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To: The Honorable Robert F. McDonnell
Members of the General Assembly

From: David K. Paylor

Date: October 1, 2010

Subject: Report on Air Quality and Air Pollution Control Policies in the Commonwealth

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In accordance with 10.1-1307.G of the Virginia Code, the Department of Environmental Quality has completed its annual report on Air Quality and Air Pollution Control Policies of the Commonwealth of Virginia for 2010.

Overall Virginia's air quality continues to gradually improve and DEQ continues to take steps to improve air quality. Indeed, ambient concentrations of fine particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide in Virginia were meeting all of the national ambient air quality standards during calendar year 2009. However, the air quality standards that the Commonwealth must attain are becoming increasingly stringent. In 2010, the U.S. Environmental Protection Agency published lower National Ambient Air Quality Standards (NAAQS) for sulfur dioxide (SO_2) and for nitrogen dioxide (NO_2). Both of these standards reflect new implementation and monitoring strategies as well as more stringent numerical ambient air quality standards. EPA has also proposed a reconsideration of the 2008 ozone NAAQS that suggests reducing the standard to between 0.060 parts per million (ppm) and 0.070 ppm on an 8-hour average. A new ozone standard in this range will be very challenging for several areas of the Commonwealth to meet.

This report is being made available at www.deq.virginia.gov/regulations/reports/html. If you have any questions concerning this report or if you would like a hard copy of this report, please contact Angela Jenkins, Policy Director, at (804) 698-4268.

AIR QUALITY AND AIR POLLUTION CONTROL POLICIES OF THE COMMONWEALTH OF VIRGINIA

A Report to the Honorable Robert F. McDonnell, Governor and the General Assembly of Virginia

Virginia Department of Environmental Quality

October 2010

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Commonly Used Abbreviations

AQI	Air Quality Index
APA	Administrative Process Act
ASM	Acceleration Simulation Mode
BAC	Best Available Controls
BACT	Best Available Control Technology
BART	Best Available Retrofit Technology
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CAMR	Clean Air Mercury Rule
CASAC	Clean Air Scientists Advisory Committee
CH_4	Methane
CMS	Compliance Monitoring Strategy
CO	Carbon Monoxide
CO2	Carbon Dioxide
CTG	Control Technique Guideline
DMV	Department of Motor Vehicles
ECHO	Enforcement and Compliance History Online
EGU	Electric Generating Unit
ELRP	Emergency Load Response Program
EPA	Environmental Protection Agency
FCE	Full Compliance Evaluation
FRM	Federal Reference Monitor
GHG	Greenhouse Gas
GVWR	Gross Vehicle Weight Rating
GWAQC	George Washington Air Quality Committee
HAP	Hazardous Air Pollutant
HPV	High Priority Violation
HRAQC	Hampton Roads Air Quality Committee
I/M	Motor Vehicle Inspection and Maintenance Program
ISO	Independent Systems Operator
LAER	Lowest Achievable Emissions Rate
LPO	Lead Planning Organization
MACT	Maximum Achievable Control Technology
MANE-VU	Mid Atlantic/Northeast Visibility Union
MARAMA	Mid Atlantic Regional Air Management Association
MMte	Million Metric Tons of CO_2 equivalent
MSOS	Mobile Source Operations Section
MRAQC	Metropolitan Richmond Air Quality Committee
MW	Megawatt
MWAQC	Metropolitan Washington Air Quality Committee
NAAQS	National Ambient Air Quality Standard
NATA	National Air Toxic Assessments
NATTS	National Air Toxics Trend Site
NCore	National Core Monitoring Site
NH_3	Ammonia
NLEV	National Low Emission Vehicle Program
NO_2	Nitrogen Dioxide
NOIRA	Notice of Intended Regulatory Action
NOV	Notice of Violation
NOX	Nitrogen Oxides
NSR	New Source Review
ORE	On-Road Emissions Program
OTC	Ozone Transport Commission
OTR	Ozone Transport Region
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter not more than 2.5 Angstroms in Diameter
PM_{10}	Particulate Matter no more than 10 Angstroms in Diameter
$PM_{10\text{-}2.5}$	Particulate matter with a diameter between 2.5 and 10 Angstroms
ppb	Parts per Billion
ppm	Parts per Million
PSD	Prevention of Significant Deterioration
RACM	Reasonably Available Control Measures
RACT	Reasonably Available Control Technology
RAP	Regulatory Advisory Process
RBIS	Risk Based Inspection System
RFG	Reformulated Gasoline
RFP	Reasonable Further Progress
RIA	Regulatory Impact Analysis
ROP	Rate of Progress
RPO	Regional Planning Organization
SACC	Significant Ambient Air Concentrations
SAPCB	State Air Pollution Control Board
SHEN-AIR	Shenandoah Valley Air Quality Initiative
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SOP	State Operating Permit
STN	Speciated Trends Network
T&A	Timely and Appropriate
TPY	tons per year
TR	Transport Rule
ug/m^3	Micrograms per Cubic Meter
VDH	Virginia Department of Health
VINTAG	Virginia Inhalation Toxicology Advisory Group
VISTAS	Visibility Improvement State and Tribal Association of the Southeast
VPM	Virginia Productivity Measurements

1. Executive Summary

This report was prepared by the Virginia Department of Environmental Quality (VDEQ) on behalf of the State Air Pollution Control Board (SAPCB) for the Governor and General Assembly pursuant to § 10.1-1307 G of the Code of Virginia. This report details the status of Virginia's air quality, provides an overview of the air compliance and air permitting programs, and briefly summarizes the federal, state, and local air quality programs being implemented.

1.1. Air Quality in the Commonwealth

Air quality in Virginia continues to improve. However, the air quality standards that the Commonwealth must attain are becoming more stringent. In 2010, the Environmental Protection Agency (EPA) published lower National Ambient Air Quality Standards (NAAQS) for sulfur dioxide (SO_2) and for nitrogen dioxide (NO_2). Both of these standards reflect new implementation and monitoring strategies as well as more stringent numerical ambient air quality standards. EPA has also proposed a reconsideration of the 2008 ozone NAAQS that suggests reducing the standard to between 0.060 parts per million (ppm) and 0.070 ppm on an 8-hour average. A new ozone standard in this range will be very challenging for several areas of the Commonwealth to meet.

1.2. Air Quality Policies in the Commonwealth

In response to the decisions of the U.S. Court of Appeals for the D.C. Circuit regarding the Clean Air Interstate Rule (CAIR), EPA has proposed the Transport Rule, which requires 31 states and the District of Columbia to reduce power plant emissions that contribute to ozone and fine particulate pollution in other states. EPA also intends to propose air toxics standards for coal- and oil-fired electric generating units by March 10, 2011 and finalize such a rule by November 16, 2011. These regulations, as well as the final ozone NAAQS that is due to be promulgated by October 31, 2010, will impact air quality policies in the Commonwealth.

2. Status of Air Quality in the Commonwealth of Virginia

Ambient concentrations of fine particulate matter ($PM_{2.5}$), carbon monoxide (CO), NO_2, and SO_2 in Virginia were meeting all of EPA's NAAQS in 2009. Virginia's air quality in some regions of the Commonwealth during the summer of 2010 did not comply with the proposed 2010 ozone NAAQS.

2.1. Monitoring Network

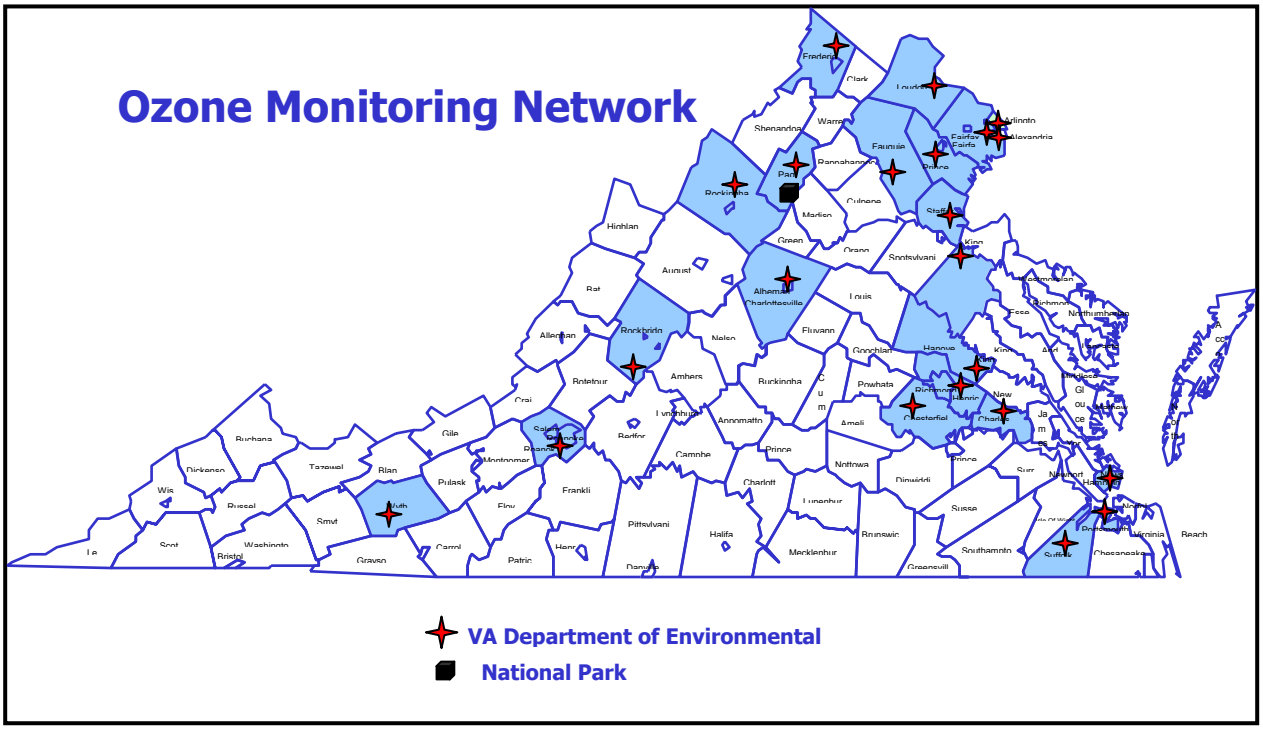

Figure 2.1-1: Virginia Ozone Monitoring Network

VDEQ maintains an extensive air quality monitoring network throughout the Commonwealth. Ambient air quality was measured by approximately 128 instruments at 42 sites during 2009 - 2010. Figure 2.1-1 shows the various ozone monitoring sites in Virginia. All monitoring sites were established in accordance with EPA's siting criteria (40 CFR Part 58, Appendices D and E), and all sites conform to EPA guidance documents and generally accepted air quality monitoring practices. Data reported from the Virginia air quality monitoring network were quality assured in accordance with federal requirements (40 CFR Part 58, Appendix A). The data are published annually in the *Virginia Ambient Air Monitoring Data Report* and are available from the VDEQ website at http://www.deq.virginia.gov/airmon/.

