Mr. Donald Welsh
Regional Administrator (3RA00)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia PA 19103-2023

Dear Mr. Welsh:

In accordance with the requirements of Section 107(d)(4)(A)(i) of the Clean Air Act, Maryland's updated boundary recommendations for attainment/nonattainment areas under the revised 8-hour ozone standard are provided below in Table 1. These recommendations supercede the 8-hour ozone boundary recommendations submitted by Maryland in June of 2000, pursuant to changes in the statutory requirements.

Clean air continues to be very important to the state of Maryland and its citizens. Under the current 1-hour ozone standard, Maryland has made significant progress in reducing air pollution. Maryland continues to emphasize the need for tough regional control programs that not only reduce pollution close to home but also reduce the significant amount of transported pollution from out-of-state sources. Our research[1] shows that on the days when Maryland's ozone air pollution is at it's worst, that well over half of Maryland's problem originates in upwind states. In general, because most of Maryland is already very heavily regulated because of the 1-hour ozone standard, the costs to control pollution in upwind areas is less than half the cost of additional pollution controls in Maryland. Significantly reducing transport is the single most important action needed to bring clean air to Maryland. This goal is not only important to protect the health of Maryland's citizens but it is also directly linked to Maryland's business climate and our ability to spur continued economic development through new infrastructure investment.

In 1998, Maryland began a public involvement process and has held numerous meetings regarding the 8-hour ozone designation process. Maryland has worked with state legislators, the business community, environmental organizations and local governments to develop the State's 8-hour ozone boundary recommendations.

[1] Attachment 1provides a brief summary of Maryland's research on air pollution transport.

Maryland's recommendation includes two inseparable elements that must be treated as a single package. Table 1 summarizes the specific areas that Maryland is recommending as attainment or nonattainment areas. The second equally important part of Maryland's recommendation requests that the Environmental Protection Agency (EPA) use section 110 of the Clean Air Act (CAA) to insure that upwind areas are held accountable for their contribution to downwind nonattainment areas. Attachment 2 provides a brief legal analysis of how EPA should be using section 110(a) to better address transport.

TABLE 1

Maryland's 8-Hour Ozone Designation Recommendation

Designated Area	Designation
Baltimore Area	
Anne Arundel County	Nonattainment
Baltimore City	Nonattainment
Baltimore County	Nonattainment
Carroll County	Nonattainment
Harford County	Nonattainment
Howard County	Nonattainment
Kent and Queen Anne's Area	
Kent County	Early Action Compact Area
Queen Anne's County	Early Action Compact Area
Philadelphia-Wilmington-Trenton Area	
Cecil County	Nonattainment
Washington DC Area	
Calvert County	Nonattainment
Charles County	Nonattainment
Frederick County	Nonattainment
Montgomery County	Nonattainment
Prince Georges County	Nonattainment

Hagerstown – WV Panhandle Area

Washington County	Early Action Compact Area

Attainment Counties

Allegany County	Attainment
Caroline County	Attainment
Dorchester County	Attainment
Garrett County	Attainment
Somerset County	Attainment
St. Mary's County	Attainment
Talbot County	Attainment
Wicomico County	Attainment
Worcester County	Attainment

This recommendation is based upon two guiding principles that emerged as part of our stakeholder process. These principles are:

1. Accountability - EPA **must** continue to hold upwind areas that contribute to poor air quality in downwind areas responsible for making appropriate reductions in emissions. To do this, EPA should consider impacts on downwind areas when reviewing the plans submitted by upwind areas. Upwind areas should be required to continue to implement emission-reducing programs until the downwind areas that they affect reach attainment. Maryland believes that CAA sections 110 and 107 provide EPA with such authority.

2. Maintaining Effective Planning Processes - Existing, effective air quality planning and transportation conformity processes like those in the Baltimore, Washington and Philadelphia areas should be recognized and maintained whenever possible. Maryland works with three separate Metropolitan Planning Organizations in developing clean air and transportation plans. This has worked very well for certain Clean Air Act requirements, like transportation conformity, where air quality and transportation planning responsibilities overlap.

