA operating quarters. Not to exceed 8 calendar quarters.
Other	<ul style="list-style-type: none"> • Fuel Flowmeter accuracy test every 4 QA operating quarters • Visual Inspections every three years 	Fuel Flowmeter	<ul style="list-style-type: none"> • Required only in “QA operating quarters” • An optional “fuel flow-to-load” or “gross heat rate” test may be used to extend the interval between flowmeter accuracy tests to up to 20 quarters.

¹ Quality Assurance Operating quarters are calendar quarters in which the NOx Budget Units was operated at least 168 hours.

Whenever any emission monitoring system fails to meet the quality assurance requirements of Appendix B of 40 CFR 75, data must be substituted using the applicable procedures in Subpart D or H, or Appendix D or E, of 40 CFR 75. Techniques for Missing Data estimation can be found in 40 CFR 75, Appendix C.

The CEM rule contains procedures for filling in data when a monitor has recorded no valid hour or hours of data. The rule uses a conservative approach to substitute for missing data. This methodology offers an incentive to keep monitor downtime to a minimum, giving the most accurate and reliable results. The procedures for SO₂, NO_x, and flow are summarized in Table 3.

NOTE: Data substitution is not an acceptable procedure for CEMs that must comply with Part 60 monitoring and minimum data capture requirements.

Table 3 Substitution Criteria for CEM Missing Data Periods		
Annual Availability (%) of Monitor or System*	Number of Hours Missing (N)	Value Substituted for Each Missing Hour
Greater than or equal to 95%	N is less than or equal to 24 hours	Average of the hours recorded before and after missing period
	N is greater than 24 hours	90th percentile value recorded in the previous 30** days of service or the before/after value, whichever is greater
Less than 95% but greater than or equal to 90%	N is less than or equal to 8 hours	Average of the hours recorded before and after missing period
	N is greater than 8 hours	95th percentile value recorded in the previous 30** days of service or the before/after value, whichever is greater
Less than 90%	N is greater than 0 hours	Maximum value recorded in previous 30** days of service

*SO₂ and flow monitors are individually evaluated for missing data. For NO_x monitoring, the monitor system NO_x pollutant concentration monitor and diluent gas monitor are considered in combination. NO_x and flow monitoring data is correlated to unit electrical output (load) before selecting the percentile values.

**NO_x CEM systems and flow monitors review the previous 90 days of service.

Source: Acid Rain Program Policy Manual, USEPA, 2/14/2001

XII. ROUTINE RECORDKEEPING AND REPORTING REQUIREMENTS

As mentioned, the number of tons of NOx emissions from each emission unit during the NOx Control Period must be determined and reported. To validate these results, detailed records and reports matching the format and quality assurance requirements of the USEPA must be created. These documents and records will include:

- CEM Certification Records Monitoring Plan
- Hourly emissions data, flow data, and other field records
- Quarterly Reports of emissions, flow, unit operation, and monitoring performance data
- Annual Compliance Reports for each NOx Control Season by November 30 (9 VAC 5-140-300)

These documents will be created by the owners using the USEPA software programs. Electronic copies of the reports will be submitted to the USEPA CAMD group. DEQ and EPA Region III will receive hard copies of all CEM certification submittals, but not ongoing quarterly and annual reports, unless required under other regulations or permits. (Some CEMs used for the NOx Trading Program are also used for compliance with Part 60 standards or by permit condition or other requirement).

XIII. ON-GOING TASKS FOR DEQ STAFF

The routine tasks required of the VADEQ Regional Offices will include the following:

1. Observation and Approval of semiannual or annual RATA Test (as resources allow)
2. Observation and Approval of CEM Recertifications, as applicable (as resources allow)
3. Periodic In-Depth Audit of CEM Systems as per USEPA Audit Manual (as negotiated in Section 105 air grant)

DEQ has primary approval authority for the CEM system and its maintenance. As such, DEQ staff is expected to notify the affected facilities and the USEPA Region III of its findings and determinations. Sending copies of CEDS inspection reports through the Central Office Manager of Air Compliance Coordination to EPA Region III is the appropriate procedure if potential noncompliance is observed during a DEQ inspection.

