

**Region 3 Plan Summary**  
**Virginia Early Action Compact (EAC) Plan - Northern Shenandoah Valley**

**Title:** Attainment Demonstration for the Northern Shenandoah Valley Ozone Early Action Compact Area

**Federal Register Dates:** May 17, 2005, 70 FR 28260 (Proposed rule); August 17, 2005, 70 FR 48280 (Final rule).

**EPA Effective date:** September 16, 2005

**State Submittal Date:** December 20, 2004, February 15, 2005.

**Affected Areas:** City of Winchester and Frederick County.

**Summary of the Plan:** On December 20, 2004, the Commonwealth of Virginia submitted a revision to its SIP. This revision consists of an Early Action Plan (EAP) for the Northern Shenandoah Valley Ozone EAC Area. On February 15, 2005, the Commonwealth supplemented its December 20, 2004 submittal by providing a copy of the record of hearing and summary of testimony during its rule adoption process.

The Northern Shenandoah EAC Area is located in the Valley and Ridge Region of Virginia that includes the Northern Shenandoah Valley and the Appalachian Ridge. The major urban center of the area is the City of Winchester. Winchester is surrounded by the suburban/rural Frederick County. Much of the western portion of Frederick County is mountainous and forested rural area associated with the Appalachian Ridge. The majority of the area population and industry is centered in and around Winchester. The area's monitor is located in northeastern Frederick County just south of the West Virginia border.

Virginia developed an attainment demonstration supported by an ozone photochemical modeling study for the Northern Shenandoah Valley EAC Area. The attainment demonstration identifies a set of measures that will result in emission reductions and provides analyses that predict that the measures result in ambient air quality concentrations that meet the 8-hour ozone standard in the Northern Shenandoah Valley EAC Area. The modeling results predict the maximum 2007 8-hour ozone design value for this area to be 81.8 ppb, which is less than what is needed ( $\leq 84$  ppb) to show modeled attainment of the 8-hour ozone NAAQS. Appendix B of this TSD presents a full evaluation of the photochemical modeling for the attainment demonstration.

**Control Measures/Regulations Included As Part of the Plan:** The Northern Shenandoah Valley EAP provided a list of all the control measures for the Winchester/ Frederick County Area. They are grouped into two main categories: State and local control measures and Federal control measures. Virginia has submitted a suite of voluntary emission reduction measures that will provide emission reductions in the Northern Shenandoah Valley. Many of the measures

were not included in the attainment demonstration for the Area, however, they provide significant additional air quality benefits to the Area. In addition to the local strategies, several state and federal actions have or will produce substantial ozone precursor emissions reductions both inside and outside of the local EAC area. These reductions are aimed at reducing local emissions and transport of pollution into the area. These strategies, when combined with the local strategies, are expected to lower area ozone concentrations to the level at or below the ozone standard. Virginia also submitted contingency measures which could be implemented in response to a shortfall in anticipated reductions. All of the measures provided in the EAP are summarized in Table 1.

**Table 1. Summary of Control Measures for Northern Shenandoah Valley EAC Area**

Control Measure Category	Control Measure Description	Emission Reductions (tons per day)		Measure Included in Attainment Demonstration
		VOC	NOx	
<b>Local County/ City Initiatives</b>	Ozone Action Days/Public Awareness	0.302	0.015	Yes
	VMT Reduction Programs	0.148	0.299	No
	Open Burning	0.122	0.280	No
	Engine Idling Restrictions	NA	0.102	No
	Diesel Retrofits - School Buses	0.002	0.001	No
	Voluntary Industrial Restrictions	NQ	NQ	No
<b>State Measures</b>	State Cutback Asphalt Restriction	0.001	NA	Yes
	VOC RACT	0.793	NA	Yes
<b>Federal Measures (Area, Mobile, and Non-road)</b>	Small Gasoline Engine Standards	0.812	0.027	Yes
	Non-road Diesel Engine Standards	0.047	0.276	Yes
	Locomotive Emission Standards	NA	0.020	Yes
	Large Gasoline Engine Standards	0.068	0.248	Yes
	Spark Engine Ignition Marine Engine Standards	0.004	NA	Yes
	On-road Motor Vehicle Standards	3.114	5.138	Yes
	AIM	0.134	NA	Yes
	Consumer/Commercial Products	0.056	NA	Yes
	Metal Cleaning Solvents	0.056	NA	Yes
	Motor Vehicle Refinishing Paint	0.003	NA	Yes

<b>Contingency Measures</b>	OTC AIM	0.166	NA	No
	OTC Consumer Products	0.071	NA	No
	OTC Metal Cleaning Solvents	0.335	NA	No
	OTC Motor Vehicle Refinishing	0.002	NA	No
	OTC Portable Gas Containers	<0.001	NA	No

Note: NA - not applicable; NQ - not quantified;

**Maintenance for Growth:** The EAP also contains components to ensure maintenance of the 8-hour ozone standard through 2012, five years beyond the 2007 attainment date. The Northern Shenandoah Valley EAC Area has developed an emissions inventory for the year 2012, as well as a continuing planning process to address this essential part of the plan. Due to the emission control measures identified in the EAP, the emissions inventory predicted an overall reduction in emissions through 2012. From 1999 to 2007, emissions of VOCs are estimated to decline by 17.9 percent and emissions of NOx are estimated to be reduced by 21.2 percent. By 2012, emissions are predicted be 0.6 percent less than those modeled in 2007 for VOCs, and 20.0 percent less than those modeled in 2007 for NOx. Using air quality models to anticipate the impact of growth, as well as the Federal, state-assisted, and locally-implemented measures to reduce emissions, the Commonwealth of Virginia has projected the Area will be in attainment of the 8-hour ozone standard in 2007 and will remain in attainment through 2012.

To fulfill the continuing planning process that will ensure that the Northern Shenandoah Valley EAC Area will maintain the 8-hour ozone standard through 2012, the Northern Shenandoah Valley EAP establishes a commitment and mechanism to work with local stakeholders to identify and require additional measures to further reduce ozone precursor emissions. In addition, the EAC signatories and implementing agencies will review all EAC activities and report on these results in semi-annual reports beginning in June 2006. The semi-annual reports will track and document, at a minimum, control strategy implementation and results, monitoring data, and future plans. Furthermore, as part of the SIP submittal, the Northern Shenandoah Valley Area commits to submit periodic updates to VADEQ and EPA on the implementation status and results of the local control program with sufficient details to make program sufficiency determinations.

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