

**Region 3 Plan Summary  
Fredericksburg, Virginia 8-Hour Ozone Maintenance Plan**

**Title:** Maintenance Plan for the Fredericksburg, Virginia 8-Hour Ozone Area

**Federal Register Dates:** November 2, 2005, 70 FR 66316 (Proposed Rule); December 23, 2005, 70 FR 76165 (Final Rule).

**EPA Effective date:** January 23, 2006.

**State Submittal Date:** May 4, 2005.

**Affected Areas:** City of Fredericksburg, Spotsylvania County, and Stafford County.

**Summary of the Plan:** On May 4, 2005, Virginia submitted a maintenance plan for the Fredericksburg area as a SIP revision, to ensure continued attainment over the next 10 years. The Fredericksburg area is composed of the City of Fredericksburg, Spotsylvania County, and Stafford County. In 2004, the ambient ozone data for the Fredericksburg area indicated no further violations of the 8-hour ozone standard, using data from the 3-year period of 2002-2004 with a design value of 0.084 parts per million (ppm). Available quality-assured monitoring data from the zone monitor located in Stafford County through September 30, 2005 indicates continued attainment of the 8-hour ozone standard, as summarized in Table 1 below:

<b>Table 1: Fredericksburg Area Fourth Highest 8-hour Average Values- Stafford County Station No. 44-1, AIRS ID 511790001</b>	
<b>Year</b>	<b>Annual 4<sup>th</sup> High Reading (ppm)</b>
<b>2002</b>	0.094
<b>2003</b>	0.085
<b>2004</b>	0.073
<b>The average for the 3-year period 2002 through 2004 is 0.084 ppm</b>	

Virginia will track the progress of the maintenance demonstration by periodically updating the emissions inventory. This tracking will consist of annual and periodic evaluations. The annual evaluation will consist of checks on key emissions trend indicators such as the annual emissions update of stationary sources, the Highway Performance Monitoring System (HPMS) vehicle miles travelled (VMT) data reported to the Federal Highway Administration, and other growth indicators. These indicators will be compared to the growth assumptions used in the plan to determine if the predicted versus the observed growth remains relatively constant. Virginia will also develop and submit comprehensive tracking inventories to EPA every three years during the maintenance plan period. For purpose of performing this tracking function for point sources,

Virginia will retain the annual emission statement requirements for the maintenance area.

**Emissions Inventory:** Virginia prepared comprehensive volatile organic compounds (VOC) and nitrogen oxides (NOx) emissions inventories for the Fredericksburg Area, based on actual emissions for a “typical summer day.” Tables 2 and 3 specify the VOC and NOx emissions for the Fredericksburg area for 2004, 2009, and 2015. Virginia chose 2009 as an interim year in the 10-year maintenance demonstration period to demonstrate that the VOC and NOx emissions are not projected to increase above the 2004 attainment level during the time of the 10- year maintenance period.

<b>Table 2: Total VOC Emissions for 2004-2015 (tpd)</b>			
<b>Source Category</b>	<b>2004 VOC Emissions</b>	<b>2009 VOC Emissions</b>	<b>2015 VOC Emissions</b>
<b>Mobile</b> <sup>1</sup>	11.298	8.346	7.334
<b>Nonroad</b>	3.304	2.555	2.231
<b>Area</b> <sup>2</sup>	14.070	13.161	15.303
<b>Point</b>	0.602	0.692	0.782
<b>Total</b>	<b>29.274</b>	<b>24.754</b>	<b>25.650</b>
<sup>1</sup> Includes transportation conformity provisions			
<sup>2</sup> Includes vehicle refueling emissions and the benefits of selected local controls (Stage I, CTG RACT, and open burning)			
<b>Table 3: Total NOx Emissions 2004-2015 (tpd)</b>			
<b>Source Category</b>	<b>2004 NOx Emissions</b>	<b>2009 NOx Emissions</b>	<b>2015 NOx Emissions</b>
<b>Mobile</b> <sup>1</sup>	19.742	12.062	7.576
<b>Nonroad</b>	3.601	3.080	2.195
<b>Area</b> <sup>2</sup>	3.465	3.926	4.742
<b>Point</b>	0.179	0.180	0.182
<b>Total</b>	<b>26.987</b>	<b>20.248</b>	<b>14.695</b>
<sup>1</sup> Includes transportation conformity provisions			
<sup>2</sup> Includes selected local controls (open burning)			

