west virginia department of environmental protection

Maintenance Plan Updates for the Charleston (Kanawha & Putnam Counties), Huntington (Cabell & Wayne Counties), Parkersburg (Wood County), Weirton (Brooke and Hancock Counties) and Wheeling (Marshall & Ohio Counties), West Virginia 1997 8-hour Ozone Maintenance Areas

Proposed
January 2011

Promoting a healthy environment.

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I. REQUEST

The State of West Virginia is requesting that the United States Environmental Protection Agency (EPA) approve revisions to the 8-hour ozone maintenance plans for the five West Virginia 1997 8-hour Ozone Maintenance Areas, including Charleston, Huntington, Parkersburg, Weirton and Wheeling. These revisions simply reallocate emissions from the existing "safety margins" in each of the maintenance plans to increase the available motor vehicle emission budgets (MVEB) for highway vehicles. These revisions do not establish budgets for pollutants and pollutant precursors for air quality standards other than the 1997 8-hour ozone standard (e.g., not the 2008 8-hour ozone standard or particulate matter standards).

The MVEBs are being increased in anticipation of mandatory use of EPA's most recently approved highway vehicle emissions model, the Motor Vehicle Emission Simulator (MOVES), in future transportation conformity determinations. MOVES implements a significantly different approach to emissions estimation than the previous model (MOBILE6.2). Preliminary use of the new model indicates that emission estimates can be considerably different than similar calculations using MOBILE6.2, which was used to create the original MVEBs.

Although the individual maintenance plans were originally submitted to EPA and approved separately from one another, these revisions have been bundled together into one document because similar changes are being made to all of the plans, and to reduce the procedural burden on both the state and EPA. If EPA cannot approve one or more of the revisions, we ask that the remainder be processed and approved on their individual merits.

II. REVISIONS to the MAINTENANCE PLANS

The table below summarizes the submittal and approval dates for each of the five areas' ozone maintenance plans (and two subsequent updates). Each maintenance plan established

motor vehicle emission budgets (MVEB) for nitrogen oxides (NOx) and Volatile Organic Compounds (VOC) which are precursors of ozone. The budgets were developed in consultation with the Metropolitan Planning Organizations (MPO) responsible for transportation planning in each area and relied on emission factors for highway vehicles that were developed using the approved EPA model at the time, MOBILE6.2. The Division of Air Quality does not currently have the resources to completely redo the highway emissions estimates using the new approved model, MOVES, with the level of detail required for State Implementation Plans (SIP). However, all of the existing maintenance plans have adequate "safety margins" to significantly increase the approved MVEBs and still leave adequate remaining safety margins.

Under 40 CFR 93.101, the term safety margin means the difference between the attainment level (from all sources) and the projected level of emissions (from all sources) in the maintenance plan. The attainment level is the level of emissions during one of the years in which the area met the NAAQS for the pollutant of concern. The safety margin (or a portion of the safety margin) can be allocated to the transportation sector. However, the total emissions must remain below the attainment level. In this case the allocation from the safety margin accounts for uncertainty in the projections expected from changes caused by using a new model, MOVES. In many respects, these might be characterized as "artificial changes" because the actual vehicle emissions have not changed. Rather, the model used to estimate emissions has changed and can result in significantly higher emissions estimates, especially for NOx. In any case, the state MVEBs are constrained to ensure that the total emissions (i.e., all source categories) do not exceed the 2004 attainment year emissions of either NOx or VOC thereby ensuring continued maintenance of the 1997 ozone standards.

Table 1
1997 8-hour Ozone
West Virginia Maintenance Plans

Area	SIP Submittal Date	EPA Federal Register Final Approval	Effective Date	Responsible Metropolitan Planning Organization
Charleston	11/30/2005	71 FR 39001, 11 JUL 2006	8/10/2006	Regional Intergovernmental Council
Huntington	5/17/2006	71 FR 54421, 15 SEP 2006	10/16/2006	KYOVA Interstate Planning Commission
Parkersburg	9/8/2006	72 FR 25967, 08 MAY 2007	6/7/2007	Wood-Washington-Wirt Interstate Planning Commission