The USEPA retains primary authority to administer the NOx Trading Program because of its national regulatory and economic impacts. The USEPA's electronic data process will enable EPA to screen and evaluate massive amounts of data more efficiently than the states can with hard copies. However, because DEQ staff often reviews facility CEM data for compliance with other regulatory programs, and they conduct regular site visits, DEQ can provide valuable input from the field on facility compliance for the NOx Trading Program.

As described in Table 5 below, if EPA notifies DEQ of an issue or potential compliance problem, DEQ will follow up with any field audits or site inspections as necessary.

Table 5 summarizes the tasks of the NOx Budget Trading Program.

Table 4 Elements of Running the NOx Budget Trading Program	
Program “Element”	Implementation Responsibility
Monitoring Requirements	
Creation of Monitoring Plan with Monitoring Data Checking software	Electronic copy submitted to CAMD, Hardcopy and support documentation goes to VADEQ and EPA Region III
Initial Monitoring Plan Review	CAMD reviews electronic monitoring plan using MDC, and forwards feedback to source, Region III, and VADEQ, VADEQ reviews hardcopy and support documentation
Initial Monitor Certification	CAMD forwards feedback to source, Region III and VADEQ. VADEQ sends notice of approval/disapproval to CAMD and the source.
Revision to Monitoring Plan	VADEQ provides feedback to source, source submits electronic copy of revision to CAMD, hardcopy of revision is submitted to VADEQ and EPA Region III
Recertification of CEMS	CAMD forwards feedback to source, Region III and VADEQ. VADEQ sends notice of approval/disapproval to CAMD and the source.
Electronic Data Reporting Requirements	
Quarterly Emission Report	Data is submitted electronically to CAMD
Quarterly Emission Report Error Resolution	CAMD provides feedback to the source
Annual Compliance Report	Data is submitted electronically to CAMD No DEQ involvement unless requested
Annual Compliance Report Error Resolution	CAMD provides feedback to the source

Appendix A - VADEQ Support Documents

- NOx Allowance Budget Trading Program Implementation Schedule
- Initial Electric Generation Unit Allowance Allocations for Virginia (2004-2008)
- Initial Non-Electric Generation Unit Allowance Allocations for Virginia (2004-2008)