2.2. Data Trends for $PM_{2.5}$ and Ozone

For $PM_{2.5}$, the general trend for the annual average across the Commonwealth shows marked improvement in air quality. Figure 2.2-1 shows annual $PM_{2.5}$ averages for monitors in the Richmond-Petersburg area. Other areas of the Commonwealth follow a similar trend.

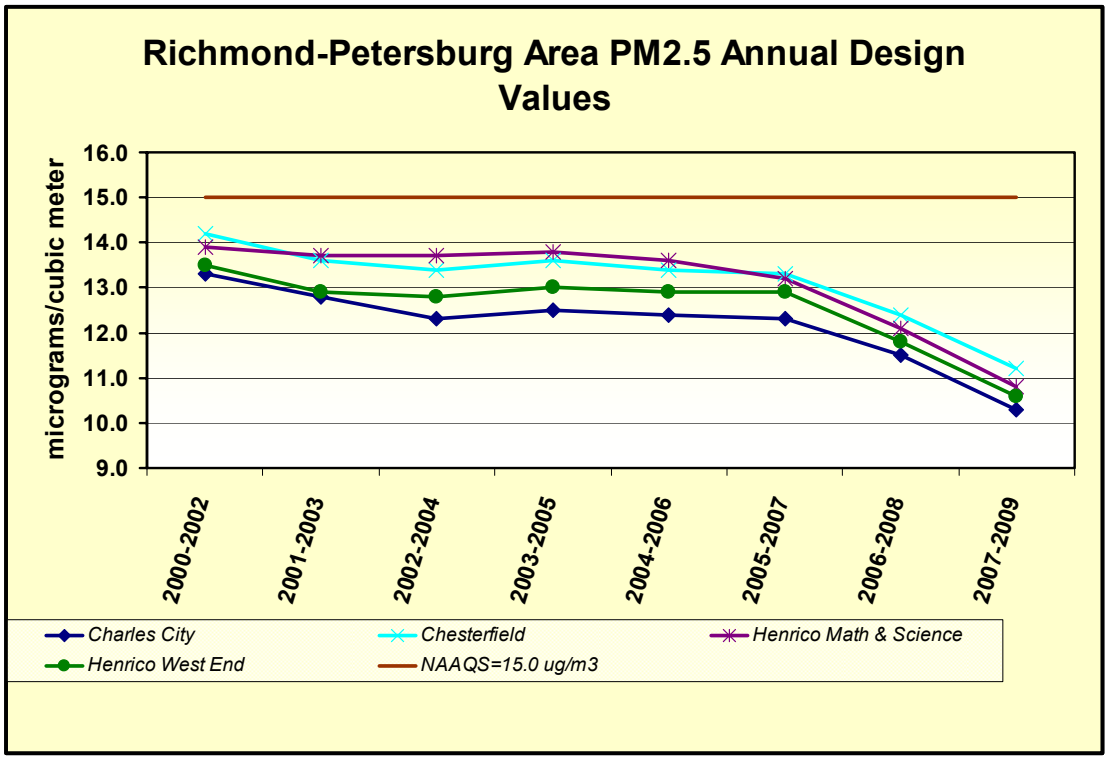

Figure 2.2-1: Richmond-Petersburg Area $PM_{2.5}$ Annual Design Values

For the 24-hour $PM_{2.5}$ data, the monitors across the Commonwealth have generally registered a pattern of decreasing values, and all monitors are in compliance with the 35 ug/m^3 standard. Figure 2.2-2 provides data for Northern Virginia air quality $PM_{2.5}$ monitors and shows the values on a 24-hour basis. As denoted by the red line in the chart below, all monitors in Northern Virginia are showing levels below the 2006 NAAQS for $PM_{2.5}$, indicating good air quality for $PM_{2.5}$. Other areas of the Commonwealth follow a similar trend.

Regulations requiring reduced sulfur content in fuels as well as regulations requiring SO_2 reductions from electrical generating units (EGUs) have contributed to the improvement in $PM_{2.5}$ air quality over the last few years. Figure 2.2-3 presents $PM_{2.5}$ speciation data, which provide information concerning the various components of $PM_{2.5}$. These data show that the sulfate portion of $PM_{2.5}$, which is associated with SO_2

emissions, has decreased between 2004 and 2009, indicating the efficacy of SO_2 control programs.

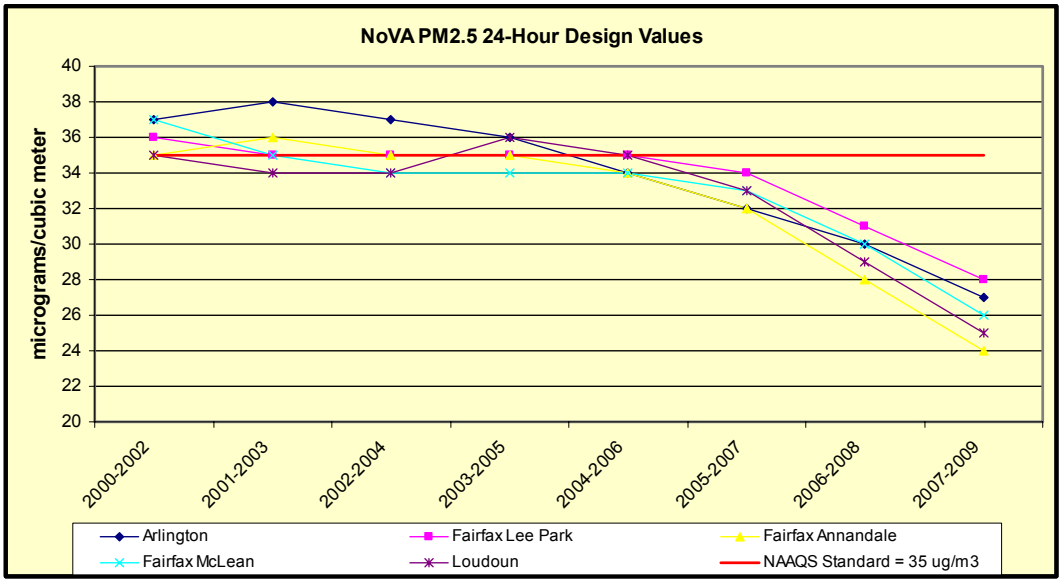

Figure 2.2-2: Northern Virginia 24-Hour $PM_{2.5}$ Air Quality

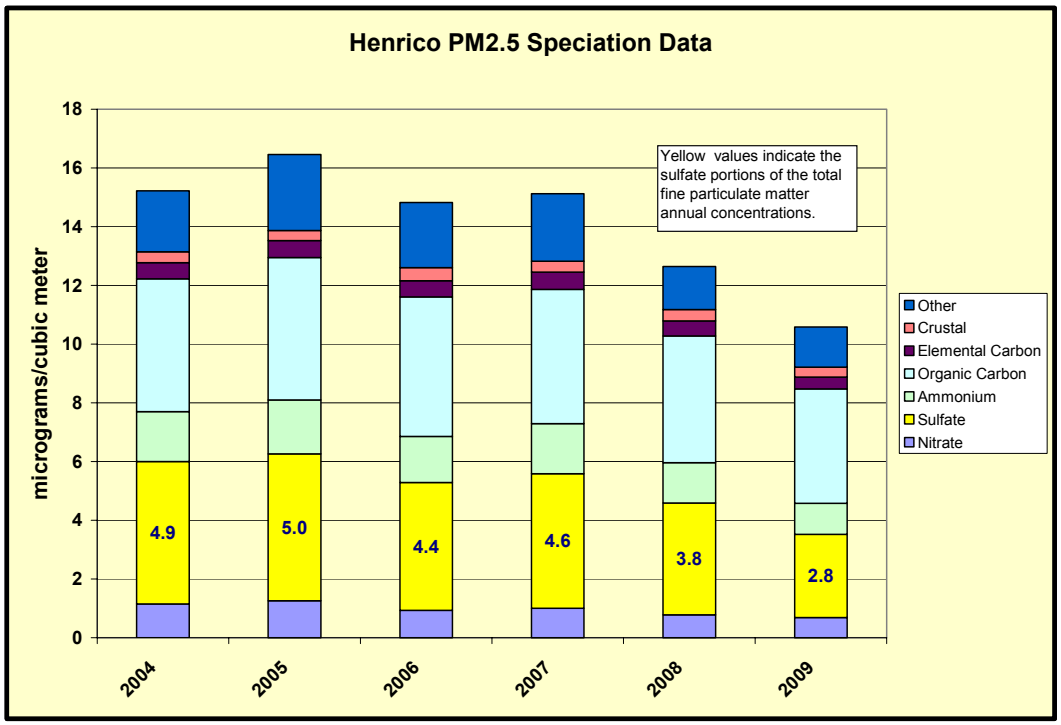

Figure 2.2-3: Virginia $PM_{2.5}$ Speciation Data, 2005-2009

Like $PM_{2.5}$, ozone trends continue to show improvement in air quality. In 2010, EPA proposed a reconsidered ozone standard, and the proposal invited comment on a

standard within the range of 0.060 ppm and 0.070 ppm ozone. The range in this proposal may also be expressed as 60 parts per billion (ppb) to 70 ppb. Certain areas of the Commonwealth have air quality monitoring data that are above the proposed standard range. Table 2.2-5 shows the monitoring data for the 2007 through 2009 ozone seasons for each of the monitors in Virginia. Data are provided in parts per billion. More information regarding this new ozone standard may be found in Section 3.1.4.