Maryland recognizes that this boundary recommendation submittal is only the first step in the 8-hour designation process, and looks forward to working with the Environmental Protection Agency (EPA) and Maryland stakeholders during the final steps of the designation process.

Maryland has several concerns with the timing of this designation process. EPA issued draft guidance in May of 2003 soliciting comments on a number of options for implementation of the 8-hour standard. In several cases, alternative options are presented that raise issues of equity and consistency in how the standard is implemented from state to state. Final guidance on the implementation of the 8-hour standard will not be issued until the fall of 2003, well after the initial recommendations by the governors. How this guidance is finalized may influence Maryland's thinking on the nonattainment boundaries.

Governor's recommendations for boundaries for the new fine particulate matter standard are due on February 15, 2004. EPA guidance on how to implement the new fine particulate matter standard has not yet been proposed. Common sense dictates that the implementation of theses two new standards needs to be harmonized to decrease cost and increase efficiency. Harmonizing implementation of the new ozone and fine particulate standards may also influence Maryland's thinking on the nonattainment boundaries. Because of these issues, Maryland would like to reserve the right to modify the boundary recommendations forwarded via this letter between now and April 15, 2004.

If you have any questions on this submission, please do not hesitate to contact Kendl P. Philbrick, Acting Secretary, Maryland Department of Environment at (410) 537-3086 or George (Tad) Aburn, Manager of the Air Quality Planning Program at (410) 537-3245.

Sincerely,

Robert L. Ehrlich, Jr.
Governor

RLE:jd
Attachments (2)

ATTACHMENT 1

Overwhelming Transport and Maryland's Ground-Level Ozone Problem

Maryland's air pollution problem is very serious and complex. State monitors record very high concentrations of ground-level ozone and high concentrations of fine particulate matter. Emissions in Maryland are relatively small when compared to the emissions in other states that contribute significantly to Maryland's air pollution problem. Maryland's air pollution problem is clearly influenced by a wide area of emissions (most of the East) and the very unique meteorology of the Mid-Atlantic region.

Maryland has been analyzing ozone transport since the early 1990's. This research includes ground-level and aircraft based measurement campaigns and photochemical modeling. In partnership with the University of Maryland's Department of Meteorology, EPA and many other states, Maryland has developed a simplified conceptual model of how and why high ozone concentrations end up in Maryland.

This simplified conceptual model has four basic components:

1. Local, Maryland emissions (Maryland's contribution)
2. Smaller scale, local transport (contributions from areas directly to the southwest of Maryland)
3. Large scale, westerly "aloft" transport (contributions from areas to the west, northwest and southwest of Maryland)
4. Medium scale, southerly "low level, night-time jet" transport (contributions from the south and southwest of Maryland)

On Maryland's worst ozone days (often associated with a Bermuda High setting up south of Maryland along the Atlantic coast) all four of these components play an important role in creating unhealthy ozone levels. On these days, emissions from other states overwhelm Maryland's own contribution and make it virtually impossible for Maryland to solve it's own ozone problem.

Mid-Atlantic Meteorology and Ozone Episodes

Many of Maryland's worst ozone days are associated with a Bermuda High setting up over southern Virginia or northern North Carolina. During this kind of weather pattern there is abundant sunshine and ground-level winds are generally light and from the southwest. This type of weather is perfect for producing ozone from "local" emissions that slowly move to the northeast over the course of the day. These "local" emissions clearly include Maryland, but also include the emission rich areas to the south such as Washington D.C. and central Virginia. The primary sources in this emission rich "local contribution" area are cars and other mobile sources and area sources associated with densely populated areas (painting, consumer products, etc.).

As a result of the Bermuda High, aloft winds move in a clockwise direction around the high. This wind pattern captures emissions and pollution from the emissions rich area in and around the Ohio River Valley. This area's power plants are the primary sources of pollutant emissions that form the "aloft contribution". These emissions and the pollution that they create can be transported for hundreds of miles aloft into Maryland where they "mix down" in the late morning or early afternoon as the atmosphere heats up.