**Implementation of NOx SIP Call Budget Trading Program
 Preliminary Schedule of Events, Second Draft**

March 25, 2002	Final draft of Chapter 140, NOx Budget Trading Program published in Virginia Register.
April 24, 2002	Public comment period on proposed Budget Trading Program closes.
May 1, 2002	VADEQ and USEPA publish final list of affected sources in Virginia and their allotment of allowances for 2004-2008.
June 17, 2002	Air Board passes Chapter 140. Regulation is published in the Virginia Register.
July 1, 2002	Affected sources authorized representatives to submit the Early Reduction Credits reserve credit (for 2002 and 2003) by this date. All CEM monitoring is to be in full compliance by May 1, 2002 to include submittal of compliance plans.
July 16, 2002	Chapter 140 NOx Budget Trading Program comes into effect.
September 1, 2002	VADEQ will complete the ERC reserve issuance process by this date (Date is set by law.)
September 5, 2002	Guidance memo on NOx Budget Trading Program Permit Applications published and issued to the regional offices.
October 1, 2002	Notice to all affected sources requiring the submittal of permit applications and Trading Account documents issued by the regional offices.
October 1, 2002	Certification of CEM systems for units requesting ERCs to be completed by VADEQ within 120-days after Affected source has submitted a reserve notice (July 1, 2002).
November 1, 2002	Initial draft of ASOP-11, NOx Budget Trading Program covering monitoring, and certification prepared. Draft of Air Permit Guidance document to be completed as well.
November 1, 2002	Deadline for regional offices to receive permit applications from all affected sources.
November 15, 2002	Regional offices send "receipt of permit application notice" to all affected sources with 10-days of receipt or no later than this date.
November 15, 2002	Regional offices will send original Trading Account Applications on behalf of the affected sources to the USEPA Region III, if this action is not already completed by the owners.
November 15, 2002	Final Draft of ASOP-11 published for review by regional offices. ASOP-11 will cover emission monitoring, CEM certification, and record keeping and reporting requirements for the program. The accompanying permit guidance will include boilerplates and guidelines for all documentation required for the program.
During the period of November 15-22, 2002	NOx SIP Call permitting and compliance requirements training sessions to be held in Piedmont and Roanoke.
December 16, 2002	Final Version of ASOP-11 and Permit Guidance published in DEQnet.
January 3, 2003	Regional offices issue a permit application 60-day completeness review notice to affected sources no later than this date. Copy of notice to be submitted to USEPA Trading program division.
January 3, 2003	Notice issued to all affected sources formally requesting CEM Certification Protocols and Emission Monitoring Plans no later than this date.
March 15, 2003	Regional offices receive CEM Certification Protocol and Emission Monitoring Plans from all affected sources by the date.

May 1, 2003	Provisional Certification Process on CEM systems to be completed and notices sent to affected sources by this date. All existing sources will have their CEM system operating by this date. (Date is set by law.)
May 1, 2003	Regional offices will have 120-days from this date to complete review of Certification of all CEM systems.
After May 1, 2003	Final NO _x Budget Trading permit approvals to be issued after approval of CEM certification. Permit will be attached as a section within federally enforceable permit. All permits for sources that are or will be operating will become effective on May 31, 2004.
May 31, 2003	CEM monitoring and recording of emissions in support of NO _x Budget Trading program too officially begin no later than this date.
July 31, 2003	First Quarterly report for May through June 2003 to be submitted by the affected sources no later than this date.
September 1, 2003	Certification of CEM systems for all affected sources to be approved or disapproved no later than this date. Notices of Certification approval to be sent to all owners and USEPA representatives. (Date is set by law.)
September 30, 2003	Second Quarterly report for July through September 2003 to be submitted. This report will include summary of total NO _x emissions for the entire control period.
October 15, 2003	Notify all new sources that will operate in 2004 that they must formally request NO _x allowances by December 31, 2003.
December 31, 2003	All requests for NO _x allowances from new affected sources is to be received for the 2004 control period. (Date is set by law.)
January 31, 2004	Quarterly report for October through December 2003 to be submitted. This report marks the beginning of the first year of formal collected data.
February 1, 2004	Affected sources applying for ERCs for 2002 and 2003 will submit verification that it has met all requirements by this date. (Date is set by law.)
February 1, 2004	Affected sources not in compliance may request an extension of May 31 deadline by applying for direct distribution credits DDCs by this date. (Date is set by law.)
April 1, 2004	VADEQ will allot ERCs to the affected sources that have provided verification that they have met the requirements. (Date is set by law.)
March 31, 2004	Second Quarterly CEM monitoring report to be submitted for the months January through March 2004.
May 31, 2004	NO _x Budget Trading Program first official control period begins. (Date is set by law.) All approved Budget Permits become effective on this date.
May 31, 2004	VADEQ will allot DDCs to affected sources that have applied for an extension of the May 31 compliance deadline.
July 31, 2004	Third Quarterly report for the period April through June 2004 to be submitted.
September 30, 2004	First official control period ends. (Date is set by law.)
October 15, 2004	Notification to owners of new Sources that they are to request NO _x allowances for 2005 Control Period by December 31, 2004.
October 31, 2004	Combined Fourth Quarterly and Annual Summary report to be submitted. The report will include the period July through September 2004. Total NO _x emissions will be