Area	SIP Submittal Date	EPA Federal Register Final Approval	Effective Date	Responsible Metropolitan Planning Organization
Weirton	8/3/2006	72 FR 27060, 14 MAY 2007	6/13/2007	Broke-Hancock-Jefferson Metropolitan Planning Commission
Wheeling	7/24/2006	72 FR 27247, 15 MAY 2007	6/14/2007	BELOMAR Regional Council
Charleston Plan Update	1/8/2007	73 FR 2156 14 JAN 2008	3/14/2008	Regional Intergovernmental Council
Parkersburg Plan Update	8/29/08	73 FR 64548 30 OCT 2008	12/29/2008	Wood-Washington-Wirt Interstate Planning Commission

The revisions to the maintenance plans are detailed in the tables below and are presented in alphabetical order by principal city, i.e. Charleston, Huntington, Parkersburg, Weirton and Wheeling, in that order. There are two tables for each area. One specifies the MVEBs before and after the reallocation while the other shows the total emissions for all sources combined in the area.

Table 2 - CHARLESTON Area Reallocation of Safety Margin to the MVEBs - (Tons/day)

	2004 Base Year	2009 Projection	2018 Projection
Current MVEBs in the Approved Maintenance Plan			
VOC	16.1	12.9	7.5
NOx	26.4	22.9	9.5
Proposed MVEBs in the Revised Maintenance Plan			
VOC	16.1	16.7	13.7
NOx	26.4	38.9	17.1

Table 3 - CHARLESTON Area Total Emissions (Point, Area and Mobile) Before and After Reallocation of the Safety Margin to the MVEBs - Tons/Day

	2004 Base Year (Maintenance Level)	2009 Projection	2018 Projection
Current Total Emissions in the Approved Maintenance Plan			
VOC	52.3	48.1	45.4
NOx	129.4	105.5	81.9
Proposed Total Emissions in the Revised Maintenance Plan			
VOC	52.3	51.9	51.6
NOx	129.4	121.5	89.5

Table 4 - HUNTINGTON Area Reallocation of Safety Margin to the MVEBs - (Tons/day)

	2004 Base Year	2009 Projection	2009 Projection
Current MVEBs in the Approved Maintenance Plan			
VOC	6.0	4.6	3.0
NOx	11.5	8.7	4.1
Proposed MVEBs in the Revised Maintenance Plan			
VOC	6.0	7.4	6.6
NOx	11.5	14.0	13.5

Table 5 - HUNTINGTON Area Total Emissions (Point, Area and Mobile) Before and After Reallocation of the Safety Margin to the MVEBs - Tons/Day

	2004 Base Year (Maintenance Level)	2009 Projection	2018 Projection
Current Total Emissions in the Approved Maintenance Plan			
VOC	23.7	20.6	19.7
NOx	37.4	31.5	27.0
Proposed Total Emissions in the Revised Maintenance Plan			
VOC	23.7	23.4	23.3
NOx	37.4	36.8	36.4

Table 6 - PARKERSBURG Area Reallocation of Safety Margin to the MVEBs - (Tons/day)

	2004 Base Year	2009 Projection	2018 Projection
Current MVEBs in the Revised Maintenance Plan			
VOC	4.00	3.8	2.4
NOx	5.66	5.5	2.7
Proposed MVEBs in the Revised Maintenance Plan			
VOC	4.00	5.5	4.7
NOx	5.66	7.3	7.3

Table 7 - PARKERSBURG Area Total Emissions (Point, Area and Mobile) Before and After Reallocation of the Safety Margin to the MVEBs - Tons/Day

	2004 Base Year (Maintenance Level)	2009 Projection	2018 Projection
Current Total Emissions in the Approved Maintenance Plan			
VOC	16.7	14.8	14.1
NOx	15.2	13.2	10.1
Proposed Total Emissions in the Revised Maintenance Plan			
VOC	16.7	16.5	16.4
NOx	15.2	15.0	14.7

Table 8 - WEIRTON Area Reallocation of Safety Margin to the MVEBs - (Tons/day)

	2004 Base Year	2009 Projection	2018 Projection
Current MVEBs in the Approved Maintenance Plan			
VOC	2.6	2.0	1.0
NOx	3.6	2.8	1.2
Proposed MVEBs in the Revised Maintenance Plan			
VOC	2.6	3.4	1.9
NOx	3.6	4.2	3.9

Table 9 - WEIRTON Total Emissions (Point, Area and Mobile) Before and After Reallocation of the Safety Margin to the MVEBs - Tons/Day