**Control Measures/Regulations Included As Part of the Plan:** The air quality improvement in the Fredericksburg Area is due to permanent and enforceable reductions in emissions resulting from implementation of the SIP and applicable federal air pollution control regulations and other

permanent and enforceable reductions. Programs currently in effect are:

- (a) National Low Emission Vehicle (NLEV);
- (b) Open burning restrictions for Stafford County only;
- (c) Control Technique Guideline- Reasonably Available Control Technology (CTG-RACT) requirements for Stafford County only;
- (d) Non-CTG RACT requirements for Stafford County only;
- (e) Stage I and Stage II vapor recovery requirements for Stafford County only;
- (f) Reformulated gasoline (RFG) requirements for Stafford County only;
- (g) Area source VOC regulations concerning portable fuel containers; mobile vehicle refinishing; architectural and industrial maintenance coatings; solvent cleaning; and, consumer products for Stafford County only;
- (h) Motor vehicle fleet turnover with new vehicles meeting the Tier 2 standards; and,
- (i) Low-sulfur gasoline.

Between 2002 and 2004, VOC emissions were reduced by 1.4 tpd, and NOx emissions were reduced by 2.7 tpd, due to the following permanent and enforceable measures implemented or in the process of being implemented in the Fredericksburg area, as summarized below:

<b>Table 4: Total VOC and NOx Emissions for 2002 and 2004 (tpd)</b>					
<b>Volatile Organic Compounds (VOC)</b>					
<b>Year</b>	<b>Point</b>	<b>Area *</b>	<b>Nonroad</b>	<b>Mobile</b>	<b>Total</b>
<b>Year 2002</b>	0.563	13.487	3.545	13.054	30.649
<b>Year 2004</b>	0.602	14.070	3.304	11.298	29.274
<b>Diff. (02-04)</b>	0.039	0.583	-0.241	-1.756	-1.375
<b>Nitrogen Oxides (NOx)</b>					
<b>Year</b>	<b>Point</b>	<b>Area *</b>	<b>Nonroad</b>	<b>Mobile</b>	<b>Total</b>
<b>Year 2002</b>	0.178	3.258	3.717	22.498	29.651
<b>Year 2004</b>	0.179	3.465	3.601	19.742	26.987
<b>Diff. (02-04)</b>	0.001	0.207	-0.116	-2.756	-2.664
* Area source category includes emissions from motor vehicle refueling					

Nearly all of these reductions are attributable to mobile source emission controls such as NLEV and Tier I programs. Additionally, Virginia has indicated in its submittal that the NOx SIP Call took effect in 2004. While there are no subject sources currently located in the City of Fredericksburg, Stafford County or Spotsylvania County, Virginia expects to indirectly benefit in terms of improved air quality due to this program.

Virginia’s maintenance plan for the Fredericksburg area has an additional provision: Regardless of the number of exceedances or violations noted, the regulations controlling VOC emissions from area sources will be expanded to the City of Fredericksburg and Spotsylvania County effective in 2008, or as expeditiously as possible thereafter in order to provide additional air quality benefits. The additional regulations are:

- (a) Emission Standards for Portable Fuel Container Spillage.
- (b) Emission Standards for Mobile Equipment Repair and Refinishing Operations.
- (c) Emission Standards for Architectural and Industrial Maintenance Coatings.
- (d) Emission Standards for Consumer Products.

**Conformity Process/Motor Vehicle Emissions Budget (MVEB):** The maintenance plan identifies the NOx and VOC MVEBs for transportation conformity purposes for the years 2004, 2009 and 2015, as summarized below:

<b>Table 5: Motor Vehicle Emissions Budgets in Tons per Day (tpd)</b>		
<b>Year</b>	<b>NOx</b>	<b>VOC</b>
<b>2004</b>	19.742	11.298
<b>2009</b>	13.062	8.346
<b>2015</b>	7.576	7.334

A “safety margin” is the difference between the attainment level of emissions (from all sources) and the projected level of emissions (from all sources) in the maintenance plan. The attainment level of emissions is the level of emissions during one of the years in which the area met the national ambient air quality standards (NAAQS). The emissions up to the level of the attainment year including the safety margins are projected to maintain the area's air quality consistent with the 8-hour ozone NAAQS. The following table shows the safety margins for the 2009 and 2015 years.

<b>Table 6: 2009 and 2015 Safety Margins for the Fredericksburg Area</b>		
<b>Inventory Year</b>	<b>VOC Emissions (tpd)</b>	<b>NOx Emissions (tpd)</b>
<b>2004 Attainment</b>	29.274	26.987
<b>2009 Interim</b>	24.754	20.248
<b>2009 Safety Margin</b>	4.520	6.739
<b>2004 Attainment</b>	29.274	26.987
<b>2015 Final</b>	25.650	14.695

<b>2015 Safety Margin</b>	3.624	12.292
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Once allocated to the mobile source budgets these portions of the safety margins are no longer available, and may no longer be allocated to any other source category.

<b>Table 7: 2009 and 2015 Final MVEBs for the Fredericksburg Area</b>		
<b>Inventory Year</b>	<b>VOC Emissions (tpd)</b>	<b>NOx Emissions (tpd)</b>
<b>2009 projected on-road mobile source projected emissions</b>	8.096	12.812
<b>2009 Safety Margin Allocated to MVEBs</b>	0.250	0.250
<b>2009 MVEBs</b>	8.346	13.062
<b>2015 projected on-road mobile source projected emissions</b>	5.734	7.326
<b>2015 Safety Margin Allocated to MVEBs</b>	1.600	0.250
<b>2015 MVEBs</b>	7.334	7.576

**Contingency Measures:** The contingency plan provisions are designed to promptly correct a violation of the NAAQS that occurs after redesignation. Virginia’s maintenance plan lays out three situations where the need to adopt and implement a contingency measure to further reduce emissions would be triggered. Those situations are as follows:

(i) An actual increase of the VOC or NOx emissions above the 2004 attainment levels is identified or predicted through the development of the comprehensive periodic tracking inventories - If the 2004 attainment level emissions for VOC or NOx is exceeded or is predicted to be exceeded, the following measures will be implemented: (1) Preparation of a complete VOC and NOx emission inventory; and (2) the expanded implementation of one or more of the following of Virginia’s area source VOC regulations throughout the entire Fredericksburg area (these regulations are already required in Stafford County): Emission Standards for Portable Fuel Container Spillage; Emission Standards for Mobile Equipment Repair and Refinishing Operations; Emission Standards for Architectural and Industrial Maintenance Coatings; and Emission Standards for Consumer Products.

(ii) The Stafford County monitor indicates two or more ozone exceedances (any fourth highest 8-hour average above 0.08 ppm) in consecutive years - According to the maintenance plan, if two or more ozone exceedances (any fourth highest 8-hour average above 0.08 ppm) are recorded in consecutive years, the following measure(s) will be implemented: (1) The expanded

implementation of one or more of the following of Virginia's area source VOC regulations throughout the entire Fredericksburg area (these regulations are already required in Stafford County): Emission Standards for Portable Fuel Container Spillage; Emission Standards for Mobile Equipment Repair and Refinishing Operations; Emission Standards for Architectural and Industrial Maintenance Coatings; and Emission Standards for Consumer Products.

(iii) A violation (any 3 year average of each annual fourth highest 8-hour average) of the 8-hour ozone NAAQS of 0.08 ppm occurs - If a violation (any 3 year average of each annual fourth highest 8-hour average) of the 8-hour ozone NAAQS of 0.08 ppm occurs, the contingency measures will be implemented as follows:

- a) If there remain any VOC regulations not yet implemented following an earlier maintenance plan trigger event, expand the implementation of those remaining measures throughout the entire Fredericksburg area (these regulations are already required in Stafford County);
- b) If a violation of the ozone standard occurs in an ozone season subsequent to implementation of all of Virginia's VOC area source regulations, then implement NOx RACT and VOC RACT for non-CTG sources emitting above 100 tpy located in Spotsylvania County and the City of Fredericksburg. Source categories that may be affected by this requirement include equipment manufacturing (NOx RACT and VOC RACT for non-CTG RACT has already been implemented in Stafford County, due to prior 1-hour ozone NAAQS requirements).

The following schedule for adoption, implementation and compliance applies to the contingency measures concerning non-CTG RACT requirements. It would also apply to the imposition of the area source VOC regulations if those regulations had not already been implemented due to other triggers or provisions of the maintenance plan.

Notification received from EPA that a contingency measure must be implemented, or three months after a recorded violation;

Applicable regulation to be adopted 6 months after this date;

Applicable regulation to be implemented 6 months after adoption;

Compliance with regulation to be achieved within 12 months of adoption.

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