	included for the past 12-months and for the 2004 Control Period.
November 1, 2004	All NOx trading for the 2004 control period is to be completed by this date. (This date is set by law.) NOx trading can continue for next year's control period.
November 30, 2004	Compliance Certification Report to be submitted by all affected sources to the regional offices for the 2004 Control Period (This date is set by law.)
December 31, 2004	All requests for NOx allowances from new affected sources is to be received for the 2005 control period. (Date is set by law.)
May 1, 2005 through September 30, 2005	NOx control period for second year of enforcement. Quarterly reports and compliance documents to follow the same schedule as for 2004.
April 1, 2006	Recalculation of NOx allotments for the 2009 through 2013 control periods is to be completed. This new list will include new affected sources. (This date is set by law.)

INITIAL ELECTRIC GENERATION UNIT ALLOWANCE ALLOCATIONS FOR VIRGINIA (2004 TO 2008)

List based on facilities operating by May 1998.
Final total of allowances issued in May 2002

State	County or City	Plant Name	ORIS Plant Id	ORIS Point Id	DEQ Plant Id	DEQ Point Id	Nameplate Capacity	Allowance Unadjusted	Allowance Adjusted
VA	Richmond	Dominion Bellmeade	7696	1	50988	20	80	112	102
VA	Richmond	Dominion Bellmeade	7696	2	50988	21	80	106	96
VA	Fluvanna Co	Dominion Bremono Bluff	3796	3	40199	1	69	152	138
VA	Fluvanna Co	Dominion Bremono Bluff	3796	4	40199	2	185	383	348
VA	Chesapeake	Dominion Chesapeake	3803	1	60163	1	113	299	272
VA	Chesapeake	Dominion Chesapeake	3803	2	60163	2	113	317	288
VA	Chesapeake	Dominion Chesapeake	3803	3	60163	3	185	356	323
VA	Chesapeake	Dominion Chesapeake	3803	4	60163	4	239	570	518
VA	Chesterfield Co	Dominion Chesterfield	3797	3	50396	3	113	258	234
VA	Chesterfield Co	Dominion Chesterfield	3797	4	50396	4	188	401	364
VA	Chesterfield Co	Dominion Chesterfield	3797	5	50396	5	359	766	696
VA	Chesterfield Co	Dominion Chesterfield	3797	6	50396	6	694	1296	1177
VA	Chesterfield Co	Dominion Chesterfield	3797	7	50396	1	237	341	310
VA	Chesterfield Co	Dominion Chesterfield	3797	8	50396	2	238	300	272
VA	Russell Co	AEP Clinch River	3775	1	10236	1	238	528	479
VA	Russell Co	AEP Clinch River	3775	2	10236	2	238	501	455
VA	Russell Co	AEP Clinch River	3775	3	10236	3	238	558	507
VA	Halifax Co	Dominion Clover	7213	1	30867	1	424	1135	1031
VA	Halifax Co	Dominion Clover	7213	2	30867	2	424	1183	1074
VA	Hopewell	James River Cogen (AKA Hopewell Cogentrix)	10377	St_ell	50950	1&2	108.5	315	286
VA	Portsmouth	Portsmouth Cogentrix	10071	St_uth	61049	1 - 6	108.5	343	311
VA	Richmond	Richmond Cogentrix	54081	St_d1	51033	1&2	115	311	282
VA	Richmond	Richmond Cogentrix	54081	St_d2	51033	3&4	115	229	208
VA	Chesapeake	Commonwealth Atlantic	52087	GT_LP	61108	1	388.9	166	151
VA	Henrico Co	Dominion Darbytown	7212	1	50997	1	92.1	32	29
VA	Henrico Co	Dominion Darbytown	7212	2	50997	1	92.1	31	28
VA	Henrico Co	Dominion Darbytown	7212	3	50997	1	92.1	32	29
VA	Henrico Co	Dominion Darbytown	7212	4	50997	1	92.1	31	28
VA	Hanover Co	Doswell	52019	CA_#1	51018	1	742.4	154	140
VA	Hanover Co	Doswell	52019	CT_#1	51018	2	742.4	170	154
VA	Hanover Co	Doswell	52019	CA_#2	51018	3	742.4	175	159
VA	Hanover Co	Doswell	52019	CT_#2	51018	4	742.4	170	154
VA	Giles Co	AEP Glen Lyn	3776	51	20460	1	100	97	88
VA	Giles Co	AEP Glen Lyn	3776	52	20460	2	100	115	104
VA	Giles Co	AEP Glen Lyn	3776	53	20460	3	238	514	467
VA	Orange Co	Gordonsville Energy	54844		40808	1	300.4	77	70
				CA&T_e					
				1					
VA	Orange Co	Gordonsville Energy	54844		40808	2	300.4	72	65
				CA&T_e					
				2					
VA	Surry Co	Dominion Gravel Neck	7032	3	50336	1	92	26	24
VA	Surry Co	Dominion Gravel Neck	7032	4	50336	2	92	24	22
VA	Surry Co	Dominion Gravel Neck	7032	5	50336	3	92	18	16
VA	Surry Co	Dominion Gravel Neck	7032	6	50336	5	92	22	20
VA	Hopewell	Hopewell Cogen	10633	CT_nc.	50967	1	399	76	69
VA	Hopewell	Hopewell Cogen	10633	CW_nc.	50967	2	399	73	66
VA	Hopewell	Hopewell Cogen	10633	NA	50967	3	399	72	65
VA	Campbell Co	LG&E Altavista	10773	1	30859	2	71.1	24	22
VA	Campbell Co	LG&E Altavista	10773	2	30859	2	71.1	25	23
VA	Hopewell	LG&E Hopewell	10771	1	51019	1	71.1	24	22
VA	Hopewell	LG&E Hopewell	10771	2	51019	2	71.1	24	22
VA	Southampton Co	LG&E Southampton	10774	1	61093	1	71.1	27	25
VA	Southampton Co	LG&E Southampton	10774	2	61093	2	71.1	36	33
VA	Mecklenburg	Mecklenburg Cogen	52007	ST_urg	30861	1	139.9	243	221