During this same period, southerly night time winds that form approximately 1,000 feet above the earth's surface can become quite important to the ozone that forms over Maryland the next day. This phenomena is commonly referred to as the low level night-time or low level nocturnal jet. The jet forms east of the Appalachian mountains and pushes emissions and pollution for hundreds of miles from the south into Maryland. The sources that create this pollution include your typical mix of sources associated with areas experiencing growth: cars and mobile sources, area sources, power plants and manufacturers. This pollution travels towards the northeast approximately 1000 feet above the earth's surface trapped above something called the "nocturnal inversion". Again, when the earth's surface heats up in the late morning of the next day, this trapped pollution mixes down and creates an urban ozone soup as it combines with the "local" pollution and the "westerly transport" pollution. When all of these components are present, Maryland experiences extremely high ozone levels.

To reduce ozone to levels below the 8-hour standard, there will need to be aggressive strategies to reduce local emissions and equally aggressive strategies to lower the emissions being transported into the State from the south and west.

Selected papers and reports from the scientific literature that support the conclusions in this paper are listed below.

<u>Selected Papers and Reports on Mid-Atlantic Transport</u>

1. Ryan, W.F. and Dickerson, R.R., Regional Transport of Pollutants and Implications for 8-Hour Ozone Non-Attainment Areas in Maryland, July 12, 2000.
2. Ryan, W.F., et. al., Transport and Meteorological Regimes During High Ozone Episodes in the Mid-Atlantic Region: Observations and Regional Modeling, 10th Joint Conference of the Applications of Air Pollution Meteorology with the Air and Waste Management Association (AWMA), 11-16 January 1998.
3. Ryan, W.F., Forecasting Severe Ozone Events in the Baltimore Metropolitan Area, Atmos. Environ., 29, 2387-2398, 1995.
4. Ryan, W.F., et.al., Pollutant Transport During a Regional Ozone Episode in the Mid-Atlantic Region, J. Air & Waste Management, 48, 786-797, 1998.
5. U.S. Environmental Protection Agency Office of Air and Radiation, Air Quality Modeling Technical Support Document for the NOx SIP Call, September 23, 1998.

6. Virginia Department of Environmental Quality, Attainment Demonstration Modeling Report for the Washington DC-MD-VA Ozone Nonattainment Area (Draft), January 15, 1998.

ATTACHMENT 2

Using the Clean Air Act to Address Transport from Upwind Areas

Part 1 - Using Section 107 to Designate Contributing Areas Nonattainment

The Clean Air Act (CAA) provides that following the promulgation of a new or revised National Ambient Air quality standard (NAAQS) " …the governor of each state shall… submit to the Administrator a list of all areas (or portions thereof) in the state, designating as

(i) nonattainment, any that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant [or]

(ii) attainment, any area (other than an area identified in clause (i)) that meets the primary or secondary ambient air quality standard for the pollutant…." CAA §107(d)(1)(A); 42 USC §7407(d)(I)(A).

Following the submissions by the governors, the Administrator is required to promulgate the designations. CAA §107(d)(I)(B)(i); 42 USC §7407(d)(I)(B)(i).

In promulgating the designations, the Administrator "…may make such modifications as the Administrator deems necessary to the designations of areas (or portions thereof)…." CAA §107(d)(I)(B)(ii); 42 USC §7407(d)(I)(B)(ii). While this subparagraph contains no standard to guide the Administrator's modifications, logic would dictate that the Administrator may not designate as attainment any air quality control area that contributes significant pollutants causing the ambient air quality in a nearby area to exceed the primary or secondary NAAQS for the pollutant. Such a designation of an upwind, contributing area as being in attainment would contravene the definition of an attainment area cited above. Further support for this interpretation can be garnered from the standards applicable to a redesignation occurring on the Administrator's own initiative. In such circumstances, the Administrator may not redesignate an area from nonattainment to attainment unless it has met all the requirements for SIPs contained in CAA §107(d)(3)(E)(v); 42 USC §7407(d)(3)(E)(v). Those requirements include prohibitions against any emissions from within the upwind state that contribute significantly to nonattainment or interfere with the maintenance of attainment in any other state. CAA §110(a)(2)(D)(i)(I); USC §7410(a)(2)(D)(i)(I).

Furthermore, so long as emissions from any upwind air quality control region significantly affect air pollution concentrations in another state, the governor of the upwind source state may redesignate the boundaries of the air quality control region in question only with the consent of the Administrator and the governor(s) of the affected downwind state(s). CAA §107(e)(2); 42 USC §7407(e)(2).

A further remedy is available to seek to have upwind out-of-state air quality control areas or portions of areas presently designated as being in attainment redesignated to non-attainment. A redesignation to non-attainment can be made on the Administrator's initiative, if a sufficiently persuasive case can be made that"… on the basis of air quality data, planning and control considerations, or other air quality control considerations…" the Administrator should revise the designation(s). CAA §107(d)(3)(A); 42 USC §7407(d)(3)(A).

Part 2 - Using Section 110(a)(2)(D) and SIP Approvals to Address Contributions from Upwind Areas

Section 110(a)(2)(D) reads as follows:

"Sec. 7410. State implementation plans for national primary and secondary ambient air quality standards

(a) Adoption of plan by State; submission to Administrator; content of plan; revision; new sources; indirect source review program; supplemental or intermittent control systems

> (2) Each implementation plan submitted by a State under this chapter shall be adopted by the State after reasonable notice and public hearing. Each such plan shall--
>
> > (D) contain adequate provisions—
> >
> > > (i) prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will—
> > >
> > > (I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard, or
> > >
> > > (II) interfere with measures required to be included in the applicable implementation plan for any other State under part C of this subchapter to prevent significant deterioration of air quality or to protect visibility,
> > >
> > > (ii) insuring compliance with the applicable requirements of sections 7426 and 7415 of this title (relating to interstate and international pollution abatement)."

This provision clearly provides EPA with the authority to reject the SIP for an upwind state. Emissions which contribute to the exceedance of NAAQS in a downwind nonattainment area may be the basis for the Administrator to reject the SIP of the state in which the emissions occur. A SIP is required to contain provisions"…prohibiting, [consistent with the CAA] any source or other type of emissions within the State from emitting any air pollutant in amounts which will contribute significantly to nonattainment

in…any other State with respect to any such national primary or secondary ambient air quality standard….” CAA §110(a)(2)(D)(i)(I); 43 USC §7410(a)(2)(D)(i)(I). If the SIP from an upwind area fails to provide for the control of pollutants which can be established as contributing significantly to exceedance of a NAAQS in a downwind nonattainment area, that failure would be a basis for the Administrator to reject such a SIP.

Further, Maryland believes that section 110(a)(2)(D) clearly provides the Environmental Protection Agency (EPA) with the authority to withhold approval of an upwind areas State Implementation Plan (SIP) if the upwind area has not made an explicit demonstration that emission sources in the area are controlled to a level sufficient to eliminate any significant contribution to downwind nonattainment areas. Maryland believes that this section not only provides EPA with the authority to explicitly consider “contribution” as part of SIP approvals, but that it actually compels EPA to require a “no significant contribution” showing or demonstration from areas that have the potential to contribute to nonattainment in downwind areas.

To better implement the provisions of section 110(a)(2)(D) EPA should issue clear rules or guidance on the type of demonstration that upwind areas need to include in their SIP to demonstrate no significant contribution. This guidance would build off of existing EPA guidance on attainment demonstration and modeling. Because states in the East have already begun to coordinate regional modeling efforts, the no significant contribution demonstration could be developed as part of the modeling that is already required as part of attainment demonstrations. No “new” modeling would need to be required.

Because of the complex nature of ozone pollution, the test for significant contribution, unfortunately, cannot be simple. Because of ozone transport, complex meteorology and the close proximity of nonattainment areas in the East, significant contribution from an upwind area is actually a function of the level of pollution controls (and cost) in the downwind area. As an example, an upwind areas contribution would be considered significant if the upwind area could reduce ozone in the downwind area by 1 ppb at a cost of $1000/ton if the cost of achieving the same 1 ppb reduction with local controls in the downwind area were $20,000/ton. The significant contribution test would become increasingly more difficult as the downwind reductions get smaller and the upwind/downwind costs get closer.

This approach to determining significant contribution would compel states to develop an effective consultation process between upwind and downwind areas and establish a framework where large scale regional planning would link smaller nonattainment areas together through the provisions of section 100(a)(2)(D).