Table 2.2-5: Ozone Air Quality Values for All Virginia Monitors, 2007-2009 Data

County	***Value, ppb***	***County***	***Value, ppb***	***County***	***Value, ppb***
Loudoun	77	Shenandoah	73	Wythe	67
Prince William	71	Stafford	72	Rockbridge	64
Arlington	79	Caroline	74	Page	66
Alexandria	75	Frederick	69	Fauquier	66
Fairfax-Lee Park	80	Roanoke	70	Rockingham	67
Fairfax-McLean	77	Chesterfield	74	Albemarle*	69
Fairfax-Mt Vernon	80	Henrico	78	Newport News*	66
Fairfax-Chantilly	73	Hanover	75	Suffolk-TCC	72
Fairfax-Annandale	78	Charles City	77	Suffolk-Holland	73

**Denotes monitor with less than three years of data.*

2.3. Hopewell Air Toxics Study

Pursuant to a federal grant, VDEQ's Office of Air Quality Monitoring completed a study of air toxics in Hopewell. This study commenced in 2006, and the study was completed on November 1, 2008. Additional monitoring was conducted from November 2008 through June 2009. This additional monitoring was performed for data validation purposes. Two of the three sites for the study have been dismantled and removed. One site, located at Carter Woodson Middle School, has been retained as a permanent air toxics monitoring site and will be part of Virginia's Urban Air Toxics Monitoring (UATM) network. The study indicates that most airborne chemicals in the city of Hopewell are safely below Virginia's long-term air quality standards. A preliminary report of the Hopewell air quality study was published in February 2009 and is available at: http://www.deq.virginia.gov/air/Air_report. The results of the study have been released to the public, and a public meeting was held to review the results with residents of Hopewell and other interested citizens. Based on citizens' requests, the

data gathered from this study have been sent to VDEQ's Office of Risk Assessment to be used in a risk analysis. The Risk Assessment Program has completed a draft analysis, and the document will be provided to the public for comment and discussion.

2.4. NATTS/NCore Site

VDEQ installed a new National Air Toxics Trend Site (NATTS) at the Math and Science Innovation Center monitoring station in eastern Henrico County using funds received from a federal grant. This addition expands the site's toxic monitoring capabilities, and data from this site are now included in the National Trends report issued annually by EPA. The site has been significantly upgraded with a new state-of-the-art shelter and improved instrumentation. EPA performed an audit of this site in Fall of 2009 and determined that the site is constructed and operated in a manner consistent with all NATTS program requirements.

This site will also house the new National Core (NCore) monitoring equipment. NCore monitoring is a federally required program intended to ensure that every state has a research level facility that monitors a large suite of pollutants and accompanying meteorological data so that the data generated can be used for trend analysis and long term air quality studies. The NCore site additions will be completed by January 1, 2011.

2.5. Air Monitoring in Northern Virginia

Effective July 1, 2010, the Fairfax County Department of Environmental Health ended their air quality monitoring program. VDEQ is now solely responsible for air quality monitoring within Fairfax County. VDEQ performed extensive analyses and determined that Fairfax County air quality could be properly and accurately represented by the existing VDEQ network without having to assume the responsibility for the monitoring sites owned by Fairfax County. The Annual Monitoring Plan, which described VDEQ's plans for monitoring air quality in Fairfax, was provided to the public for comment. The Annual Monitoring Plan was sent to EPA for review on June 1, 2010.

2.6. 2008 Lead NAAQS and Lead Monitoring

In October 2008, EPA established a new NAAQS for lead. This NAAQS reduced the standard for lead from 1.5 ug/m^3 to 0.15 ug/m^3, making this standard ten times more stringent than the previous lead NAAQS. The revised lead NAAQS requires additional ambient air quality monitoring, including source-oriented monitors at facilities in Buchanan County and Roanoke City. The new monitoring requirements also include an additional lead monitor at the state's NCore site in Henrico County. EPA initially indicated that other sites within the Commonwealth may need to have lead monitors installed, but VDEQ's analysis showed that EPA's emissions numbers were outdated. VDEQ provided the appropriate analysis to EPA and requested removal of these sites from the list of lead monitoring sites.

On July 22, 2009, EPA announced it would reconsider portions of the ambient monitoring requirements for lead. Specifically, EPA is reconsidering whether additional monitoring near industrial sources of lead is warranted and whether the monitoring requirements for urban areas need further revision. The impact of EPA's new proposal on Virginia would be to require one additional source-oriented monitor in Amherst County. Currently, VDEQ has the NCore site and the Roanoke City sites up and operating. The Amherst County and Buchanan County sites are under construction.

3. Air Pollution Control Overview

This overview is broadly categorized into planning, permitting, compliance, enforcement, and other initiatives. Descriptions of significant current policy issues under each broad category are provided.

3.1. Air Quality Planning Initiatives

Air quality planning strategies currently focus on preparations for compliance with the 2010 NO_2 NAAQS, the 2010 SO_2 NAAQS, and the 2010 ozone NAAQS (expected to be final by the end of October in 2010). However, other initiatives continue to require attention and resources. These initiatives include the development and submittal of various Clean Air Act (CAA) infrastructure requirements; the requirements of the Regional Haze program; and the ongoing issues surrounding CAA §126 petitions to alleviate out-of-state air quality impacts from Virginia facilities. Many of these strategies and initiatives will be heavily influenced by the final requirements in the Transport Rule, which was proposed in 2010 and is due to be finalized in 2011.

3.1.1. Control Technique Guidelines

As required by §183(e) of the CAA, EPA conducted a study of volatile organic compound (VOC) emissions from the use of consumer and commercial products to assess their potential to contribute to levels of ozone that violate the NAAQS for ozone and to establish criteria for regulating VOC emissions from these products. Any regulations issued under §183(e) must be based on ``best available controls'' (BAC).

Section 183(e)(3)(C) provides that EPA may issue a control technique guideline (CTG) in lieu of a national regulation for a product category where EPA determines that the CTG will be substantially as effective as national regulations in reducing emissions of VOC in ozone nonattainment areas. A state with ozone nonattainment areas is required to evaluate the recommendations provided in the CTGs and determine if modification of existing regulations or creation of new regulations is needed to be consistent with the requirements of the CTG. A state with areas included in the Ozone Transport Region (OTR), like Northern Virginia, must apply the requirements in the OTR for all sources covered by the CTG. After VDEQ promulgates a regulation implementing the requirements of the CTG for a product or source category, VDEQ must submit the regulation to the EPA for approval as part of the State Implementation

Plan (SIP) within one year from signature of the CTG. EPA has issued four groups of standards under §183(e) of the CAA:

- Group I: These standards apply to categories such as consumer products, architectural coatings, and auto body refinishing coatings. Unlike Groups II, III, and IV, these standards are national requirements and are codified in 40 CFR Part 59.
- Group II: Issued September 29, 2006, these CTGs regulate VOC emissions from flexible packaging printing operations, lithographic and letterpress printing materials, industrial cleaning solvents, and flat wood paneling coatings.
- Group III: Issued October 9, 2007, these CTGs regulate VOC emissions from paper, film, and foil coatings; metal furniture coatings; and large appliance coatings.
- Group IV: Issued July 14, 2008, these CTGs regulate VOC emissions from miscellaneous metal products coatings; plastic parts coatings; auto and light-duty truck assembly coatings; fiberglass boat manufacturing materials; and miscellaneous industrial adhesives

VDEQ has surveyed the Northern Virginia area and submitted declarations to EPA for several of the CTG categories demonstrating that currently no potentially regulated facilities operate in the Northern Virginia area. However, the survey results indicate that, for some categories, potentially affected facilities may be operating in the Northern Virginia area and that regulations must be developed for offset lithographic printing and letterpress printing; industrial cleaning solvents; miscellaneous metal and plastic parts coatings; and miscellaneous industrial adhesives. VDEQ received approval from the SAPCB on September 10, 2010, to begin a public comment period on these draft regulations.

3.1.2. 1997 NAAQS for Ozone and New Source Review Thresholds

In 1997, EPA replaced the 1-hour average ozone concentration standard of 0.12 ppm with an 8-hour average ozone concentration standard of 0.08 ppm. On April 30, 2004, EPA published Phase One of its rule for implementing the 8-hour ozone standard, and portions of this rule were subsequently vacated. Currently the Commonwealth's emissions thresholds for triggering major New Source Review (NSR) permitting requirements correspond to the requirements of the original Phase One rule. These levels are 100 tons per year (tpy) of NO_X and 50 tpy of VOC. If EPA decides to require NSR thresholds equivalent to the 1-hour ozone classification these NSR thresholds may need to be revised to as low as 25 tpy of NO_X and 25 tpy of VOC. EPA proposed this regulatory change on August 24, 2010. Such a change would increase the number of facilities needing Title V permits as well as require that more facilities be subject to major NSR permitting. VDEQ is waiting for final federal rule revisions on the issue prior to the development of new NSR thresholds for the area. Section 3.2 below provides more information regarding air permitting.

3.1.2.1. 1997 Ozone NAAQS Maintenance Areas

Improvements in air quality allowed the following areas to demonstrate compliance with the 1997 ozone NAAQS standard after these areas were originally designated as nonattainment: Richmond-Petersburg, Fredericksburg, the Shenandoah National Park, and Hampton Roads. When an area is redesignated from nonattainment to attainment, Virginia must prepare a State Implementation Plan (SIP) that meets the requirements for 8-hour ozone maintenance areas and that demonstrates how good air quality will be maintained into the future. Using EPA guidance, the Commonwealth submitted redesignation requests, inventories, and maintenance plans for these areas to EPA, which were approved after review and public comment.

During the 2007 and 2008 ozone seasons, ozone violations were registered at a monitor in Henrico County, part of the Richmond-Petersburg maintenance area. The maintenance plan for the area includes contingency measures to be implemented in such an event. A regulatory action was initiated in order to implement control strategies specified in the contingency measures for the Richmond-Petersburg area. These contingency measures include control strategies for mobile equipment repair and refinishing, architectural and industrial maintenance coatings, consumer products, and portable fuel containers. As a proactive measure towards meeting the 2008 ozone NAAQS in this area, the SAPCB also directed VDEQ to take comment on the implementation of an additional regulation, the adhesives and sealants regulation. These regulations were approved for final implementation at the September 10, 2010, SAPCB meeting.

3.1.3. 2006 NAAQS for $PM_{2.5}$

On September 22, 2006, EPA promulgated a revised $PM_{2.5}$ NAAQS. The new standard revised the daily $PM_{2.5}$ standard from 65 ug/m^3 to 35 ug/m^3 and retained the $PM_{2.5}$ annual standard of 15.0 ug/m^3. On October 8, 2009, EPA published the final designations for the 2006 daily $PM_{2.5}$ standard in the Federal Register, and all areas of the Commonwealth were designated as attainment or unclassifiable.

3.1.4. 2008 NAAQS for Ozone and 2010 Reconsideration

On March 12, 2008, EPA revised both the primary and the secondary NAAQS for ozone to 0.075 ppm. However, on September 16, 2009, EPA announced that it was reconsidering the 2008 ozone NAAQS to ensure that the standards were scientifically sound and protective of human health. EPA proposed to stay the 2008 ozone NAAQS for purposes of attainment and nonattainment designations during the period of its reconsideration. On January 6, 2010, EPA proposed a new ozone standard of between 0.060 ppm and 0.070 ppm on an 8-hour average. EPA noted that the ozone standards set in 2008 were not as protective as recommended by EPA's panel of science advisors, the Clean Air Scientific Advisory Committee (CASAC). EPA stated that the

proposed standards are consistent with CASAC's recommendations and place more weight on key scientific and technical information, including epidemiological studies, human clinical studies showing effects in healthy adults at 0.060 ppm, and results of EPA's exposure and risk assessment. EPA also proposed in the January 6, 2010, publication to establish a distinct cumulative, seasonal "secondary" standard, designed to protect sensitive vegetation and ecosystems, such as forests, parks, wildlife refuges, and wilderness areas. EPA proposed to set the level of the secondary standard within the range of 7 ppm-hours to 15 ppm-hours. Publication of the final 2010 ozone NAAQS is expected in October of 2010. As demonstrated in Table 2.2-5, the proposed range of 0.060 ppm to 0.070 ppm (60 ppb to 70 ppb) would be very difficult for certain areas of Virginia to meet.

The proposed standard also contains new monitoring requirements. Virginia may be required to install up to five new ozone monitors at previously unmonitored locations. These locations include Lynchburg, Danville, Blacksburg, Bristol, and one undesignated rural location. These monitors are projected to be installed between October 1, 2010 and October 1, 2011. The proposed standard will extend the ozone monitoring season by one month.

The new proposed ozone standard and the accompanying monitoring requirements will tax existing air monitoring VDEQ resources. While EPA has projected increases in funding through its performance grant, the number of monitors as well as their location will make it difficult for the Office of Air Quality Monitoring to site the monitors in a timely fashion. VDEQ's Regional Office resources also will be stretched in supporting these monitors. To address these resource issues, VDEQ plans to 1) request that EPA not require a Bristol monitor and 2) request that EPA allow an existing rural monitoring site to serve for the new standard. These requests will be made during the 2011 federal fiscal year.

3.1.5. 2010 NO_2 NAAQS

NO_2 is a gaseous air pollutant that forms when fossil fuels such as coal, oil, gasoline, or diesel are burned at high temperatures. NO_2 contributes to the formation of particle pollution by converting in the atmosphere to nitrate aerosols, a component of $PM_{2.5}$. NO_2 also is a building block of ozone.

On January 22, 2010, EPA finalized a new primary NO_2 NAAQS and set the standard at 100 ppb over a one-hour average, which is significantly more stringent than the previous primary standard of 53 ppb on an annual average. In this standard EPA also established new monitoring and reporting requirements that will require the location of NO_2 monitors near major road ways. EPA noted that NO_2 concentrations near major roads are expected to be appreciably higher than the levels measured in the current network.

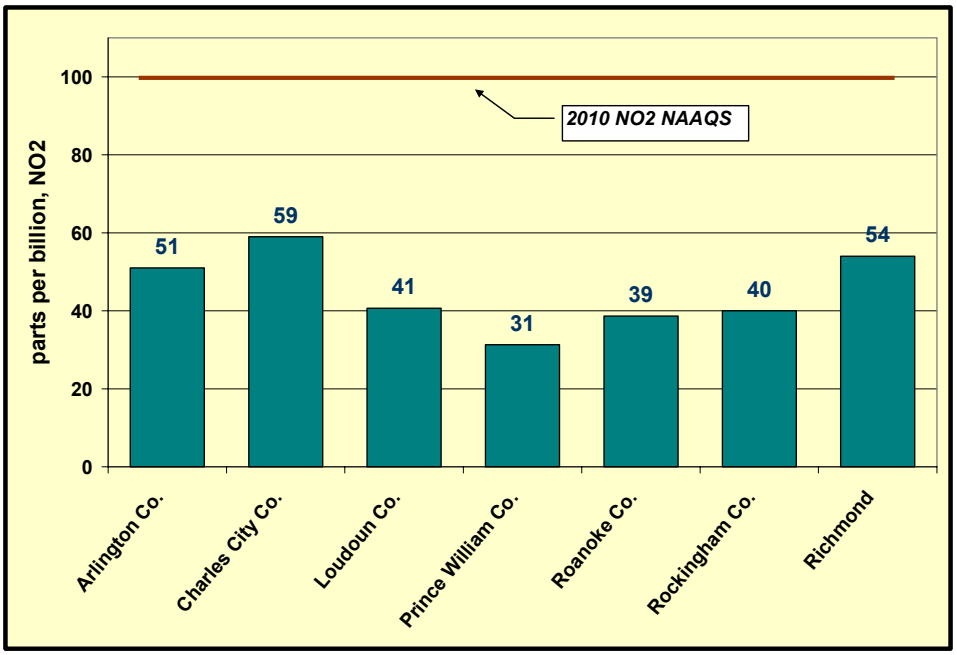

Figure 3.1.5-1: Virginia NO_2 Data, 2007-2009

VDEQ is working towards modifying the existing monitoring network to meet the requirements of the NO_2 NAAQS, including the installation of near-road monitors. Data from the existing air quality monitoring network demonstrates compliance with the new NAAQS, as shown in Figure 3.1.5-1.

3.1.6. 2010 SO_2 NAAQS

SO_2 is one of a group of highly reactive compounds known as "oxides of sulfur." The largest sources of SO_2 emissions are from fossil fuel combustion at power plants and other industrial facilities. Smaller sources of SO_2 emissions include industrial processes such as extracting metal from ore and the burning of sulfur-laden fuels by locomotives, large ships, and non-road equipment. SO_2 also contributes to the formation of particle pollution by converting in the atmosphere to sulfate aerosols, a major component of $PM_{2.5}$.

On June 2, 2010, EPA signed a new primary NAAQS for SO_2. This regulation significantly strengthened the short term requirements by lowering the standard to 75 ppb on a 1-hour basis. Monitoring data from VDEQ's monitoring network currently show compliance with this standard, as shown in Figure 3.1.6-1. The new federal regulation revokes the previous primary standards of 140 ppb over a 24-hour period and 30 ppb over an annual period. The new standard revises the ambient air monitoring requirements for SO_2 and may require additional monitors in Northern Virginia, Richmond, and Tidewater. In addition, EPA has changed the data reporting requirements for the SO_2 standard to include a reporting requirement for 5-minute

blocks of data. This additional reporting requirement was implemented on August 17, 2010. VDEQ currently is evaluating whether changes need to be made to the monitoring network in order to comply with this federal reporting requirement.

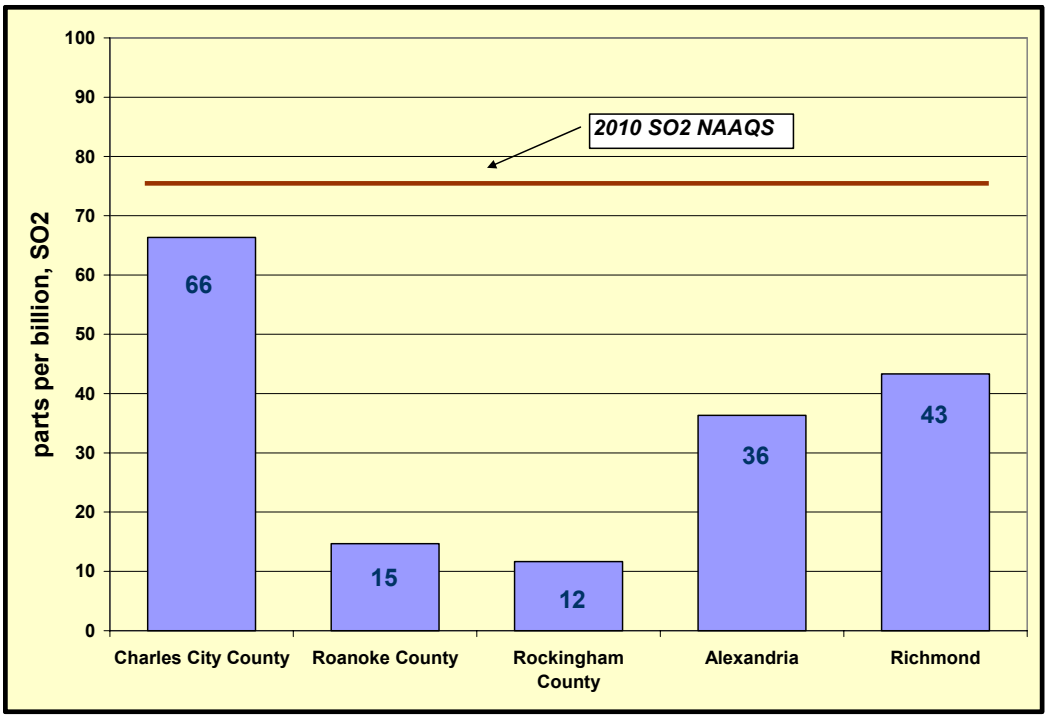

Figure 3.1.6-1: Virginia SO_2 Data, 2007-2009

The regulation takes a new approach to the implementation of the NAAQS through the inclusion of additional requirements for CAA Section 110(a) SIPs. These "infrastructure" SIPs have in the past been used to show that states have the authority to adequately fund, monitor, enforce, and otherwise implement the NAAQS. This regulation indicates that future 110(a) SIP submittals for this NAAQS must contain demonstrations by major SO_2 facilities that their emissions do not cause or contribute to a NAAQS violation or that such situations will be remedied as soon as practicable but no later than 2017, the NAAQS compliance year. These 110(a) SIP submittals are due to EPA in 2013. Requirements for air dispersion modeling and for permitting designed to ensure NAAQS compliance would significantly increase the modeling staff and permitting staff work load. Implementation guidance for this rule is expected to be published in the next year.

3.1.7. Regional Haze

Section 169 A of the CAA mandates the protection of visibility in national parks, forests, and wilderness areas, referred to as Class I federal areas. Visibility impairment or haze is caused by absorption and scattering of light by fine particles. Sources and activities that emit fine particles and their precursors, such as NO_X, SO_2, VOC, and ammonia (NH_3), contribute to this problem. In 1999, EPA finalized the Regional Haze

Rule, calling for state, tribal, and federal agencies to work together to improve visibility in 156 national parks and wilderness areas.

Figure 3.1.7-1: Expected Visibility Improvement between 2004 (left) and 2018 (right) in Shenandoah

VDEQ has developed a SIP to address visibility impairment in the Commonwealth's two Class I areas, the Shenandoah National Park and the James River Face. This plan must establish goals and emission reduction strategies based on trends from various sources of emissions and must reduce visibility impairment such that the visibility in the Shenandoah National Park and the James River Face will be returned to natural conditions by 2064. With the help of the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) regional planning organization (RPO), VDEQ has developed a draft SIP to address visibility impairment in these two Class I areas. The draft SIP addresses reasonable progress requirements of the CAA, long term strategies, and Best Available Retrofit Technology (BART) requirements for certain industrial facilities. Public comment on Virginia's Regional Haze Plan was accepted from August 18, 2010 to September 17, 2010. VDEQ expects to submit a final plan to EPA prior to December of 2010.

3.2. Air Permitting

VDEQ issues two basic types of air permits: construction permits and operating permits. Construction permits, often called New Source Review (NSR) permits, apply to new facilities as well as existing facilities that are undergoing an expansion or modification. Operating permits apply to sources that are already in operation.

VDEQ currently has three construction permit programs for criteria pollutants. The Prevention of Significant Deterioration major new source review (PSD) program applies to major sources that are located in an area that is in attainment with the NAAQS. Sources are required to apply Best Available Control Technology (BACT) as well as undergo a thorough air quality analysis demonstration (i.e. air modeling) to assure the new facility or major modification will not cause or contribute to a violation of the NAAQS or have an adverse impact on any Class I area. The second program is the non-attainment major NSR program that applies to major sources that are located in an area that is not in compliance with one or more NAAQS. A facility in a non-attainment area must apply the Lowest Achievable Emission Rate (LAER), which is often more rigorous than BACT, and must obtain offsets for the pollutant for which the area is not in attainment. The third program is the minor NSR program. This program applies to new sources or existing sources that are undergoing a modification and that are below major source emissions thresholds. This program is used more than any other in Virginia. During the 2010 fiscal year, 238 minor NSR permits were issued. Additionally, the minor NSR program is used to issue state major source permits, which apply to those sources that have emissions greater than 100 tons per year of a criteria pollutant but that do not fit the criteria to be classified as PSD or nonattainment major NSR. Two state major permits were issued in Virginia in fiscal year 2010. Virginia also has a general permit (or permit by regulation) for non-metallic mineral processors. If the facility meets the necessary requirements, the facility may use the general permit process instead of the normal minor NSR permitting process. Forty-three general permits were issued in Virginia during fiscal year 2010.

VDEQ issues two types of operating permits: state operating permits (SOPs) and federal operating permits that include Title V permits. SOPs are used primarily to cap a source's emissions to keep it below major source emissions thresholds and out of a major source permitting program. SOPs are often used to place federally and state enforceable limits on hazardous air pollutants (HAPs) to keep a source out of the federal HAP program. The federal HAP program generally requires the use of maximum achievable control technology (MACT) standards. A source may request a SOP at any time and the SAPCB may issue a SOP as necessary (due to a modeled or actual exceedance of a NAAQS or to meet a Federal Clean Air Act requirement). Twenty-three SOPs were issued during fiscal year 2010.

The Title V permit program applies to sources that meet the criteria for being "major" under Title V of the CAA. The purpose of a Title V permit is to compile all requirements from a source's multiple air permits (construction and operating) into one permit document. A newly constructed source that is large enough to qualify as a Title V source must apply for a Title V permit within one year of starting operation. Title V permits must be renewed every five years.

Acid Rain permits also are considered federal operating permits. These permits are issued to sources that are subject to the federal acid rain program (CAA Title IV).

There were nine federal operating permits (Title V and Title IV) and 29 operating permit renewals issued during fiscal year 2010.

3.2.1. Revision of Minor NSR Regulation

In fiscal year 2011, it is anticipated the SAPCB will take final action on the currently proposed amendments to the minor NSR regulation. The proposed rule makes clarifications and incorporates the most recent federal and state policies and guidance into the minor NSR program.

3.2.2. Development of General Permits

Section 10.1-1308.1 requires the development of a general permit for qualified energy generators that use biomass and produce up to five megawatts (MW) of energy. General permits are subject to the same Administrative Process Act (APA) requirements as a regulation. A technical advisory committee (TAC) was formed and met several times in FY 2010. A proposal for the biomass general permit will be presented to the SAPCB in FY 2011.

Pursuant to legislation adopted during the 2009 General Assembly Session, the SAPCB has been directed to develop two general permits. One general permit is for certain sources that generate electricity during Independent Systems Operator (ISO) declared emergencies. This general permit will apply to sources above the minor source permitting exemption levels but below the major source permitting exemption levels. The second general permit will apply to generators that are used for load curtailment, demand response, or peak shaving. Both general permits are subject to the APA process. TACs were formed for both groups, and two proposed general permits will be presented to the SAPCB in FY 2011.

3.2.3. Greenhouse Gas Tailoring Rule

Historically, greenhouse gases have not been regulated pollutants under the CAA. On December 7, 2009, EPA Administrator Lisa Jackson signed a final action finding that six greenhouse gases (GHGs) constitute a threat to public health and welfare and that the combined emissions from motor vehicles cause and contribute to the climate change problem. On April 1, 2010, EPA and the Department of Transportation's National Highway Safety Administration issued the first national rule limiting GHG emissions from cars and light trucks. The requirements of the GHG light duty vehicle rule take effect on January 2, 2011, the earliest date that 2012 vehicles meeting the standards can be sold in the United States. On that date, CAA permitting program requirements will apply to stationary sources of these pollutants. On May 13, 2010, the EPA issued a final rule that sets thresholds for GHG emissions that define when permits under the NSR and Title V operating permit programs are required for new and existing industrial facilities. The final rule "tailors" the requirements of these CAA permitting programs to limit which facilities will be required to obtain NSR and Title

V permits. The CAA permitting program emissions thresholds for criteria pollutants such as SO_2 and NO_2 are 100 tpy and 250 tpy. While these thresholds are appropriate for criteria pollutants, they are not feasible for GHGs because GHGs are emitted in much higher volumes. Without this tailoring rule, the lower emissions thresholds would take effect automatically for GHGs on January 2, 2011. Permitting requirements under NSR and Title V at these thresholds would lead to dramatic increases in the number of required permits. On September 10, 2010, the SAPCB adopted the Tailoring Rule to ensure that these higher GHG thresholds would be applied to permitting of sources in Virginia.

3.3. Air Compliance Activities

The goal of the compliance program is for each facility operating within the Commonwealth to be compliant with all applicable state and federal air regulations and statutes. The focus is to provide the necessary compliance and/or enforcement assistance to correct detected violations as expeditiously as possible. These actions support the agency's mission to protect the environment for the well-being of Virginia's citizens.

The compliance objective is to ensure that industry constructs and operates within the boundary of applicable regulations and permit conditions. VDEQ's air compliance program operates in a manner that is consistent with EPA's 2001 National Compliance Monitoring Strategy (CMS), which targets the largest potential emitters of air pollution for a full compliance evaluation (FCE) at a minimum recommended frequency of once every two years. A FCE consists of a comprehensive evaluation of all aspects of the facility that are related to pollutant emissions, including the examination of documents detailing throughputs, testing, and reporting, to determine the facility's compliance status. The compliance status of Virginia's regulated facilities is reported to EPA weekly and is publicly available on EPA's Environmental Compliance and History Online (ECHO) external website.

VDEQ's air compliance program implements a risk based concept when identifying facilities for a FCE. Using a number of variables, VDEQ can identify facilities with the highest potential adverse impact to the environment and focus on those facilities for a FCE based on the risk factor. This concept was developed by VDEQ and is being used along with the CMS to identify facilities for inspections. Referred to as VDEQ's Risked Based Inspection Strategy or RBIS, it provides flexibility to direct resources where the agency feels it will receive the most benefit in carrying out its mission. VDEQ was granted approval to exercise the risk based concept on a three year trial basis by EPA and with EPA Region 3 oversight.

Currently Virginia is the only EPA Region 3 state with a formal RBIS plan. The RBIS can identify facilities that are not a focus of the national CMS strategy and can be used to justify increases or decreases in the frequency of a facility's inspections. Determinations of increased or decreased inspection frequencies are based on risk qualifiers such as participation in the environmental enhancement program, compliance

history, facility type, environmental sensitivity, multi-media applicability, environmental justice concerns, and agency initiatives.

Virginia has an estimated 5,000 registered facilities operating within its borders, not including approximately 1,192 gasoline dispensing stage II vapor recovery facilities (gas stations in Central and Northern Virginia). In addition, VDEQ signed a June 30, 2009, Memorandum of Understanding (MOU) with EPA accepting delegation to enforce 23 of the 26 recently promulgated federal area source MACT regulations with an anticipated five more to be added in the near future. These regulations apply to a substantial number of facilities emitting toxic pollutants below major source thresholds. As part of the MOU, VDEQ agreed to support EPA through outreach activities for the other three area source MACT regulations although EPA retains sole enforcement delegation. The three area source MACT regulations for which VDEQ has not taken delegation are the reciprocating internal combustion engine standards, the gasoline dispensing standards, and the auto body refinishing standards. These three area source MACT regulations are estimated to constitute a source population of 20,000 or more in Virginia.

For the 2009 federal fiscal year, the air compliance program completed a total of 7,698 partial and full compliance inspection reports, conducted a total of 1,709 on-site inspections including complaint investigations, observed 49 stack tests, and issued a combination of 440 formal and informal enforcement actions.

3.4. Air Enforcement Activities

The goal of enforcement is to take appropriate actions to address violations of environmental laws and return facilities to compliance with Virginia's statutory and regulatory requirements. The mechanism used by VDEQ to achieve compliance must be proportional to the violation, responsive to the facility's compliance history, and protective of human health and the environment. In addition, an appropriate enforcement action, which may include a civil charge and recovery of economic benefit, sends a message of deterrence to the regulated community.

EPA's guidance on timely and appropriate enforcement response to high priority violations (HPVs) articulates the mutual expectations of the respective parties of the federal - state partnership in the enforcement of air pollution control requirements for stationary sources. VDEQ's enforcement staff is responsible for implementing this policy. This policy applies to all major (as defined by the CAA) stationary sources of air pollution that are in violation of a federally enforceable regulation and helps prioritize federal and state agency enforcement efforts with respect to sources of air pollution in their jurisdictions.

Agency HPV activities are designed to identify and to expeditiously return to compliance those violating sources that the agency believes are environmentally most important, namely the HPVs. The policy also promotes a more complete and accurate compliance picture and enhances the responsibility of the agency, as well as EPA, to

track and address all violations. An essential part of this tracking process is assuring that all HPVs are promptly entered into the shared EPA-state database.

In fiscal year 2009, 37 consent orders were issued (twelve of which were HPVs) and resulted in the collection of $712,362 in civil charges and $15,780 of mitigated charges through the implementation of Supplemental Environmental Projects (SEPs).

3.5. Motor Vehicle Inspection and Maintenance Program

Vehicle inspection and maintenance programs (I/M) help improve air quality by identifying high-emitting vehicles in need of repair (through visual inspection, emissions testing, and/or the downloading of fault codes from a vehicle's onboard computer) and causing them to be fixed as a prerequisite to vehicle registration within a given non-attainment area. The CAA made I/M mandatory for several areas across the country, based upon various criteria, such as air quality classification, population, and/or geographic location. With significant input from stakeholders, VDEQ created a decentralized I/M program that retains the convenience of having emissions inspections and repairs performed in the same stations but uses the latest accepted technology to determine which vehicles emit excessive pollutants.

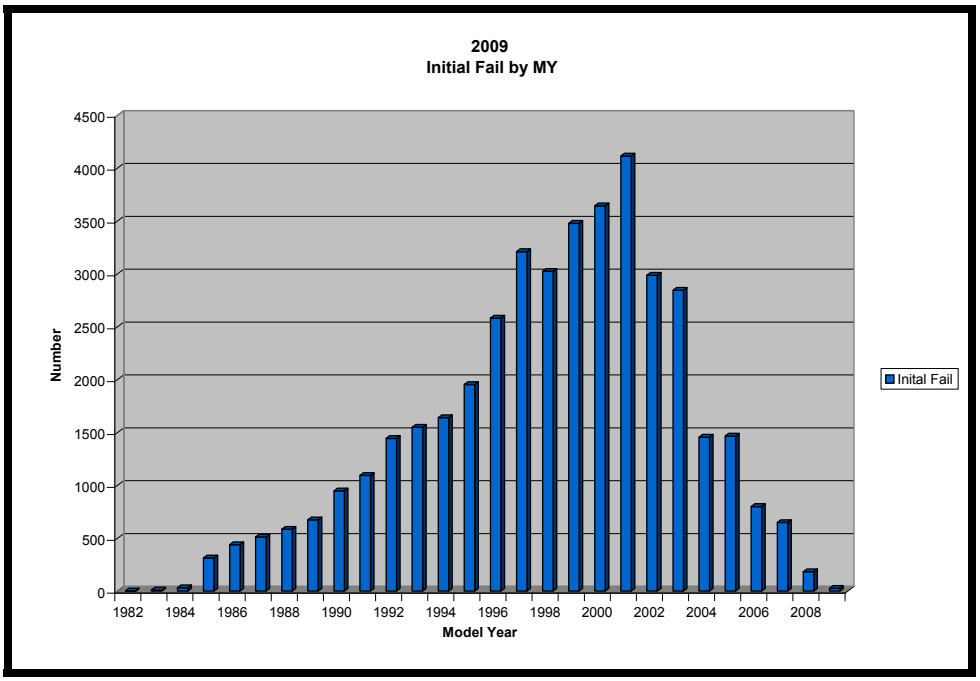

Figure 3.5-1: 2009 Initial Failures by Vehicle Model Year

In 2005, VDEQ updated the program to allow for testing of the on-board diagnostic (OBD) systems on model year 1996 and newer vehicles. The OBD system monitors key components of the vehicle's emission control system, records any diagnostic trouble codes, and warns the driver if there is a condition that could cause excess emissions. The information from the diagnostic trouble codes can be used by

the repair technician to facilitate effective and efficient repairs. For most vehicles, the OBD test takes the place of a tailpipe test and greatly reduces the amount of time for an emissions test. Beginning with model year 2009, all vehicles up to 14,000 pounds are required by federal mandate to be OBD-compliant. New technologies are emerging that provide more convenient testing options for OBD vehicles.

The Northern Virginia I/M program provides significant air pollution reduction benefits in the Northern Virginia area. Vehicles up to 10,000 pounds gross vehicle weight rating (GVWR) and newer than 25 model years are required to pass an emissions test or receive a waiver every two years in order to be registered. As noted in Figure 3.5-1, in 2009 almost 42,000 vehicles failed the initial test and received repairs.

3.5.1. MSOS

The Mobile Source Operations Section (MSOS) is part of the Northern Virginia Regional Office and monitors the performance of the various service stations, certified emissions repair facilities, and licensed emissions inspectors within the I/M program. In 2009, over 813,000 vehicles were inspected. MSOS personnel conducted over 1,500 separate audits during that time frame, including 182 covert audits, of approximately 480 emission inspection facilities. MSOS routinely handles in excess of 1,100 calls per month from citizens, inspectors, repair technicians, and others.

3.5.2. On-Road Emissions Monitoring Program

As required by the CAA, each vehicle emissions inspection program must conduct remote sensing of vehicle emissions in the program area. In response to this requirement, the General Assembly passed legislation in 1996 to authorize VDEQ to perform remote sensing of vehicle emissions throughout the Northern Virginia area. Additional legislation was adopted in 2002 to promote the remote sensing program and to authorize VDEQ to establish a repair subsidy program for low-income vehicle owners that fail the remote sensing test.

In the On-Road Emissions (ORE) monitoring program, vehicles with very high emissions, as identified by remote sensing devices, are sent a Notice of Violation (NOV) and are required to make any necessary repairs to their vehicles. Owners of vehicles observed by remote sensing to be exceptionally clean are notified that their vehicle has received a clean screen, which constitutes an emission inspection pass. At the same time, VDEQ implemented procedures to provide repair assistance to low-income vehicle owners whose vehicles were found to be high emitters through remote sensing.

After nearly four years of operation, the ORE program has identified over 700 vehicles as gross emitters and issued 664 clean screen passes. The gross emitters were repaired and passed an emissions test, taken off the road, or sold outside of the Northern Virginia program area. Currently only about 10% of the Northern Virginia fleet

is observed. Unmanned remote sensing units may soon be available, which would greatly increase the number of observations being recorded.

Recent studies by EPA in other states have indicated that remote sensing can be used to identify vehicles with very high evaporative emissions, possibly coming from leaking fuel tanks or lines. VDEQ notifies owners of such vehicles that they may have a gasoline leak, which could be a potential safety issue. The notice is advisory only.

4. Control Programs

As shown in Figure 4-1, emissions of VOC, NO_X, and SO_2 are expected to decrease significantly from 2002 levels in the years 2009 and 2018, even though growth in both vehicle miles traveled and population is expected to continue throughout this time frame. These projected reductions are the result of several control programs being implemented at the federal level as well as programs being implemented in the Commonwealth. Some of these programs are described in the following paragraphs.

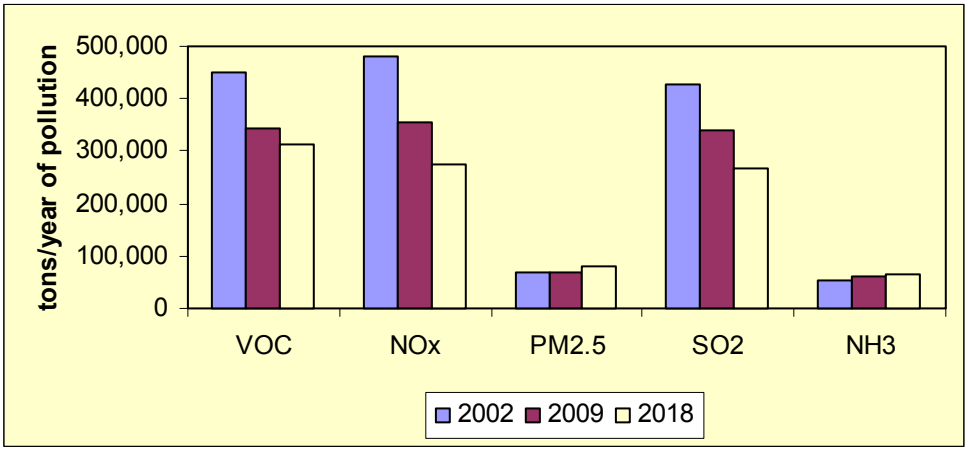

Figure 4-1: Anthropogenic Emission Estimates for the Commonwealth

4.1. Clean Air Interstate Rule/Transport Rule

On May 12, 2005, EPA published the final Clean Air Interstate Rule (CAIR), a program designed to reduce the interstate transport of SO_2 and NO_X from EGUs across the eastern portion of the United States via a cap-and-trade program. The program was designed to function as a trading program, where facilities could choose to comply through the addition of control technology or through the purchase of allowances. The SAPCB adopted its final regulation to implement the federal CAIR program on December 6, 2006, and this regulation was subsequently approved for inclusion in Virginia's SIP by EPA.

On July 11, 2008, the U.S. Court of Appeals for the D.C. Circuit issued an opinion vacating CAIR and later reconsidered its decision to vacate the rule. Instead,

the Court issued an order remanding CAIR without vacatur to EPA, leaving CAIR in place until EPA issues a replacement rule and thus protecting the environmental benefits expected to be achieved by CAIR. Figure 4.1-1 shows estimated CAIR SO_2 emission reductions from Virginia and surrounding states.

On July 6, 2010, EPA proposed the CAIR replacement rule, called the Transport Rule. The proposed Transport Rule would require 31 states (including Virginia) and the District of Columbia to reduce EGU emissions that contribute to ozone and $PM_{2.5}$ pollution in other states. Proposed emissions reductions will begin to take effect in 2012. By 2014, the rule and other state and EPA actions would reduce power plant SO_2 emissions by 71 percent over 2005 levels. Power plant NO_X emissions would drop by 52 percent.

The proposed Transport Rule sets forth three alternate approaches that EPA is considering for reducing SO_2 and NO_X emissions in states covered by the rule. In EPA's preferred approach, EPA is proposing to set a pollution limit (or budget) for each of the 31 states and the District of Columbia. This approach allows limited interstate trading of emissions allowances among power plants but requires that each state meet its overall pollution control obligations. The second approach proposes to set a pollution limit or budget for each state. This option allows trading only among power plants within a state. The third approach sets a pollution limit for each state and specifies the allowable emission limit for each power plant. Some averaging is allowed. Figure 4.1-2 shows a comparison of the annual allocations for SO_2 and NO_X in the draft Transport Rule, the CAIR Phase I allocations, 2008 EGU actual annual emissions, and 2009 EGU actual annual emissions. Figure 4.1-3 shows a comparison of similar data for NO_X over the ozone season.

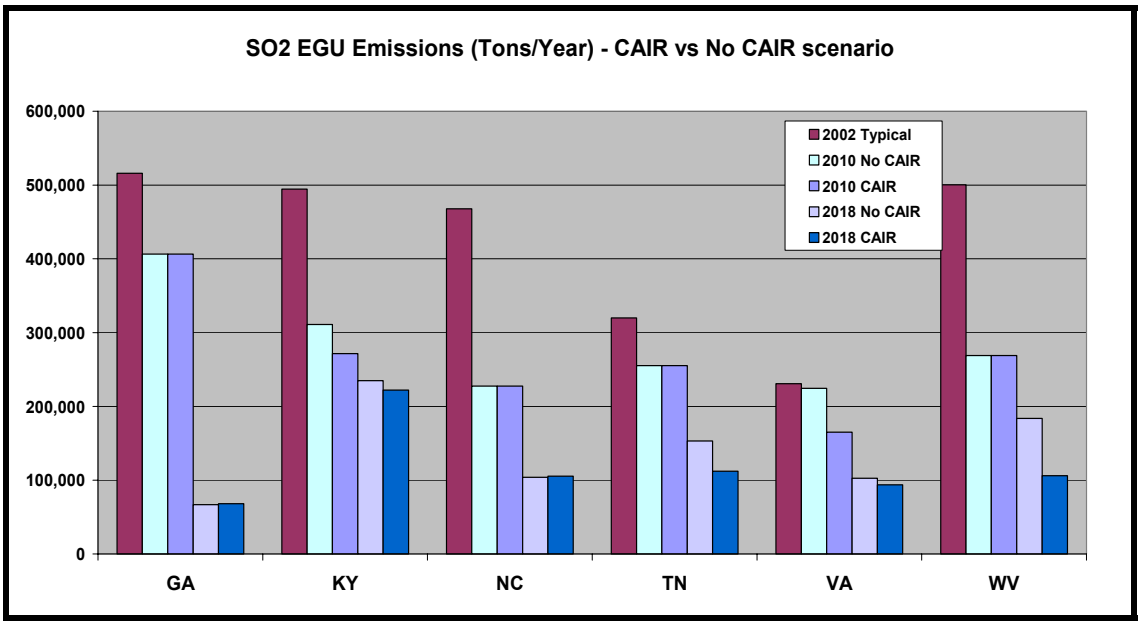

Figure 4.1-1: Estimates of CAIR SO_2 Reductions for Virginia and Surrounding States

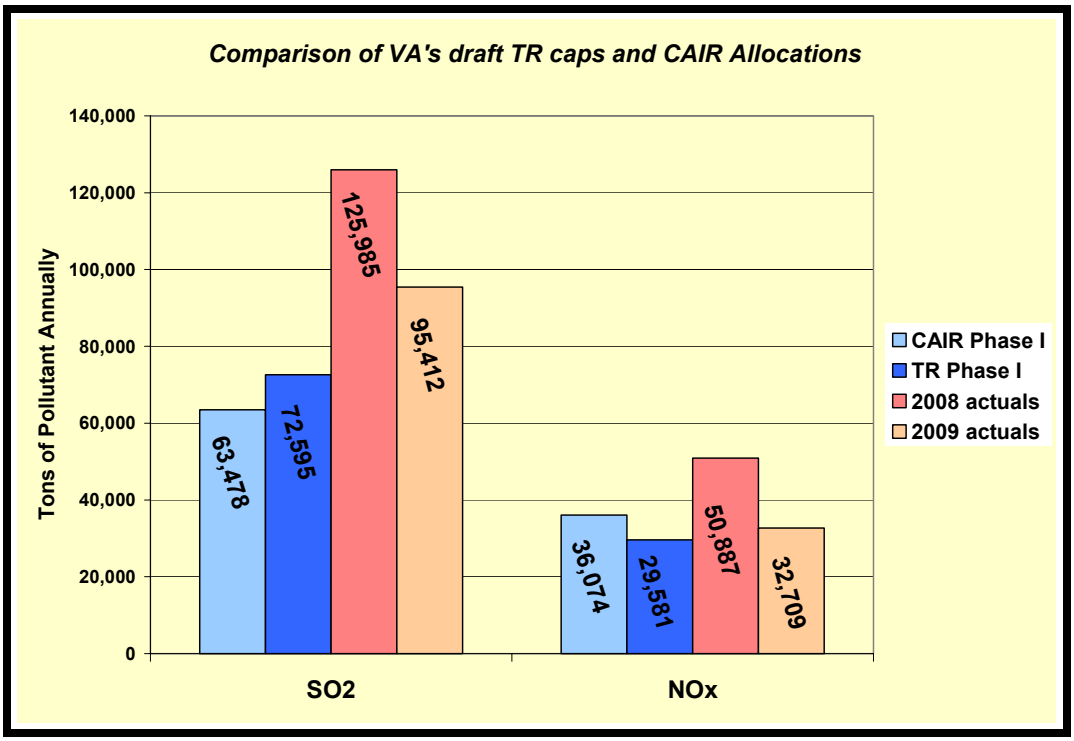

Figure 4.1-2: Comparison of Virginia's Draft Transport Rule Caps, CAIR, and Actual Annual Emissions

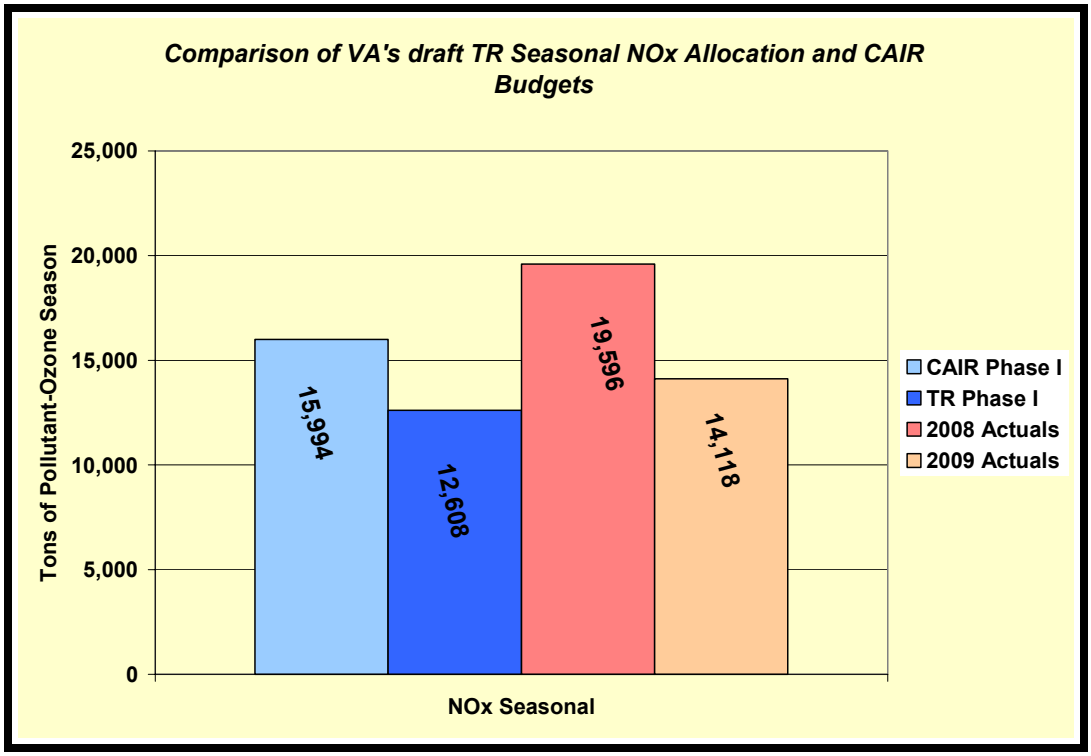

Figure 4.1-3: Comparison of Virginia's Draft Transport Rule Seasonal NO_X Caps, CAIR, and Actual Seasonal Emissions

4.2. Mobile Source Programs

As noted in Figure 4.2-1 and Figure 4.2-2, emissions of VOC, NO_X, SO_2, and $PM_{2.5}$ from the mobile source sector in Virginia are expected to decrease significantly in future years. Mobile sources are generally pollution emitting activities that move by their own power, such as cars and trucks, on public roadways. The main reasons for the expected decreases in this emissions sector are the federal regulatory programs described below.

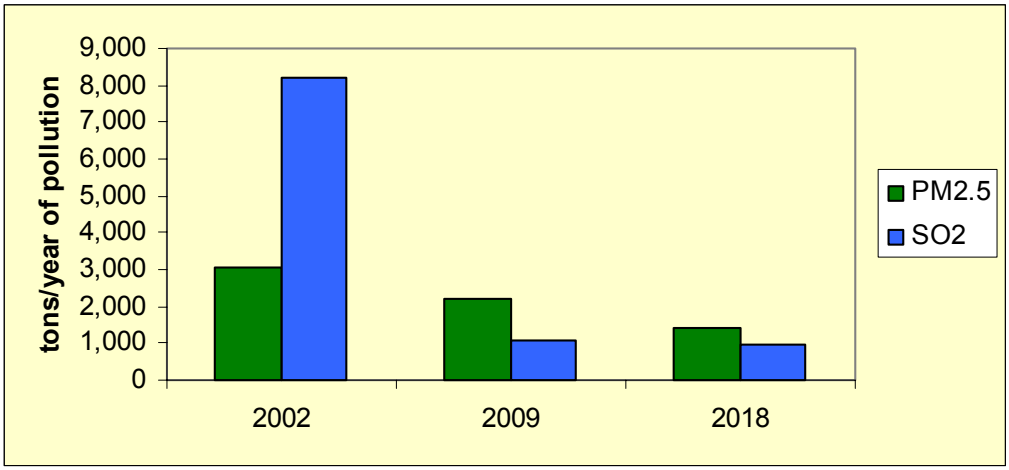

Figure 4.2-1: $PM_{2.5}$ and SO_2 Emissions from Mobile Sources in Virginia

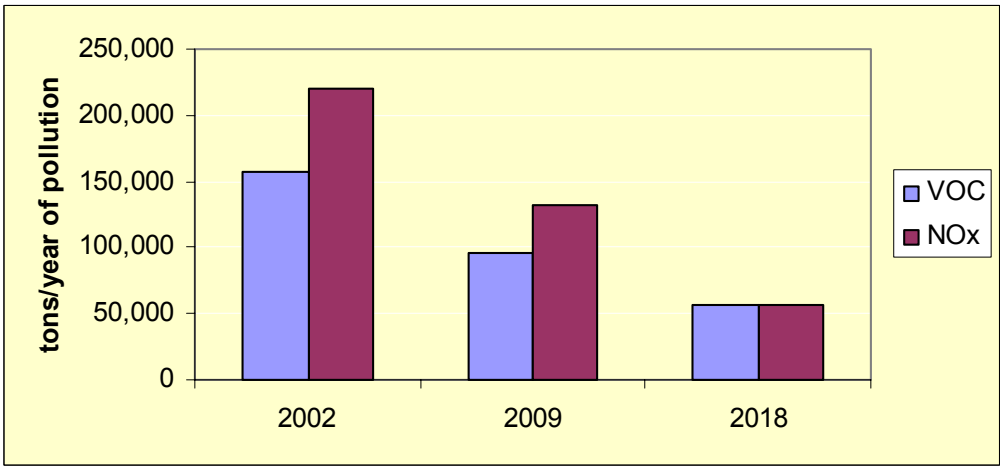

Figure 4.2-2: VOC and NO_X Emissions from Mobile Sources in Virginia

4.2.1. Automobiles

The realized and expected reductions in emissions from automobiles are due to several federal and state programs that are now in place. In January of 1998, Virginia began participating in the National Low Emission Vehicle (NLEV) program. NLEV was a program through which the automobile industry and many eastern states jointly agreed to adopt and implement more stringent automobile emissions standards beginning in

the 1999 model year. The NLEV standards reduced the emissions of ozone forming emissions by more than 50% and applied to all vehicles up to 6,000 pounds GVWR, which include about 70% of the SUVs and pickup trucks on the road today. These vehicles, many of which are still on the road, continue to emit less pollution than those not subject to the program.

In January of 2000, EPA promulgated the Tier II vehicle emissions regulation, marking the first time that SUVs, other light-duty trucks, and the largest passenger vehicles were subject to the same national pollution standards as cars. The rule became effective in the 2004 model year and reduced ozone-forming emissions of VOC and NO_X by about 95% when compared to many earlier model vehicles. As older vehicles are scrapped and new vehicles are purchased, Tier II ensures an overall emissions reduction from vehicles in the Commonwealth's passenger fleet.

The federal Tier II regulations also require that gasoline be manufactured with much lower levels of sulfur. Refiners must meet a 30 ppm average sulfur level with a maximum cap of 80 ppm. Reduced sulfur in gasoline allowed better catalytic converter operations and also greatly reduced the amount of SO_2 formed by automobiles.

4.2.2. Heavy Duty Diesel On-Road Engines

EPA's Heavy-Duty Diesel Engine Rule required that new heavy-duty vehicles and engines comply with stringent $PM_{2.5}$ tail pipe emission standards in 2007. The rule also finalized strict NO_X and VOC standards that are phased-in during the period 2007 through 2010. New engines purchased after 2007 must be equipped with state-of-the-art emissions controls for pollutants like NO_X, VOC, and $PM_{2.5}$. Similar to the Tier II regulation for passenger vehicles, the diesel rule also requires the sulfur level in diesel fuel to be reduced about 97% to a level of 15 ppm sulfur so that state-of-the-art control technologies could be installed on new engines. These diesel engine standards reduced the emissions of $PM_{2.5}$ and NO_X by about 90% compared to pre-2007 diesel engines. As older engines are taken out of the fleet and new trucks purchased, the fleet emissions will continue to decrease even though vehicle miles traveled are expected to increase.

4.3. Product Based Programs

A variety of both state and federal control programs are being implemented that are reducing emissions from product-based categories. These types of controls reduce emissions from activities such as the use of portable fuel containers; the coating of architectural supports and traffic markings; the use of personal products such as deodorant and hair spray; and the use of household products such as cleaners and pesticides. These types of controls have been implemented in the northern Virginia area and the Fredericksburg area. These regulations generally target VOC emissions but can also help decrease public exposure to harmful chemicals.

4.4. Non-Road Control Programs

Non-road equipment consists of devices with an engine where the power from the engine is generally not used to move the equipment along roadways. Examples of these types of engines are lawn mowers, weed eaters, diesel generator sets, gasoline generator sets, marine engines, and locomotive engines.

Federal regulations have been finalized that control emissions of various pollutants from all these categories. Most of these regulations have phase-in periods, where standards are more stringent for equipment manufactured in later years. These federal standards will result in a 60% to 90% reduction in air pollutants. Air pollution benefits are related to the purchase of new equipment, and the benefits to air quality continue until the entire fleet of a type of equipment has been replaced.

In addition to engine standards, the non-road heavy duty diesel engine standards and the rail and marine vessel standards require the phase-in of much cleaner diesel fuel. Non-road engines must use diesel fuel with no more than 15 ppm sulfur beginning in 2010. Railroad and marine vessels must use diesel fuel with no more than 15 ppm sulfur beginning in 2012. The cleaner fuels will allow more efficient engine operation, will facilitate the use of state-of-the-art emissions controls on new units, and will directly result in greatly reduced SO_2 emissions from such equipment.