ASOP - 11 The NOx Trading Program

November 25, 2002

Revised June 6, 2003

Appendices

VA	Co								
VA	Prince William Co	Possum Point	3804	3	70225	3	114	222	202
VA	Prince William Co	Possum Point	3804	4	70225	4	114	520	472
VA	Prince William Co	Possum Point	3804	5	70225	5	114	409	371
VA	Alexandria	Mirant Potomac River	3788	1	70228	1	92	214	194
VA	Alexandria	Mirant Potomac River	3788	2	70228	2	92	170	154
VA	Alexandria	Mirant Potomac River	3788	3	70228	3	110	260	236
VA	Alexandria	Mirant Potomac River	3788	4	70228	4	110	255	232
VA	Alexandria	Mirant Potomac River	3788	5	70228	5	110	223	203
VA	King George Co	SEI Birchwood	12	1	40809	1	220	374	340
VA	Accomack Co	Delmarva Tasley	3785	10	40304	1	33	10	9
VA	York Co	Dominion Yorktown	3809	1	60137	3	188	372	338
VA	York Co	Dominion Yorktown	3809	2	60137	5	188	403	366
VA	York Co	Dominion Yorktown	3809	3	60137	6	882	1137	1032
								17879	16236
VA	STATEWIDE	NEW SOURCE SET-ASIDE							855
								17091	

