Rulemaking for Section 126 Petitions-- Responses to Comments Which are Outside the Scope of the June 24, 1999 Notice of Proposed Rulemaking

INTRODUCTION

On May 25, 1999 (64 FR 28250), the U.S. Environmental Protection Agency (EPA) made affirmative technical determinations concerning the petitions filed by eight Northeastern States under section 126 of the Clean Air Act (CAA). The petitions sought to mitigate what they described as significant transport of one of the main precursors of ground-level ozone, nitrogen oxides (NOx), across State boundaries. Each petition specifically requested that EPA make a finding that certain stationary sources emit NOx in violation of the CAA's prohibition on emissions that significantly contribute to nonattainment problems in the petitioning State. The eight Northeastern States that filed petitions are Connecticut, Maine, Massachusetts, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont.

On June 24, 1999 (64 FR 33956), EPA issued an interim final rule to temporarily stay the effectiveness of the May 25, 1999 final rule until November 30, 1999. The purpose of the interim final rule was to provide EPA time to conduct notice-and-comment rulemaking to address issues raised by two decisions by the United States Court of Appeals for the District of Columbia (D.C.) Circuit on other cases. In one ruling in American Trucking Assn., Inc., v. EPA, 175 F.3d 1027 (D.C. Cir. 1999), the court remanded the 8-hour national ambient air quality standard (NAAQS) for ozone, which formed part of the underlying technical basis for certain of EPA's determinations under section 126. On October 29, 1999, the D.C. Circuit granted in part EPA's Petition for Rehearing and Rehearing En Banc (filed on June 28, 1999) in American Trucking, and modified portions of its opinion addressing EPA's ability to implement the 8-hour standard. See American Trucking, 1999 WL 979463 (Oct. 29, 1999). The court denied the remainder of EPA's rehearing petition. Id. The EPA continues to evaluate the effect of American Trucking, as modified by the D.C. Circuit's October 29, 1999 opinion and order. The EPA expects, however, that the status of the 8-hour standard will be uncertain for some time to come. In a separate action, on May 25, 1999, the D.C. Circuit granted a motion to stay the State implementation plan (SIP) submission deadlines established in a related EPA action, the NOx SIP call (October 27, 1998, 63 FR 57356).

In a rule published in the Federal Register on January 18, 2000 at 65 FR 2554, EPA finalized the revisions to the May 25, 1999 final rule. The revised rule removed the trigger mechanism for making a finding that sources were emitting in violation of section 110(a)(2)(D)(i)(I) for those sources

for which EPA has made affirmative technical determinations, and instead directly makes the section 126 findings based on the 1-hour standard. The revised rule also indefinitely stayed the portion of the May 25, 1999 rule that is based on the 8-hour standard. In addition, the revised rule included a Federal NOx Budget Trading Program as the control remedy for sources subject to section 126 findings under the 1-hour standard. The revised rule became effective on February 17, 2000.

In the June 24, 1999 proposal, EPA stated that comment should be limited to the modifications proposed therein. Nevertheless, EPA received numerous comments on the June 24, 1999 proposal that the Agency considered to be outside the scope of that action. Many of these comments had been addressed previously either in the NOx SIP Call final rule, the May 25, 1999 final rule for section 126 petitions, or the related response to comments documents for these rules. EPA addressed most of these comments in a response to comments document issued concurrently with the January 18, 2000 final rulemaking. (See Docket Number A-97-43, XI-C-01.)

However, EPA did receive some additional comments that were outside the scope of the June 24, 1999 proposal, but did not respond to those comments when it issued the May 25, 1999 final rule. The Agency believes these additional comments should be considered to be, in effect, petitions for reconsideration of the final rule. The Agency noted in the January 18, 2000 final rule that it would respond to these comments at a later date. Responses to these comments are presented in this document.

COMMENT 1: In support of the suggestion that EPA conduct a complete re-analysis of its 1-hour ozone nonattainment significant contribution assessment, several commenters submitted to the section 126 rulemaking docket a detailed methodology and analysis which examined the downwind impacts from upwind point sources. The analysis estimated the contributions from point sources in each upwind State to downwind 1-hour receptor areas using the results of the EPA "U" runs. The "U" runs zeroed out point sources in multi-state areas in order to examine the downwind impact of point sources. The results of the commenters' analysis shows that in some cases the estimated impacts from point sources fell below the EPA screening threshold of 1% average relative reduction. The commenters, therefore, concluded that certain linkages are not significant and should be thrown out. The commenters claim that this analysis shows that EPA overestimated the number of States that are significantly contributing to downwind nonattainment. **MOG (VIII-C-28, pp. 5-10, plus attachment) SEMCOG (VIII-C-29, p. 2); Michigan DEQ (VIII-C-30, p. 2); City of Detroit (VIII-C-34, p. 1)**

RESPONSE: EPA disagrees with the commenters' conclusions. The EPA weight-of-evidence significant linkage test was very specific in its analysis of the downwind impacts from ALL anthropogenic emissions from each State. In determining significant contributions from upwind States to downwind nonattainment areas, it is appropriate to examine the impacts of all of the emissions in upwind States, including point sources and low level sources of NOx. The modeling also involved VOC emissions, but VOC emissions have little downwind impact.

The question to be answered under Section 126 is whether each point source in an upwind State is significantly impacting nonattainment in a downwind State. Ozone is a secondarily formed pollutant and is a product of the collective contribution of all the precursor emissions in the area. The first step in this process is to determine whether all emissions from an upwind state are significantly impacting any downwind States. If an upwind State was found to have a significant impact on a downwind State, then all of the emissions in the upwind State were considered to be significantly impacting the downwind State, including each point source in the upwind State.

Accordingly, the significance test used by EPA was based on the full set of emissions from each State. The downwind impacts from those emissions were calculated through the Urban Airshed Model Version V (UAM-V) zero-out modeling and the Comprehensive Air Quality Model with Extensions (CAMx) source apportionment modeling.

Once the downwind impacts were calculated, two screening criteria were applied to the results to determine the linkages that were clearly insignificant. If the maximum one-hour downwind impact was less than 2 parts per billion (ppb) or the average relative downwind contribution was less than 1% (based on either modeling technique), then the linkage was determined to be insignificant.

The series of tests were designed to be performed on the entire set of anthropogenic emissions from each State. Again, if the collective contribution of a State's emissions was found to have a significant impact on a downwind State, then all of the emissions in the upwind State were found to be significantly

impacting the downwind States. The final significant contribution test factored in costs to determine that only the portion of the emissions inventory that could be controlled with highly cost effective controls was what was needed to be controlled under Section 126. Those sources were determined to be mostly electric utilities and some non-utility point sources.

The weight-of-evidence significant contribution test was clearly designed to be applied to the downwind impact of all emissions from an upwind State. The commenters applied the same test to only the point source component of each State. This is clearly inappropriate. Again, the collective contribution and mix of all precursor emissions are key to ozone formation. It would be simple to conclude that a significant impact from an upwind State would be smaller if only the point source portion of the inventory were examined. The downwind impact from only a single source in an upwind State would have even a smaller impact. However, the fact that the impact from a smaller portion of a State's inventory falls below the 2 ppb and/or 1% screening thresholds does not make that impact insignificant. A single source or even all of the point sources in an upwind State have a significant impact on a downwind State if all of the emissions from the upwind State are significantly impacting the downwind State. The EPA significance test was purposefully designed to avoid erroneous conclusions such as those presented by the commenters. As the total emissions from an area are broken apart into smaller and smaller increments, none would be significant by themselves, yet when combined, an ozone air quality problem would be found to exist.

COMMENT 2: Numerous errors in EPA's inventory show that the premise of modeled "significant" impact upon which EPA has based its entire §126 rulemaking is seriously flawed. EPA has failed to abide by its previous claims to make a detailed inventory of affected sources available by July 1999. If EPA had adjusted the inventories, the West Virginia Manufacturers Association (WVMA) believes these adjustments would dramatically affect the modeled impact of the contribution of upwind states to downwind ozone nonattainment.
WVMA (VIII-C-04, p. 4)

RESPONSE: EPA's significant contribution analyses were based on a version of the emissions inventory detailed in a May 1998 NOx SIP Call supplemental notice for the proposed rulemaking (63 FR 25902, May 11, 1998). EPA has received comments on the inventory and made technically and factually-supported adjustments to the electric generating unit (EGU), non-EGU, area, nonroad, and highway mobile portions of the inventory.

Comparing the May 1998 inventory to the latest version of the inventory, statewide NOx emissions in West Virginia went up by 13%. Therefore, it is likely that the EPA UAM-V zero-out modeling and CAMx source apportionment modeling actually underestimated the downwind impacts from West Virginia. Based on the newest inventory, EPA would not expect the previously determined significant linkages for West Virginia to change, except that additional linkages could be determined to be significant due to the increase in emissions from West Virginia.

Additionally, EPA has modeled the final 126 strategy with the latest inventory and has documented the ozone benefits of the final 126 rule in the Regulatory Impacts Analysis (Docket Number A-97-43, XI-B-20).

COMMENT 3: Studies and material submitted by Ohio EPA indicate that emissions from sources located in Ohio do not have a significant impact on any 1-hour air quality violations in any of the petitioning states; therefore, Ohio EPA requests that the petitions be denied.
Ohio EPA (VIII-C-12, p. 2)

RESPONSE: Ohio EPA resubmitted studies and material as the basis for its claim that the State does not significantly impact 1-hour nonattainment problems in the petitioning States. EPA has responded to Ohio's concerns in the NOx SIP Call Response to Comments (RTC) document[1] and the April 1999 RTC document for the section 126 rulemaking[2].

Additionally, as part of their March 24, 1999 SIP call comments (docket number A-97-43, IV-M-04), Ohio EPA submitted CAMx source apportionment modeling results which show the downwind ozone contributions from point sources in upwind States compared to the contribution from all other sources. Detailed results were provided for the States of Ohio, Indiana, Michigan, Pennsylvania, West Virginia, and Kentucky.

The modeling results can be used to estimate the percentage of the total downwind ozone contribution which is attributable to point sources. The results show that the downwind contributions from point sources in each State are proportional to the point source percentage of the Statewide NOx emissions inventory.

The following Table 1 is derived from CAMx source apportionment modeling submitted by Ohio EPA. The inventory numbers are from their modeling and the ozone contributions are from the 1995 episode using the "episode composite" metric. This metric measures the average contribution to downwind grid cells with ozone greater than 124 ppb. It is the same as EPA's "average percent contribution" except these numbers were averaged over one episode instead of four; and they were expressed in ppb instead of percentages. The ppb contributions from the point source categories were used to calculate the percentage of the total contribution from all anthropogenic emissions. EPA found that all six upwind

[1]"Responses to Significant Comments on the Proposed Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group (OTAG) Region for Purposes of Reducing Regional Transport of Ozone," Section III.B.9, pages 126-129. U.S. EPA, Docket Number A-96-56, VI-C-01, September 1998.

[2]"Responses to Significant Comments on the Proposed Findings of Significant Contribution and Rulemaking on Section 126 Petitions for Purposes of Reducing Interstate Ozone Transport," Section III.A.2, pages 57-58. U.S. EPA, Docket Number A-97-43, VI-C-01, April 1999.

States significantly contribute to the downwind nonattainment areas of New York City and Philadelphia.

Table 1. Percent Contributions to the NOx inventory and the Downwind Ozone Contribution from Point Sources in Six Upwind States

Upwind State	% of NOx from point sources (emis. inventory)	% of contribution to NY/CT NAA from point sources (CAMx)	% of contribution to PHL/BAL NAA from point sources (CAMx)
Ohio	55	55	53
Indiana	62	43	52
Michigan	47	43	39
Pennsylvania	58	50	40
West Virginia	82	76	76
Kentucky	53	50	45

This table shows that point sources in Ohio represent 55% of the total Ohio NOx inventory, and the CAMx modeling shows that point sources in Ohio are responsible for 55% of Ohio's ozone contribution to the New York City/Connecticut[3] nonattainment areas and 53% of Ohio's ozone contribution to the Philadelphia/Baltimore[4] nonattainment areas . Since point sources in all of the upwind States are a large percentage of their total NOx emissions (47-82%), it follows that point sources make up a similarly large percentage of the downwind ozone contributions from each upwind State.

COMMENT 4: North Carolina requests that EPA include in its rulemaking all materials that EPA possesses which either address North Carolina's contribution to nonattainment in the petitioning states and/or which address the cost effectiveness of emissions controls when looking at the cost per reduction in ambient ozone concentration. In particular, North Carolina requests that EPA include all materials submitted to EPA by Dr. Gary Dorris, Hagler-Bailly, or Stratus Consulting since July 1, 1998. North Carolina contends that the affidavit of Michael Stroben and the declaration of G.T. Helms show that the Dorris materials are relevant to the determination of "significant contribution" made by EPA

[3]The New York City and Connecticut nonattainment areas were modeled as a single receptor area.

[4]The Philadelphia and Baltimore nonattainment areas were modeled as a single receptor area.

under §126. North Carolina believes that Dr. Dorris's work shows that North Carolina does not significantly contribute to nonattainment areas under the 1-hour standard and demonstrates a rational basis for determining significant contribution that considers cost effectiveness in terms of impact on ozone reductions in nonattainment areas. North Carolina requests that EPA respond to Dr. Dorris's conclusions.

NC DENR (VIII-C-17, p. 3)

RESPONSE: On January 4, 2000, EPA announced the availability of the research report by Stratus Consulting, Inc., on the regional, or multi-state, nature of ground-level ozone (smog). The report is part of EPA's continuing commitment to sponsor research on cost-effective strategies that could be used to protect public health by reducing smog.[5] However, EPA did not rely on or use any of this report as the basis for the final rulemaking.

The research described in this report relies on computer modeling of areas with poor air quality in 1995-1997 to predict how much sources of air pollution (such as power plants) will contribute to ozone formation in downwind areas in the future. The report generally confirms that ozone and its precursors are often carried great distances downwind, and that ozone concentrations cannot be controlled by an individual state when the sources that cause the state's pollution are upwind. The report also confirms that a multi-state emissions trading program is a cost-effective approach to this regional problem. The executive summary of the report states,

> "The key findings of the . . .[Stratus] analysis suggest that achieving ozone reductions in the eastern half of the United States is well supported by the broad based emission reductions identified in the [EPA's NOx] SIP Call . . . While some individual states may observe significant cost savings under [Stratus's approach] the distribution of these cost savings will change with inclusion of different receptor area constraints, emission weights (i.e., meteorology and inventories), and costs."

In addition, the final report notes that the costs associated with the Stratus approach of targeting NOx emission reductions would be similar to EPA's NOx SIP call. When analyzed on the basis of both the 1-hour and 8-hour ozone NAAQS, the cost savings would be "from 1% to 5% beyond cap and trade within the [EPA's NOx] SIP Call Strategy."

Based on strengths cited in a 1997 external peer review, the EPA contracted with Stratus Consulting (formerly Hagler Bailly, Inc.) in February 1998 to develop and test a methodology that could help identify and assess cost-effective future regulatory strategies to reduce the ozone precursor,

---

[5]Stratus Consulting, Inc., "Development and Evaluation of a Targeted Emission Reduction Scenario for NOx Point Sources in the Eastern United States: An Application of the Regional Economic Model for Air Quality (REMAQ)," November 24, 1999 ("REMAQ Report")

nitrogen oxides (NO_x), and to lower ozone concentrations in areas in the East that are violating the national air standards for ozone. In particular, EPA asked Stratus to evaluate cost-effectiveness in terms of ambient air quality impacts rather than in terms of emissions reductions.

This research method uses traditional photochemical modeling techniques combined with a statistical model to predict how much sources of air pollution are contributing to ozone formation in downwind areas. After these "source-receptor" relationships are established, an economic model determines a cost-effective strategy to reduce air pollution from upwind areas that are having the greatest adverse impact on downwind areas with recognized ozone problems. These "source-receptor" relationships are established in the form of "emission weights" assigned to each upwind area. Then, an economic model determines a cost-effective strategy to reduce air pollution from upwind areas that are having the greatest adverse impact on downwind areas with recognized ozone problems.

EPA considers that the overall approach employed by the REMAQ Report may prove to be a positive contribution to the understanding of regional ozone transport and its control. However, the approach has not undergone scrutiny through notice-and-comment rulemaking, and EPA believes that the agency would benefit from a careful scientific and technical review of the REMAQ Report's approach. Among other things, EPA is concerned that the results of the REMAQ methodology do not lend themselves easily to use of a market-based trading program, and that this restriction could limit the usefulness of the approach.

Furthermore, the REMAQ Report may generally be characterized as an attempt to illustrate a particular modeling approach, and not as an effort to establish conclusions as to air quality impacts and cost-effective controls that would be immediately useful for developing air quality requirements. Many of the inputs to the model used in the study were outdated or otherwise of limited accuracy, due largely to resource constraints. As a result, even if EPA were to accept the modeling approach of the REMAQ Report, the model would have to be revised to include more accurate inputs before EPA could base regulatory action on the model's conclusions.

Specifically, the study includes a section that identifies "the limitations of this model." This section explains that the limitations are due to "resource constraints, including time, budget, and computing capability. These limitations affect the development of the emissions weights, the estimation of the control options, and the overall structure of the model and its applicability."[6] The report goes on to detail approximately ten of these limitations. For example, the application of the emissions weights to determine the effects of various control strategies includes a potential bias because the change in ozone predicted by the emissions weights is assumed to be linear, whereas in reality it is not linear. In addition, model conclusions relied on inventory figures that are outdated.

[6]REMAQ Report, section 1.5, p. 1-8.

Although EPA has announced the release of the final contract document, EPA has asserted the deliberative process privilege in declining to release most portions of the previous drafts of the document, as well as related materials, under a Freedom of Information Act request. The U.S. District Court for North Carolina upheld EPA in this determination. North Carolina v. EPA (E.D.N.C. 5:99-CV-528-BO(3)), Judgment (June 27, 2000). Therefore, EPA will not include those documents in the docket for the present rulemaking. In light of the status of the approach described in the REMAQ Report as noted above, and because of the inconclusive nature of the findings, EPA does not agree with the commenter that the report "shows that North Carolina does not significantly contribute to nonattainment areas under the 1-hour standard and that it demonstrates a rational basis for determining significant contribution that considers cost effectiveness in terms of impact on ozone reductions in nonattainment areas." For the reasons noted above, EPA did not rely on this report nor its findings, and therefore EPA declines to place this report in the docket for the present rulemaking.

COMMENT 5: One commenter believes that sources in western Pennsylvania are not significantly contributing to ozone nonattainment in downwind states; therefore, controls under §126 are inappropriate. In 1995, the governor of Pennsylvania petitioned to have 37 counties removed from the Ozone Transport Region (OTR). Although EPA apparently did not respond to this petition, the evidence in the petition demonstrates that sources in these counties should not be subject to controls under §126.
Duquesne Light (VIII-C-13, pp. 4-5)

RESPONSE: EPA received similar comments related to Statewide versus partial-State budgets and controls, which are addressed in the NOx SIP call notice of final rulemaking (63 FR 57424, October 27, 1998) and the RTC documents for the NOx SIP call[7] and section 126 rulemakings[8]. In those documents, EPA stated that both the Ozone Transport Assessment Group (OTAG) and EPA performed modeling analyses to evaluate the impacts of regional transport from the OTAG upwind States on the downwind ozone nonattainment problems. EPA did State-specific modeling for most of the affected States, and these analyses support the concept of statewide controls for each of the affected States.

As part of their petition to remove 37 counties from the OTR, Pennsylvania submitted modeling results from their own modeling (using the Urban to Regional scale model [URM]) and also from EPA's

[7]"Responses to Significant Comments on the Proposed Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group (OTAG) Region for Purposes of Reducing Regional Transport of Ozone," pages 64-65. U.S. EPA, Docket Number A-96-56, VI-C-01, September 1998.

[8]"Responses to Significant Comments on the Proposed Findings of Significant Contribution and Rulemaking on Section 126 Petitions for Purposes of Reducing Interstate Ozone Transport," pages 58-59. U.S. EPA, Docket Number A-97-43, XI-C-01, December 1999.

Regional Oxidant Model (ROM) modeling. In both cases the results show that there is at least some measurable impact from emissions sources in Western Pennsylvania (the 37 Counties) on ozone concentrations in the serious/severe nonattainment areas in the "Eastern Corridor." The only quantifiable results presented were that impacts from Western Pennsylvania were "less than 5 ppb" and the ozone peak in the "Eastern Corridor" was lowered by 2 ppb (when emissions in the 37 counties were zeroed out.)

The modeling results from Pennsylvania are insufficient to make a determination as to the significance of the impacts from Western Pennsylvania. The documentation includes ROM difference plots for three days during the July 1988 and 1991 episodes (two of the four episodes relied on by EPA) and URM difference plots for a single hour (although the modeling results are unclear as to whether the difference plots represent an average impact over a several-day period). By comparison, EPA, in making its significant linkage determinations, relied on four ozone episodes comprising a total of 31 primary modeling days. Additionally EPA applied a multi-factor test to evaluate the linkages. The test showed that Pennsylvania significantly impacts seven downwind States plus the District of Columbia. Given that emissions from Western Pennsylvania have been shown to have at least some impact on downwind States, it is a reasonable assumption that, if emissions from the entire State contribute significantly to downwind nonattainment or maintenance problems, then each set of emissions in each part of the State contributes to downwind nonattainment or maintenance problems.

COMMENT 6: New Hampshire does not agree with EPA's conclusion that affirmative technical determinations for the 1-hour ozone §126 petitions do not include Maine, New Hampshire, Connecticut, Massachusetts, and Rhode Island. If EPA rescinds the 1-hour ozone NAAQS revocations for New Hampshire and Maine, then EPA must reactivate Maine and New Hampshire's 1-hour ozone §126 petitions and include affirmative technical determinations for Maine, New Hampshire, Connecticut, Massachusetts, and Rhode Island. Even if EPA chooses not to rescind the revocations, EPA should make affirmative technical determinations against these states. **New Hampshire (VIII-C-08, p. 1)**

Similarly, the State of Rhode Island commented that EPA's technical analysis of its section126 petition affirmed that emissions from upwind areas have significant impacts on ozone concentrations in Rhode Island. However, Rhode Island stated that its petition was not approved because EPA had proposed to revoke the 1-hour standard in Rhode Island and therefore did not consider the State to be in nonattainment for the 1-hour ozone standard. Although section 126 petitions can be filed by areas looking to maintain air quality as well as by nonattainment areas, according to Rhode Island, the revocation process does not provide for the submittal of maintenance plans, as would be required in a traditional redesignation of an area from nonattainment to attainment. In light of the uncertain future of the new 8-hour ozone standard and the fact that Rhode Island has measured three exceedances of the 1-hour ozone standard so far this year, the State believes that the issue of maintenance has become increasingly important. Rhode Island has filed a Petition for Review of EPA's May 25, 1999 finding on its §126 petition and continues to be an interested party in the findings related

to the section 126 petitions.
RI DEM (VIII-C-35, pp. 1-2)

RESPONSE: On July 5, 2000, the Administrator signed a final rule reinstating the 1-hour ozone NAAQS (published at 65 FR 45182, July 20, 2000). Because the reinstatement rulemaking was finalized only recently -- and has not yet taken effect -- EPA has not yet decided how it will respond to these comments, but will continue to evaluate them in light of the recent action.