	2004 Base Year (Maintenance Level)	2009 Projection	2018 Projection
Current Total Emissions in the Approved Maintenance Plan			
VOC	13.5	12.0	12.5
NOx	18.2	16.6	15.2
Proposed Total Emissions in the Revised Maintenance Plan			
VOC	13.5	13.4	13.4
NOx	18.2	18.0	17.9

Table 10 - WHEELING Area Reallocation of Safety Margin to the MVEBs - (Tons/day)

	2004 Base Year	2009 Projection	2018 Projection
Current MVEBs in the Approved Maintenance Plan			
VOC	2.8	2.5	1.4
NOx	4.7	4.3	1.7
Proposed MVEBs in the Revised Maintenance Plan			
VOC	2.8	10.4	9.1
NOx	4.7	7.7	3.1

Table 11 - WHEELING Total Emissions (Point, Area and Mobile) Before and After Reallocation of the Safety Margin to the MVEBs - Tons/Day

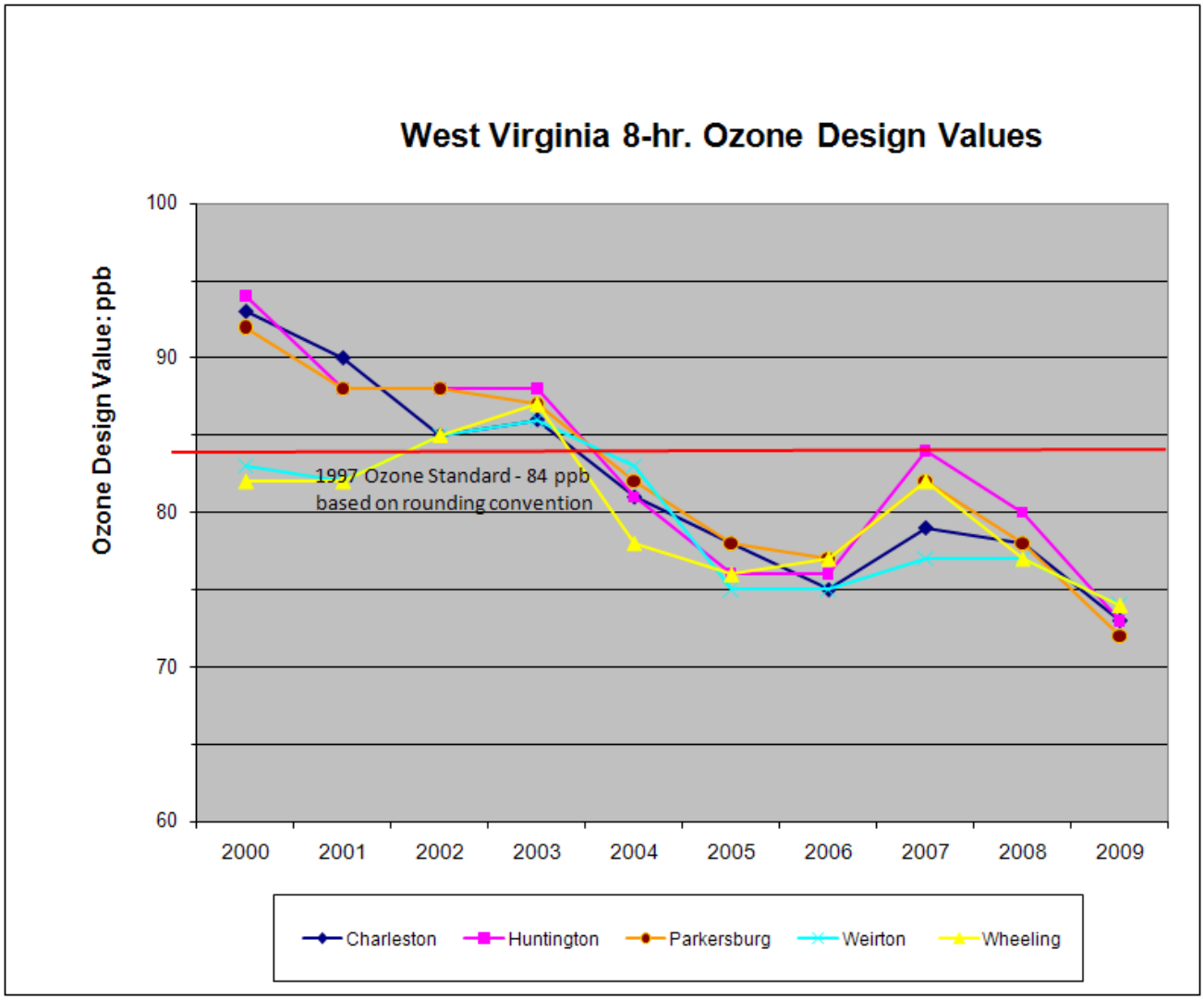
	2004 Base Year (Maintenance Level)	2009 Projection	2018 Projection
Current Total Emissions in the Approved Maintenance Plan			
VOC	23.5	14.7	14.9
NOx	101.2	72.9	34.5
Proposed Total Emissions in the Revised Maintenance Plan			
VOC	23.5	22.6	22.6
NOx	101.2	76.3	35.9

Air Quality

One important question is how effective the maintenance plans have been in maintaining and improving the ozone concentrations over the past few years. Fortunately, it can be stated unequivocally that in every case the air quality has not only continuously met the 1997 ozone standards since 2004 (maintenance plans base year) but ozone levels have decreased to the lowest levels in over a decade. (see chart below)

Chart - 1

West Virginia 8-hour ozone design values during the period 2000-2009



Emissions Inventory

Another important question is how the emissions may have changed since the maintenance plans were developed and how accurately the agency has estimated potential growth. The emissions estimates were separated into source categories, including area (small widely distributed sources); non-road (off road equipment, marine vessels and airplanes); on-road (highway motor vehicles) and point (large individual sources such as power plants, manufacturing facilities, etc.) For this last category, DAQ has quantitative, quality-assured data for the period 2004 (maintenance plan base) through 2008, obtained from certified emissions reporting. County point source emission totals are summarized below.

Point Source Emissions	Tons per Year				
NOx	**2004**	**2005**	**2006**	**2007**	**2008**
Charleston Total NOx	49,680	47,253	47,359	46,322	23,638
Huntington Total NOx	26,411	25,463	20,398	26,632	14,371
Parkersburg Total NOx	11,115	13,908	13,351	12,696	9,265
Weirton Total NOx	2,003	1,875	1,658	1,572	1,364
Wheeling Total NOx	41,896	36,391	27,989	27,645	26,031
VOC	**2004**	**2005**	**2006**	**2007**	**2008**
Charleston Total VOC	2,770	2,681	2,535	2,404	2,143
Huntington Total VOC	598	698	700	848	631
Parkersburg Total VOC	1,233	1,319	1,160	1,118	858
Weirton Total VOC	1,711	1,483	1,361	996	855
Wheeling Total VOC	872	693	421	329	324

The data clearly show significant decreases in point source NOx in all the areas as well as VOC decreases in most areas. For the other categories, activity levels are primarily a function of population, which is shown below.

Nonattainment Area	**2004** Population	**2005** Population	**2006** Population	**2007** Population	**2008** Population	**2009** Population
Charleston	247,885	246,699	246,098	246,052	246,506	247,336
Huntington	137,020	136,206	135,820	135,627	135,713	136,333
Parkersburg	86,750	86,609	86,180	86,006	86,204	86,888
Weirton	55,666	55,208	54,504	53,795	53,528	53,238
Wheeling	79,590	78,774	78,105	77,472	76,872	76,571

It can be readily seen that population is essentially flat over time in all the areas such that related emissions should also be relatively constant or slightly decreasing. Therefore, the DAQ has a high degree of confidence that emissions are, and will continue to remain, below maintenance levels in all the areas.

III. CONCLUSION

The State of West Virginia requests that EPA act in a timely manner to approve these revisions to the 8-hour ozone maintenance plans for the five West Virginia 1997 8-hour Ozone Maintenance Areas, including Charleston, Huntington, Parkersburg, Weirton and Wheeling. These revisions simply reallocate emissions from the existing "safety margins" in each of the maintenance plans to increase the available motor vehicle emission budgets (MVEB) for highway vehicles. The MVEBs are being increased in anticipation of mandatory use of EPA's most recently approved highway vehicle emissions model, the Motor Vehicle Emission Simulator (MOVES) in future transportation conformity determinations.

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