INITIAL NON-ELECTRIC GENERATION UNIT ALLOWANCE ALLOCATIONS FOR VIRGINIA						
(2004 TO 2008)						
	List based on facilities operating by May 1998.					
	Final total of allowances issued in May 2002					
REGIS	NAME	STACK	POINT	SEG	Allowance Unadjusted	Allowance Adjusted
20304	CELANESE ACETATE LLC	001	001	#7	75	154
20304	CELANESE ACETATE LLC	002	002	1	27	55
20328	WESTVACO CORPORATION BLEACHED BOARD DIV	001	001	1	143	293
20328	WESTVACO CORPORATION BLEACHED BOARD DIV	002	002	1&2	77	158
20328	WESTVACO CORPORATION BLEACHED BOARD DIV	003	003	1&2	118	243
20328	WESTVACO CORPORATION BLEACHED BOARD DIV	004	004	1	209	429
20328	WESTVACO CORPORATION BLEACHED BOARD DIV	005	005	1	43	87
20328	WESTVACO CORPORATION BLEACHED BOARD DIV	024	011	1	34	70
30240	DAN RIVER INC (SCHOOLFIELD DIV)	003	003	01	49	100
30389	GEORGIA-PACIFIC CORP	001	002	01	43	89
30389	GEORGIA-PACIFIC CORP	005	005	04	50	103
40126	ST LAURENT PAPER PRODUCTS CORP	002	002	1-5	143	292
50232	HONEYWELL INTERNATIONAL INC	100	10A	01	0	0
50232	HONEYWELL INTERNATIONAL INC	101	10B	01	98	200
50232	HONEYWELL INTERNATIONAL INC	102	10C	01	76	156
60214	INTERNATIONAL PAPER - FRANKLIN MILL	001	003	01	149	306
60214	INTERNATIONAL PAPER - FRANKLIN MILL	012	017	01	52	107
60214	INTERNATIONAL PAPER - FRANKLIN MILL	022	029	1&2	128	262
					1514	3104
	NEW SOURCE SET-ASIDE					1000
						4104

Appendix B - Checklists and Notices

- Certification Application Review Checklist for the NOx Budget Trading Program
- Monitoring Plan Review Checklist for NOx Budget Trading Program
- VADEQ Certification Application/Monitoring Plan Approval/Disapproval Notice

Certification Application Review Checklist for the NO_x Budget Trading Program

Plant Name	Oris Code	Unit/Pipe ID

AAR Signature and Certification

	Yes	No	N/A
Was the submission signed by the AAR?			
Was there a certification statement included?			
Was the EPA Form 7610-14 submitted?			
Was the certification application submitted within 45 days of the final certification test?			

Electronic Application Materials

	Yes	No	N/A
Was the electronic version of the certification application sent to CAMD?			
Was feedback received from CAMD?			
Is the monitoring plan representative of the installed CEMS?			
Have all stacks and emission points, including bypass stacks, been accounted for in the monitoring plan?			
Do the Unit ID's match those supplied by CAMD?			
Is each of the required tests reported in the electronic certification application?			
Is there any MDC monitoring plan errors that have not been corrected?			
Is there any MDC QA evaluation errors that need correcting?			
Does the electronic certification application pass review by the Monitoring Data Checking Software (MDC)?			

Hardcopy Report (general)

	Yes	No	N/A
Has a test report for each of the required tests been submitted?			
Was the test protocol and reference method procedures followed?			
Does data in the hardcopy submission match the electronic portion?			
Are the reference method and CEMS on the same moisture basis?			
If moisture corrections were made, was an impinger method used to determine the moisture content of the flue?			
Did the tester use protocol gases to calibrate the reference method?			
Does the CEMS use protocol gases for daily calibrations?			
Does the CEMS use zero air material as defined in §72.2 for daily zero calibrations?			
Was a NO _x converter used when the reference method was performed?			
If NO _x span ≤ 30 ppm in a NO _x -diluent system, was the required linearity performed on the diluent monitor? (CO ₂ or O ₂)			

Is a Data Acquisition and Handling System (DAHS) formula verification included?			
Was the DAHS formula verification acceptable?			

Hardcopy Certification Testing Review

Indicate for each system if the required certification tests have been performed correctly and passed. (PASS, FAIL, N/A)				
SYSTEM ID				
System Parameter*				
7-Day Cal Error Test				
Cycle Time Test				
Linearity Check				
RATA				
Bias Check				
Date that all tests for the system were completed?				
Recommend approval of the system for certification?				

Indicate for each system if the required certification tests have been performed correctly and passed. (PASS, FAIL, N/A)				
SYSTEM ID				
System Parameter				
7-Day Cal Error Test				
Cycle Time Test				
Linearity Check				
RATA				
Bias Check				
Date that all tests for the system were completed?				
Recommend approval of the system for certification?				

*System Parameters include: NOx Concentration (NOXC), NOx Emission Rate (NOXR), CO2 diluent (CO2), O2 diluent (O2), Stack Flow (FLOW), Oil fuel flow (OIL), Gas fuel flow (GAS), Moisture monitoring system (H2O). See also January 24, 2001, Revised EDR v2.1 Instructions: RT510 System Parameter Monitored (17) for complete list of possible system parameters.

Reviewer	Agency	E-mail or Phone no.	Date

Revised 10-10-01

Monitoring Plan Review Checklist for NOx Budget Trading Program

Plant Name	Oris Code	Unit/Pipe ID

AAR Signature and Certification

	Yes	No	N/A
Was the submission signed by the AAR?			
Was there a certification statement included?			

Schematic Diagrams

	Yes	No	N/A
Are all emissions from affected units monitored?			
Are all required CEMS's represented for each unit or common stack?			
Are all control systems represented?			
Do the diagrams or drawings show upstream and downstream flow disturbances around sampling locations?			
Are all oil and gas fuel (Appendix D only) supply lines and flowmeters clearly shown?			

Flow Monitor Location - part 75, Appendix A, section 1.2

	Yes	No	N/A
Are the inside cross-sectional areas of each flue at the flow monitor location included?			
Are the inside cross-sectional areas of each flue at the flue exhaust included?			

Alternative Flow Monitor Location Petition

	Yes	No	N/A
Is there a petition for an alternative monitoring site?			
Does the information demonstrate an acceptable alternative location?			

Data Flow Diagram

	Yes	No	N/A
Does the diagram illustrate the full information flow path?			

Span Calculations

	Yes	No	N/A
Was the MPC and span for NOx concentration monitor determined in accordance with part 75, appendix A, sections 2.1 and 2.1.2?			
If there is a NOx control device was a MEC calculated?			
Is a dual-range monitor required?			

Span Calculations (continued)

Was the MPC and span for Diluent monitor determined in accordance with part 75, appendix A, sections 2.1.3?			
Was the MPV and span for the flow monitor determined in accordance with part 75, appendix A, sections 2.1.4?			

Review of Electronic Monitoring Plan

	Yes	No	N/A
Are the formulas (RT 520) consistent with the monitoring methodology?			
Do the formulas account for all the monitored emissions?			
Do the formulas account for all heat input?			
Were the MPC and spans entered correctly (RT 530) from the hardcopy calculations?			
Was the MER calculated and entered correctly?			
Were there errors in the MDC feedback?			
Were the defaults in the RT 531 determined in accordance with part 75?			

Calibration gas levels

	Yes	No	N/A
Were calibration gas concentrations the correct percent of span for daily calibration checks?			
Was the low-level calibration gas concentration the correct percent of span for linearity checks?			
Was the mid-level calibration gas concentration the correct percent of span for linearity checks?			
Was the high-level calibration gas concentration the correct percent of span for linearity checks?			

Test Protocol

	Yes	No	N/A
Is the notice acceptable?			
Are the test methods listed in §75.22?			

Reviewer	Agency	E-mail or Phone no.	Date

revised 10-10-01

Regional Office ID: