



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

FEB 12 1997

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: 15 Percent VOC SIP Approvals and the "As Soon As Practicable" Test

FROM: John S. Seitz, Director *John S. Seitz*
Office of Air Quality Planning and Standards (MD-10)
Richard B. Ossias, Deputy Associate General Counsel *R. B. Ossias*
Division of Air and Radiation, OGC (MC-2344)

TO: Director, Air, Pesticides and Toxics Management
Division, Regions I and IV
Director, Air and Waste Management Division,
Region II
Director, Air, Radiation and Toxics Division,
Region III
Director, Air and Radiation Division,
Region V
Director, Air, Pesticides and Toxics Division,
Region VI
Director, Air and Toxics Division,
Regions VII, VIII, IX, and X

This memorandum provides additional guidance on how the Regions should proceed with acting on the 15 percent State implementation plans (SIPs). Most of the Regions are preparing to process proposed actions on 15 percent volatile organic compound (VOC) SIPs, which are required for ozone nonattainment areas classified as moderate and above. In many cases, these SIPs do not provide for 15 percent VOC reductions until after the November 15, 1996 date specified under the Clean Air Act section 182(b)(1)(A). For the most part, the reason for the delay is later implementation of inspection and maintenance programs (I/M).

The Environmental Protection Agency (EPA) is taking the position that SIPs providing for the required reductions after 1996 from I/M are approvable as long as the SIP measures reach the 15 percent target as soon as practicable. Please refer to "Date by which States Need to Achieve all the Reductions Needed for the 15 percent Plan from I/M and Guidance for Recalculation," note from John Seitz and Margo Oge, dated August 13, 1996, and

"Modeling 15 percent VOC Reduction(s) from I/M in 1999-- Supplemental Guidance," memo from Gay MacGregor and Sally Shaver, dated December 23, 1996 for further information on 15 percent credit for reductions from I/M.

In addition, the Office of Air Quality Planning and Standards (OAQPS) has also issued several memoranda allowing credit in the 15 percent plans from the Architectural and Industrial Maintenance Coatings Rule, Autobody Refinishing Rule, and the Consumer Products Rule. The promulgation dates for these rules are now several months beyond the end of 1996. It is EPA's intention to still allow the amount of credit specified in the memorandum for the 15 percent plans. If the final rules do not provide the amount of credit indicated in the memoranda that States can claim in their 15 percent plans, States are responsible for developing measures to make up the shortfall.

In general, Regions should review the 15 percent SIPs to assure that they contain all measures practicable for the nonattainment area in question that will accelerate to a meaningful extent the date by which the 15 percent reductions are attained. The SIP does not have to contain every measure that has been implemented across the country. Measures that are impracticable for the area in question, or that provide only an insignificant amount of reductions, need not be included.

Attached is a report entitled "Sample City Analysis: Comparison of Enhanced I/M Reductions Versus other 15 Percent ROP Plan Measures." This report analyzes potentially practicable measures for your nonattainment areas. The Regions should compare the measures on this list with those in the 15 percent SIP to see if the 15 percent SIP includes the proper measures. The Region should focus on those measures included in this list, but not included in the 15 percent SIP, to determine whether they are practicable for the area and would meaningfully accelerate the date for reaching the 15 percent reductions.

In addition, attached to this memorandum is boilerplate language explaining the "as soon as practicable" test, which may be included in proposed actions concerning the 15 percent SIPs. Many thanks to Robert McConnell of Region I's Office of Ecosystem Protection, Air Quality Planning Unit, who drafted most of this language. The boilerplate also includes information from OMS on annual versus biennial testing, cutpoints, and high enhanced I/M programs versus low enhanced I/M programs that should be included in the Technical Support Document.

Please direct any questions to us or Kimber Scavo of OAQPS, 919-541-3354, or Howard Hoffman of OGC, 202-260-5892. Contact Lee Cook at 313-741-7820 for questions on OMS issues.

Attachments

cc: Lydia Wegman , OAQPS
Tom Helms, OPSG
Sally Shaver, AQSSD
Kevin McLean, OGC
Kimber Scavo, OPSG
Howard Hoffman, OGC
Lee Cook, OMS
Phil Lorang, OMS

ATTACHMENT I

**SAMPLE CITY ANALYSIS
COMPARISON OF ENHANCED I/M REDUCTIONS
VERSUS OTHER 15 PERCENT ROP PLAN MEASURES**

MEMORANDUM

Prepared for:

**Ozone Policy and Strategies Group
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711**

Prepared by:

**E.H. Pechan & Associates, Inc.
5537-C Hempstead Way
Springfield, VA 22151**

December 12, 1996

**EPA Contract No. 68-D3-0038
Work Assignment No. III-93**

Several ozone nonattainment areas (NAs) intend to implement enhanced inspection and maintenance (I/M) programs as part of their 15 percent rate-of-progress (ROP) plan. Implementation of enhanced I/M programs has been delayed in many of these areas. Implementation is expected by 1999. This analysis compares the expected reductions due to enhanced I/M with other potential volatile organic compound (VOC) measures for NAs using I/M implemented after 1996 towards meeting the 15 percent ROP requirement.

Projection year 1999 was selected for the analysis since this is the expected implementation date for enhanced I/M in these areas. As such, the emission reductions compiled in this analysis are not intended to be used in the 15 percent ROP plans and are not expected to match the reductions for measures already contained in the plans. Instead, this analysis is intended as a screening analysis to determine whether other measures could easily be implemented by 1999 and provide VOC reductions comparable to enhanced I/M.

The 1990 National Emission Inventory (NEI) was used as the basis for this analysis. The NEI currently contains emission data for States included in the Ozone Transport Assessment Group (OTAG) modeling region. In general, inventory data for the ozone NAs reflect the State Implementation Plan (SIP) inventories. Because California and Missouri are outside of the OTAG region, base year inventory data were taken from the Interim 1990 Emission Inventory. This data will differ from the State-developed SIP inventory.

Stationary source emissions were projected to 1999 using Bureau of Economic Analysis (BEA) Gross State Product projections (BEA, 1995). Motor vehicle emissions were projected to 1999 using MOBILE Fuel Consumption Model national VMT projections, scaled to metropolitan areas by BEA population projections. MOBILE5a emission factors reflecting CAA tailpipe standards were applied to calculate base case emissions.

Several area and point source control measures were analyzed as well as Federal reformulated gasoline. Specific control measure assumptions (including I/M) are described below. Attachment A provides a list of the control measures analyzed, indicating those which are already included in an area's 15 percent ROP plan. Attachment B provides a summary of the VOC reductions associated with each measure for each of the areas analyzed. All measures are included on this table, regardless of whether or not the measure is included in the area's 15 percent ROP plan.

The base year inventory data and projection assumptions used in this analysis differ from assumptions used by the States in developing 15 percent ROP and 3 percent reasonable further progress plans. Assumptions which may lead to differences include:

- The 1990 emissions for Phoenix and Sacramento will differ from the State SIP inventories. Data for areas in the OTAG region should closely match the SIP inventories;
- Several of the areas contain partial counties. Since the emission inventory is at the county level, the entire county was included in the modeling;

- The 1995 BEA gross State product projections are used to estimate future year emissions — States may use the 1990 BEA earnings projections, the Economic Growth Analysis System (E-GAS) factors, or State-specific growth indicators;
- Assumptions on the impact (control efficiency, rule effectiveness (RE), rule penetration) of individual control measures will differ — no attempt was made in this analysis to obtain data on individual State rules; and
- The Emission Reduction and Cost Analysis Model (ERCAM) (Pechan, 1996) was used to project the impacts of the motor vehicle control measures — States may use different assumptions on temperature, speed, vehicle registrations, and VMT growth.

In general, none of the measures provide reductions close to those achieved through the implementation of enhanced I/M (best estimate or high enhanced). Reformulated gasoline achieves approximately 50 percent of the reductions achieved through enhanced I/M. Areas where this is not included in the 15 percent ROP plan are Atlanta GA, St. Louis IL, Louisville IN, St. Louis MO, Cincinnati OH, and El Paso TX. Federal reformulated gasoline benefits were measured from phase 2 Reid vapor pressure (RVP) gasoline. Benefits will be lower in areas with low-RVP rules. This includes all areas except Atlanta GA and Cincinnati OH. For St. Louis IL, large reductions are shown for marine vessel loading, a national rule which will be required in all areas regardless of whether the measure is included in the 15 percent ROP plan. Large reductions are shown for treatment, storage, and disposal facilities (TSDFs) in Cincinnati Ohio -- this is also a Federal regulation required regardless of SIP status.

Areas where the best estimate I/M reductions are low (and for which other measures may achieve comparable reductions) include Cincinnati KY (with best estimated reductions of zero), Louisville KY (also with estimated reductions of zero), and El Paso TX. These areas should be examined to determine whether the reductions modeled under best estimate I/M accurately reflect the I/M program which the area intends to implement.

Point Sources Control Measure Assumptions

1. Dry Cleaning - a 34 percent reduction was applied based on South Coast rule 1102.
2. Municipal Landfills - a 79 percent reduction was applied reflecting implementation of EPA's proposed guidelines at a cutoff of 100 Mg VOC per year.
3. TSDFs - the National rule, requiring 96 percent control was modeled. Implementation of the National rule is expected in 1999.
4. Stage I - Loading emissions and underground tank breathing emissions were reduced by 99 percent (80 percent RE) reflecting the installation of pressure vacuum vents from a baseline assuming submerged, balanced loading. Submerged, balanced loading is already in place for major sources in all of the areas except counties added to existing ozone nonattainment areas when boundaries were expanded pursuant to the

1990 amendments. In these cases, emissions were first adjusted to reflect submerged, balanced loading, and reductions for pressure vacuum vents were assessed relative to this baseline.

5. Web offset lithography (ACT 6/94) - 80 percent control was modeled based on the ACT.
6. Printing (excluding web offset) - A control of 27 percent for gravure and 32 percent control for flexographic were applied to reflect the maximum achievable control technology (MACT) standard which is required in all areas by 1999.
7. Marine vessel loading (final national rule, 1995) - An 80 percent reduction was applied to model this Federal requirement.

Controls for point sources were only applied if the existing source had no control efficiency reported. An 80 percent RE was also modeled. Reductions may be over-estimated if the baseline control efficiency is not reflected in the inventory.

Area Source Control Measure Assumptions

1. Nonroad Gasoline Engines - phase 1 reformulated gasoline reductions of 3 percent were applied. Engine standards were not considered because regulations are infeasible on an ozone NA basis, and because engine standards require a fleet turnover period to become effective. Federal standards have been proposed for nonroad engines and will achieve reductions post-1999.
2. Graphic Arts - the area source category covers all printing types. Reductions are based on the implementation of controls from the web offset lithography ACT requiring low VOC inks, fountain solutions, and cleaning solutions. It is assumed that 64 percent of emissions are web offset - this is a national average from the ACT. An average control efficiency of 80 percent and RE of 80 percent are applied for an overall reduction of 40 percent. Alternatively, South Coast Rule 1130 could be modeled at a 10 percent reduction.
3. Cold Cleaning, Conveyorized Degreasing, Open Top Degreasing - solvent cleaners are regulated under South Coast rules 1171 (Solvent Cleaning Operations) and 1122 (Solvent Degreasers). Many NAs already have rules in place which impact these sources. This measures would require increasing the stringency of these rules by requiring smaller sources to comply, replacement of degreasing solvents with low- or no-VOC cleaners where possible, equipment changes, and improved work practices. A 30 percent reduction was modeled (with 80 percent RE) based in South Coast rule 1171.
4. Petroleum Solvent Dry Cleaning - a 34 percent reduction (with 80 percent RE) was applied based on South Coast rule 1102.
5. Pesticides - no control was applied to this category. The South Coast is working towards the adoption of regulations together with members of industry and the

California Air Pollution Control Officers Association. VOC content limits are the most feasible control method, however, reductions are unlikely by 1999. Research is needed to determine the VOC content of existing products and to determine which products can be reformulated.

6. Architectural and Industrial Maintenance (AIM) Coatings - a 20 percent control efficiency was applied based on the expected Federal rule. Areas can take credit for this in the 15 percent plan. Categories assumed to be affected include architectural coatings, industrial maintenance coatings, and traffic paints. An 80 percent RE was also assumed.
7. Wood Products Coating - a 43 percent control efficiency and 80 percent RE were applied based on South Coast Rule 1136. Further reductions could occur in later years when near zero VOC waterborne and UV technologies advance. Categories covered include wood furniture and wood product surface coating.
8. Consumer Solvents - Areas can take credit for the upcoming Federal rule at 20 percent reduction. Classes of area source categories assumed to be affected include miscellaneous non-industrial solvents - all classes and consumer. An 80 percent RE was also applied.
9. Landfills - a 79 percent reduction was applied to point sources reflecting implementation of EPA's proposed guidelines at a cutoff of 100 Mg VOC per year. Area sources were not controlled since they are assumed to be below the size cutoff.
10. Petroleum Product Transport/Marine Vessels - marine vessel loading/unloading is regulated through a national rule. This was not assumed to impact the area source transport emissions.
11. Stage II Vapor Recovery - an 84 percent control was applied reflecting annual inspections and exemption of stations with throughput <10,000 gallons/month. Spillage emissions remain uncontrolled with stage II vapor recovery systems. Since onboard does not begin until 1998, it was assumed that this would have no impact on 1999 emissions.
12. Stage I/Pressure Vacuum Vents - emissions were first adjusted to reflect submerged, balanced loading in all areas (this is required in all of the areas [see corresponding point source measure]). Control of 99 percent was modeled (above submerged/balanced requirements) to reflect the installation of pressure vacuum vents. Underground tank breathing losses as well as loading losses were controlled.
13. Cutback Asphalt - this is modeled as increasing the stringency of the control technique guideline (CTG) reasonably available control technology (RACT) requirements to 100 percent RE and 100 percent rule penetration during the ozone season.
14. Open Burning - an 80 percent reduction is modeled reflecting a ban on open burning during the ozone season assuming 100 percent efficiency and 80 percent RE.

15. Industrial Adhesives - reformulation was modeled at a 63 percent reduction and 80 percent RE.

Motor Vehicle Control Measure Assumptions

1. Reformulated Gasoline - phase 1 Federal reformulated gasoline was modeled using MOBILE5a emission factors.

Enhanced I/M

Three I/M cases were modeled as follows:

High Enhanced I/M - high enhanced in all counties in the NA.

Low Enhanced I/M - low enhanced in all counties in the NA.

Best Estimate - based on survey of State plans for type of program and coverage.

High and low enhanced I/M were modeled as the EPA performance standard. For the best estimate, the performance standard was also modeled. Counties within each NA were matched to either high or low enhanced I/M based on the individual program parameters. All counties in each area are modeled as the high enhanced I/M performance standard except:

- Illinois - Grundy County (a partial county in the Chicago NA) is modeled as no I/M.
- Kentucky - the Cincinnati NA is modeled as low enhanced I/M; Jefferson County (Louisville NA) is modeled as low enhanced I/M; Bullitt and Oldham (Louisville NA, partial counties) are modeled as no I/M.
- Missouri - Franklin County (one of four counties in the St. Louis NA) is no I/M.
- Texas - Collin and Denton Counties (2 of 4 counties in Dallas) are no I/M; the El Paso NA is low enhanced I/M; seven of the eight counties in the Houston NA (all but Harris County) are no I/M.

For the Connecticut and Massachusetts areas, state-developed estimates of high enhanced I/M reductions were provided and used in Attachment B.

Attachment A: Summary of Controls Measures Analyzed Included in 15% ROP Plans

| State | Ozone Nonattainment Area | Reformulated Gasoline | Consumer Products | AIM Coatings | Auto Body Refinishing | Web Offset Lithography | Stage I - P/V Vents | Stage II | Graphic Arts/Printing | Cutback Asphalt | TSDFs | Marine Vessel | Wood Product Coating | Landfills | Solvent Cleaning | Perc. Dry Cleaning | Petroleum Dry Cleaning | Open Burning | Industrial Adhesives |
|-------|---------------------------------|-----------------------|-------------------|--------------|-----------------------|------------------------|---------------------|----------|-----------------------|-----------------|-------|---------------|----------------------|-----------|------------------|--------------------|------------------------|--------------|----------------------|
| AZ | Phoenix | | | | | | | | | | | | | | | | | | |
| CA | Sacramento Metro ¹ | | | | | | | | | | | | | | | | | | |
| CT | Greater Connecticut | Y | | Y | Y | | Y | Y | | Y | | | | | | | | | |
| CT | New York-N New Jersey-Long Is | Y | | Y | Y | | Y | Y | | Y | | | | | | | | | |
| DE | Philadelphia-Wilmington-Trenton | Y | | Y | Y | Y | Y | Y | | Y | | Y | | Y | Y | | | Y | |
| DC | Washington DC | Y | Y | Y | Y | * | Y ² | | | | | | | | Y | | | | |
| GA | Atlanta | | Y | Y | Y | | | | | | | | | | | | | Y | |
| IL | Chicago-Gary-Lake County | Y | | Y | | | Y | Y | | | Y | Y | | | | | | | |
| IL | St. Louis | | | Y | | | | | | | Y | Y | | | | | | | |
| IN | Chicago-Gary-Lake County | Y | | Y | | | Y | Y | | | | | X | Y | | | | Y | |
| IN | Louisville | | | Y | Y | | Y | Y | | | | | | Y | | | | Y | |
| KY | Cincinnati-Hamilton | Y | | | | | | | | | | | | | | | | | |
| KY | Louisville | Y | | | | | | | | | | | | | | | | | |
| MD | Baltimore | Y | Y | Y | Y | | Y | Y | Y | | | | | Y | Y | | | Y | |
| MD | Philadelphia-Wilmington-Trenton | Y | Y | Y | Y | | Y | Y | | | | | | Y | Y | | | Y | |
| MD | Washington DC | Y | Y | Y | Y | | Y | Y | Y | | | | | Y | Y | | | Y | |
| MA | Boston-Lawrence-Worcester-E. MA | Y | Y | Y | Y | | Y | Y | Y | | | Y | | | | | | | |
| MA | Springfield/Pittsfield-W. MA | Y | Y | Y | Y | | Y | Y | Y | | | Y | | | | | | | |
| MO | St. Louis | | | Y | Y | | Y | Y | | | | | | Y | | | | Y | |
| NJ | Atlantic City | Y | | Y | | | | | | | | | | | | | | | |
| NJ | New York-N New Jersey-Long Is | Y | | Y | | | | | | | | Y | | | | | | | |

| State | Ozone Nonattainment Area | Reformulated Gasoline | Consumer Products | AIM Coatings | Auto Body Refinishing | Web Offset Lithography | Stage I - P/V Vents | Stage II | Graphic Arts/Printing | Curback Asphalt | TSDs | Marine Vessel | Wood Product Coating | Landfills | Solvent Cleaning | Perc. Dry Cleaning | Petroleum Dry Cleaning | Open Burning | Industrial Adhesives |
|-------|---------------------------------|-----------------------|-------------------|--------------|-----------------------|------------------------|---------------------|----------|-----------------------|-----------------|------|---------------|----------------------|-----------|------------------|--------------------|------------------------|--------------|----------------------|
| NJ | Philadelphia-Wilmington-Trenton | Y | | Y | | | | | | | | Y | | | | | | | |
| NY | New York-N New Jersey-Long Is | Y | Y | Y | | | Y | Y | | | | Y | | | | | | | |
| OH | Cincinnati-Hamilton | | | Y | | | Y | Y | | | | | | | | | | | |
| PA | Philadelphia-Wilmington-Trenton | Y | Y | Y | Y | * | Y | Y | * | | Y | | | | | | | | |
| RI | Providence | Y | | | Y | | Y | Y | | Y | | | | | | | | | |
| TX | Dallas-Fort Worth | Y | Y | Y | Y | | Y | Y | | | | | X | Y | | | | | |
| TX | El Paso | | Y | Y | Y | Y | Y | Y | | | | Y | X | Y | | | | Y | |
| TX | Houston-Galveston-Brazoria | Y | Y | Y | Y | | Y | Y | | | Y | Y | X | | | | | | |
| VA | Washington DC | Y | Y | Y | Y | | Y | Y | Y | | | | | Y | | | | | |

¹ No information provided on 15% ROP Plan.

² Adopted prior to 1998.

* Included on detailed area summary, not included on 15% Plan Submittals Summary.

* Gas Dist assumed to equal Stage II.

x Wood furniture only.

Attachment B

Potential VOC Reductions by Ozone Nonattainment Area

The following tables show the VOC emission reductions (tons per day) for each of the measures described in the memorandum. Those measures which are highlighted are not included in an area's 15 percent plan, based on the September 12, 1996 summary of 15 percent plan submittals and information from the EPA regions. Attachment A provides a matrix of the measures analyzed, indicating whether the measure is included in an area's 15 percent plan.

Reductions for the highlighted measures should be compared to those achieved through the best estimate of reductions associated with an enhanced I/M program. As explained in the text of this memorandum, the best estimate of I/M reductions is based on a survey of the States on whether the intended program is high or low enhanced I/M and what counties within the NA would be included.

If there are individual measures, or combinations of measures, which combined with all other 15 percent State and Federal measures get to 15 percent as soon as the I/M program, then the following questions should be addressed:

- 1) Can these controls be implemented as quickly?
- 2) Are these controls feasible in terms of cost?
- 3) Will these controls be implemented anyway (under MACT or some other CAA initiative) so that in the long term, no additional benefit would be gained by substituting this measure for I/M?
- 4) Does the State need that measure to achieve 9 percent? If the State determines that one or more of the measures would be feasible, and the State would not need those reductions for attainment or 9 percent and the State would take the measures out of the SIP once the 15 percent was achieved, then the implementation of the measure(s) may not be practicable.

Following is a list of the control measures analyzed, divided into those which will be required under authority (e.g., MACT, Federal rule) and those which would not be required unless a State incorporated the measure as part of the SIP.

MEASURES WHICH WILL BE REQUIRED IN 1999 AND BEYOND

Point Source Control Measures

Other Dry Cleaning - 10 year MACT
Municipal Landfills - National Rule/10 year MACT
TSDFs - National Rule/4 year MACT
Printing (excluding web offset) - 4 year MACT
Marine vessel loading - 10 year MACT (promulgated 4/20/94)

Area Source Control Measures

AIM Coatings
Consumer solvents
Landfills

MEASURES WHICH WOULD NOT BE REQUIRED UNDER OTHER AUTHORITY

Point Source Control Measures

Stage I - Pressure Vacuum Vents

Web offset lithography (ACT 6/94)

Area Source Control Measures

Nonroad Gasoline Engines - reformulated gasoline

Graphic Arts

Cold Cleaning/Degreasing (some small sources may be covered by MACT)

Industrial Adhesives

Open Burning - seasonal ban

Petroleum Solvent Dry Cleaning (small sources may be covered under the 10 year MACT)

Wood Products Coating (may be covered under 10 year MACT for flat wood paneling)

Stage II Vapor Recovery (onboard will eventually reduce refueling emissions)

Stage I - Pressure Vacuum Vents

Motor Vehicle Control Measures

Reformulated Gasoline

Arizona
Phoenix

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 4.32 |
| Wood Product Coating - Reformulation | 2.08 |
| Industrial Adhesives - Reformulation | 6.06 |
| Consumer Solvents - Federal Rule | 9.56 |
| Solvent Cleaning - Substitution/Equipment | 8.60 |
| Graphic Arts - Web Offset Control | 1.81 |
| Autobody Refinishing - ACT control | 1.63 |
| Open Burning - Seasonal Ban | 3.08 |
| TSDFs - Federal Rule (early implementation) | 0.24 |
| Cutback Asphalt - 100% Ban | 11.50 |
| Other Dry Cleaning - SCAQMD 1102 | 1.12 |
| Stage I - P/V Vents | 1.79 |
| Stage II - Vapor Recovery | 11.12 |
| Nonroad Gasoline - Reformulated Gasoline | 1.54 |
| <i>Point Source</i> | |
| None | |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 38.74 |
| <i>UM Reductions</i> | |
| Best Estimate | 55.20 |
| Low Enhanced | 5.13 |
| High Enhanced | 55.20 |

Reformulated gasoline reduction rate is currently an area that adopted low P/V

California
Sacramento

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 1.90 |
| Wood Product Coating - Reformulation | 0.09 |
| Consumer Solvents - Federal Rule | 5.06 |
| Solvent Cleaning - Substitution/Equipment | 0.30 |
| Graphic Arts - Web Offset Control | 0.46 |
| Automotive Refinishing - ACT control | 0.95 |
| Cutback Asphalt - 100% Ban | 5.30 |
| Landfills - Federal Rule | 0.01 |
| Other Dry Cleaning - SCAQMD 1102 | 0.01 |
| Stage I - P.V Vents | 0.94 |
| Stage II - Vapor Recovery | 1.77 |
| Nonroad Gasoline - Reformulated Gasoline | 0.46 |
| <i>Point Source</i> | |
| Other Dry Cleaning - SCAQMD 1102 | 0.11 |
| Web Offset Lithography - ACT control | 0.15 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 34.00 |
| <i>MM Reductions</i> | |
| Best Estimate | 39.65 |
| Low Enhanced | 6.21 |
| High Enhanced | 36.65 |

Connecticut
New York-N New Jersey-Long Is

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| Auto Coatings - Federal Rule | 1.40 |
| Wood Product Coating - Reformulation | 0.50 |
| Consumer Solvents - Federal Rule | 1.50 |
| Solvent Cleaning - Substitution/Equipment | 2.92 |
| Graphic Arts - Web Offset Control | 0.54 |
| Autobody Refinishing - ACT control | 1.45 |
| Cutback Asphalt - 100% Ban | 4.09 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.23 |
| Stage I - P/V Vents | 4.38 |
| Stage II - Vapor Recovery | 0.00 |
| Highway Gasoline - Reformulated Gasoline | 0.65 |
| <i>Point Source</i> | |
| Other Dry Cleaning - SCAQMD 1102 | 0.02 |
| Flexographic Printing (MACT-early implementation) | 0.00 |
| Web Offset Lithography - ACT control | 0.03 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 8.33 |
| <i>MM Reductions</i> | |
| Best Estimate | 11.07 |
| Low Enhanced | 1.55 |
| High Enhanced | 11.07 |

Connecticut
Greater Connecticut

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 4.16 |
| Wood Product Coating - Reformulation | 1.35 |
| Consumer Solvents - Federal Rule | 5.02 |
| Solvent Cleaning - Substitution/Equipment | 8.34 |
| Graphic Arts - Web Offset Control | 1.24 |
| Autobody Refinishing - ACT control | 4.11 |
| Cutback Asphalt - 100% Ban | 13.28 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.60 |
| Stage I - P/V Vents | 13.39 |
| Stage II - Vapor Recovery | 0.01 |
| Nonroad Gasoline - Reformulated Gasoline | 2.32 |
| <i>Point Source</i> | |
| Other Dry Cleaning - SCAQMD 1102 | 0.03 |
| Flexographic Printing (MACT early implementation) | 0.05 |
| Gravure Printing - MACT early implementation | 0.08 |
| Web Offset Lithography - ACT control | 0.57 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 23.77 |
| <i>VMI Reductions</i> | |
| Best Estimate | 33.00 |
| Low Enhanced | 4.39 |
| High Enhanced | 33.00 |

District of Columbia
Washington DC

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 0.68 |
| Consumer Solvents - Federal Rule | 0.97 |
| Solvent Cleaning - Substitution/Equipment | 0.06 |
| Graphic Arts - Web Offset Control | 0.40 |
| Autobody Refinishing - ACT control | 0.32 |
| Cutback Asphalt - 100% Ban | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.18 |
| Stage I - P/V Vents | 0.42 |
| Stage II - Vapor Recovery | 0.48 |
| Nonroad Gasoline - Reformulated Gasoline | 0.22 |
| <i>Point Source</i> | |
| Flexographic Printing (MACT early implementation) | 0.00 |
| Gravure Printing - MACT early implementation | 0.03 |
| Web Offset Lithography - ACT control | 0.02 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 4.07 |
| <i>VM Reductions</i> | |
| Best Estimate | 7.22 |
| Low Enhanced | 0.80 |
| High Enhanced | 7.22 |

Georgia
Atlanta

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 4.75 |
| Wood Product Coating - Reformulation | 1.27 |
| Industrial Adhesives - Reformulation | 8.35 |
| Consumer Solvents - Federal Rule | 16.75 |
| Solvent Cleaning - Substitution/Equipment | 7.94 |
| Graphic Arts - Web Offset Control | 1.54 |
| Autobody Refinishing - ACT control | 3.90 |
| Open Burning - Seasonal Ban | 11.01 |
| TSDFs - Federal Rule (early implementation) | 3.33 |
| Cutback Asphalt - 100% Ban | 2.42 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 6.48 |
| Stage I - P/V Vents | 2.65 |
| Stage II - Vapor Recovery | 18.71 |
| Nonroad Gasoline - Reformulated Gasoline | 3.72 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 32.24 |
| <i>I/M Reductions</i> | |
| Best Estimate | 60.05 |
| Low Enhanced | 10.22 |
| High Enhanced | 60.05 |

Illinois
Chicago-Gary-Lake County

| Measure | VOC Reduction (tpd) |
|--|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 9.68 |
| Consumer Solvents - Federal Rule | 13.16 |
| Solvent Cleaning - Substitution/Equipment | 9.59 |
| Graphic Arts - Web Offset Control | 2.45 |
| Autobody Refinishing - ACT control | 6.99 |
| Open Burning - Seasonal Ban | 0.81 |
| Stage I - P/V Vents | 5.22 |
| Stage II - Vapor Recovery | 33.27 |
| Nonroad Gasoline - Reformulated Gasoline | 3.09 |
| <i>Point Source</i> | |
| Other Dry Cleaning - SCAQMD 1102 | 0.31 |
| Landfills - National Rule, early implementation | 3.89 |
| TSDFs - National Rule, early implementation | 4.39 |
| Flexographic Printing (MACT, early implementation) | 1.50 |
| Gravure Printing - MACT early implementation | 0.98 |
| Web Offset Lithography - ACT control | 1.90 |
| Marine Vessel Loading - National Rule | 0.88 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 66.37 |
| <i>VM Reductions</i> | |
| Best Estimate | 126.89 |
| Low Enhanced | 15.47 |
| High Enhanced | 126.19 |

Illinois
St. Louis

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 0.79 |
| Consumer Solvents - Federal Rule | 0.88 |
| Solvent Cleaning - Substitution/Equipment Use | 0.71 |
| Graphic Arts - Web Offset Control | 0.37 |
| Autobody Refinishing - ACT control | 0.51 |
| Open Burning - Seasonal Ban | 0.23 |
| Stage I - P/V Vents | 0.46 |
| Stage II - Vapor Recovery | 3.16 |
| Nonroad Gasoline - Reformulated Gasoline | 0.46 |
| <i>Point Source</i> | |
| Landfills - National Rule, early implementation | 0.93 |
| TSDFs - National Rule, early implementation | 0.14 |
| Stage I - P/V Vents | 0.00 |
| Flexographic Printing (MACT early implementation) | 0.01 |
| Gravure Printing - MACT early implementation | 0.54 |
| Marine Vessel Loading - National Rule | 8.12 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 6.03 |
| <i>I/M Reductions</i> | |
| Best Estimate | 11.56 |
| Low Enhanced | 1.20 |
| High Enhanced | 11.56 |

Reformulated gasoline reductions are overstated - area has adopted low FMP.

Indiana
Chicago-Gary-Lake County

| Measure | VOC Reduction (tpd) |
|--|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 1.21 |
| Wood Product Coating - Reformulation | 0.03 |
| Consumer Solvents - Federal Rule | 1.09 |
| Solvent Cleaning - Substitution/Equipment | 1.34 |
| Graphic Arts - Web Offset Control | 0.40 |
| Autobody Refinishing - ACT control | 0.81 |
| Open Burning - Seasonal Ban | 0.50 |
| TSDFs - Federal Rule (early implementation) | 0.10 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.31 |
| Stage I - P/V Vents | 0.20 |
| Stage II - Vapor Recovery | 5.73 |
| Nonroad Gasoline - Reformulated Gasoline | 0.24 |
| <i>Point Source</i> | |
| Gravure Printing - MACT early implementation | 0.00 |
| Marine Vessel Loading - National Rule | 0.35 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 5.72 |
| <i>VM Reductions</i> | |
| Best Estimate | 10.78 |
| Low Enhanced | 1.02 |
| High Enhanced | 10.78 |

Indiana
Louisville

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 0.30 |
| Wood Product Coating - Reformulation | 0.06 |
| Consumer Solvents - Federal Rule | 0.27 |
| Solvent Cleaning - Substitution/Equipment | 0.34 |
| Graphic Arts - Web Offset Control | 0.10 |
| Autobody Refinishing - ACT control | 0.20 |
| Open Burning - Seasonal Ban | 0.36 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.08 |
| Stage I - P/V Vents | 0.04 |
| Stage II - Vapor Recovery | 1.30 |
| Nonroad Gasoline - Reformulated Gasoline | 0.16 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 1.61 |
| <i>VM Reductions</i> | |
| Best Estimate | 3.02 |
| Low Enhanced | 0.30 |
| High Enhanced | 3.02 |

Reformulated gasoline reductions are overstated - area had adopted low RVP.

Kentucky
Cincinnati-Hamilton

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 0.57 |
| Wood Product Coating - Reformulation | 0.13 |
| Industrial Adhesives - Reformulation | 0.64 |
| Consumer Solvents - Federal Rule | 1.75 |
| Solvent Cleaning - Substitution/Equipment | 1.33 |
| Graphic Arts - Web Offset Control | 0.18 |
| Autobody Refinishing - ACT control | 0.46 |
| Open Burning - Seasonal Ban | 0.70 |
| TSDFs - Federal Rule (early implementation) | 0.02 |
| Cutback Asphalt - 100% Ban | 0.28 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.23 |
| Stage I - P/V Vents | 0.98 |
| Stage II - Vapor Recovery | 2.22 |
| Nonroad Gasoline - Reformulated Gasoline | 0.18 |
| <i>Point Source</i> | |
| Flexographic Printing (MACT early implementation) | 0.03 |
| Gravure Printing - MACT early implementation | 0.01 |
| Web Offset Lithography - ACT control | 0.06 |
| Marine Vessel Loading - National Rule | 0.02 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 3.04 |
| <i>VM Reductions</i> | |
| Best Estimate | 0.00 |
| Low Enhanced | 0.56 |
| High Enhanced | 5.79 |

Kentucky
Louisville

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 1.65 |
| Wood Product Coating - Reformulation | 0.17 |
| Industrial Adhesives - Reformulation | 3.37 |
| Consumer Solvents - Federal Rule | 3.51 |
| Solvent Cleaning - Substitution/Equipment | 2.68 |
| Graphic Arts - Web Offset Control | 0.06 |
| Autobody Refinishing - ACT control | 0.78 |
| Open Burning - Seasonal Ban | 3.74 |
| TSDFs - Federal Rule (early implementation) | 0.14 |
| Cutback Asphalt - 100% Ban | 5.41 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.48 |
| Stage I - P/V Vents | 0.56 |
| Stage II - Vapor Recovery | 4.27 |
| Nonroad Gasoline - Reformulated Gasoline | 0.47 |
| <i>Point Source</i> | |
| Other Dry Cleaning - SCAQMD 1102 | 0.11 |
| Stage I - P/V Vents | 0.02 |
| Flexographic Printing (MACT early implementation) | 0.05 |
| Gravure Printing - MACT early implementation | 0.23 |
| Web Offset Lithography - ACT control | 0.27 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 9.18 |
| <i>VM Reductions</i> | |
| Best Estimate | 0.00 |
| Low Enhanced | 2.06 |
| High Enhanced | 17.77 |

Maryland
Philadelphia-Wilmington-Trenton

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 0.10 |
| Wood Product Coating - Reformulation | 0.05 |
| Consumer Solvents - Federal Rule | 0.14 |
| Solvent Cleaning - Substitution/Equipment | 0.08 |
| Graphic Arts - Web Offset Control | 0.06 |
| Autobody Refinishing - ACT control | 0.11 |
| Cutback Asphalt - 100% Ban | 0.06 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.00 |
| Stage I - P/V Vents | 0.09 |
| Stage II - Vapor Recovery | 0.00 |
| Nonroad Gasoline - Reformulated Gasoline | 0.07 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 1.04 |
| <i>I/M Reductions</i> | |
| Best Estimate | 2.27 |
| Low Enhanced | 0.73 |
| High Enhanced | 2.27 |

**Maryland
Baltimore**

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 3.36 |
| Wood Product Coating - Reformulation | 0.10 |
| Consumer Solvents - Federal Rule | 4.48 |
| Solvent Cleaning - Substitution/Equipment | 2.56 |
| Graphic Arts - Web Offset Control | 1.10 |
| Autobody Refinishing - ACT control | 3.15 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.01 |
| Stage I - P/V Vents | 2.31 |
| Stage II - Vapor Recovery | 0.01 |
| Nonroad Gasoline - Reformulated Gasoline | 1.26 |
| <i>Point Source</i> | |
| Other Dry Cleaning - SCAQMD 1102 | 0.08 |
| Landfills - National Rule, early implementation | 0.01 |
| Stage I - P/V Vents | 0.11 |
| Flexographic Printing (MACT early implementation) | 0.21 |
| Gravure Printing - MACT early implementation | 0.93 |
| Web Offset Lithography - ACT control | 1.28 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 23.10 |
| <i>V/M Reductions</i> | |
| Best Estimate | 40.41 |
| Low Enhanced | 4.41 |
| High Enhanced | 40.41 |

Maryland
Washington, DC

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 4.60 |
| Consumer Solvents - Federal Rule | 3.41 |
| Solvent Cleaning - Substitution/Equipment | 1.75 |
| Graphic Arts - Web Offset Control | 1.44 |
| Autobody Refinishing - ACT control | 2.30 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.81 |
| Stage I - P/V Vents | 3.35 |
| Stage II - Vapor Recovery | 0.00 |
| Nonroad Gasoline - Reformulated Gasoline | 0.99 |
| <i>Point Source</i> | |
| Other Dry Cleaning - SCAQMD 1102 | 0.02 |
| Stage I - P/V Vents | 0.00 |
| Flexographic Printing (MACT early implementation) | 0.03 |
| Gravure Printing - MACT early implementation | 0.01 |
| Web Offset Lithography - ACT control | 0.79 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 16.51 |
| <i>VM Reductions</i> | |
| Best Estimate | 30.81 |
| Low Enhanced | 4.80 |
| High Enhanced | 30.81 |

Massachusetts
Boston-Lawrence-Worcester-E.MA

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| Area Source | |
| AIM Coatings - Federal Rule | 9.63 |
| Wood Product Coating - Reformulation | 6.28 |
| Consumer Solvents - Federal Rule | 9.37 |
| Solvent Cleaning - Substitution/Equipment | 8.87 |
| Graphic Arts - Web Offset Control | 2.95 |
| Autobody Refinishing - ACT control | 6.45 |
| TSDFs - Federal Rule (early implementation) | 7.09 |
| Cutback Asphalt - 100% Ban | 0.38 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD #1102 | 5.34 |
| Stage I - P/V Vents | 9.09 |
| Stage II - Vapor Recovery | 0.01 |
| Nonroad Gasoline - Reformulated Gasoline | 4.14 |
| Point Source | |
| Other Dry Cleaning - SCAQMD #1102 | 0.03 |
| Stage I - P/V Vents | 0.00 |
| Flexographic Printing (MACT early implementation) | 0.19 |
| Gravure Printing - MACT early implementation | 0.16 |
| Web Offset Lithography - ACT control | 0.56 |
| Motor Vehicle | |
| Reformulated Gasoline | 42.77 |
| MM Reductions | |
| Best Estimate | 33.00 |
| Low Enhanced | 7.91 |
| High Enhanced | 33.00 |

Massachusetts
Springfield/Pittsfield-W. MA

| Measure | VOC Reduction (tpd) |
|--|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 1.50 |
| Wood Product Coating - Reformulation | 0.93 |
| Consumer Solvents - Federal Rule | 1.45 |
| Solvent Cleaning - Substitution/Equipment | 1.13 |
| Graphic Arts - Web Offset Control | 0.55 |
| Autobody Refinishing - ACT control | 1.01 |
| TSDFs - Federal Rule (early implementation) | 0.97 |
| Cutback Asphalt - 100% Ban | 0.08 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.93 |
| Stage I - P/V Vents | 1.97 |
| Stage II - Vapor Recovery | 0.00 |
| Nonroad Gasoline - Reformulated Gasoline | 0.00 |
| <i>Point Source</i> | |
| Gravure Printing - MACT early implementation | 0.80 |
| Web Offset Lithography - ACT control | 0.04 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 0.00 |
| <i>VM Reductions</i> | |
| Best Estimate | 0.00 |
| Low Enhanced | 0.00 |
| High Enhanced | 0.00 |

Missouri
St. Louis

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 3.76 |
| Wood Product Coating - Reformulation | 1.18 |
| Industrial Adhesives - Reformulation | 7.71 |
| Consumer Solvents - Federal Rule | 8.13 |
| Solvent Cleaning - Substitution/Equipment | 5.26 |
| Graphic Arts - Web Offset Control | 0.37 |
| Autobody Refinishing - ACT control | 1.32 |
| Open Burning - Seasonal Ban | 2.02 |
| TSDFs - Federal Rule (early implementation) | 0.14 |
| Cutback Asphalt - 100% Ban | 13.11 |
| Other Dry Cleaning - SCAQMD 1102 | 0.94 |
| Stage I - P/V Vents | 0.56 |
| Stage II - Vapor Recovery | 3.74 |
| Nonroad Gasoline - Reformulated Gasoline | 0.97 |
| <i>Point Source</i> | |
| Flexographic Printing (MACT early implementation) | 0.03 |
| Gravure Printing - MACT early implementation | 0.16 |
| Web Offset Lithography - ACT control | 0.45 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 14.96 |
| <i>VM Reductions</i> | |
| Best Estimate | 24.70 |
| Low Enhanced | 3.40 |
| High Enhanced | 27.08 |

Reformulated gasoline reductions are overstated - area has adopted low RVP

New Jersey
Atlantic City

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 0.54 |
| Wood Product Coating - Reformulation | 0.01 |
| Consumer Solvents - Federal Rule | 0.59 |
| Solvent Cleaning - Substitution/Equipment | 0.07 |
| Graphic Arts - Web Offset Control | 0.22 |
| Autobody Refinishing - ACT control | 0.27 |
| Cutback Asphalt - 100% Ban | 0.74 |
| Other Dry Cleaning - SCAQMD 1102 | 0.07 |
| Stage I - P/V Vents | 0.22 |
| Stage II - Vapor Recovery | 0.00 |
| Nonroad Gasoline - Reformulated Gasoline | 0.22 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 3.80 |
| <i>VM Reductions</i> | |
| Best Estimate | 7.43 |
| Low Enhanced | 0.74 |
| High Enhanced | 7.43 |

New Jersey
New York-N New Jersey-Long Is

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 8.67 |
| Wood Product Coating - Reformulation | 0.13 |
| Consumer Solvents - Federal Rule | 10.46 |
| Solvent Cleaning - Substitution/Equipment | 3.77 |
| Graphic Arts - Web Offset Control | 2.27 |
| Autobody Refinishing - ACT control | 10.47 |
| Cutback Asphalt - 100% Ban | 5.11 |
| Other Dry Cleaning - SCAQMD 1102 | 1.80 |
| Stage I - P/V Vents | 2.87 |
| Stage II - Vapor Recovery | 0.00 |
| Nonroad Gasoline - Reformulated Gasoline | 2.86 |
| <i>Point Source</i> | |
| Flexographic Printing (MACT early implementation) | 0.01 |
| Gravure Printing - MACT early implementation | 0.94 |
| Web Offset Lithography - ACT control | 0.24 |
| Marine Vessel Loading - National Rule | 21.05 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 54.49 |
| <i>VM Reductions</i> | |
| Best Estimate | 106.05 |
| Low Enhanced | 9.89 |
| High Enhanced | 106.05 |

New Jersey
Philadelphia-Wilmington-Trenton

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 2.63 |
| Wood Product Coating - Reformulation | 0.03 |
| Consumer Solvents - Federal Rule | 3.06 |
| Solvent Cleaning - Substitution/Equipment | 1.06 |
| Graphic Arts - Web Offset Control | 0.43 |
| Autobody Refinishing - ACT control | 2.69 |
| Cutback Asphalt - 100% Ban | 2.33 |
| Other Dry Cleaning - SCAQMD 1102 | 0.39 |
| Stage I - P/V Vents | 0.96 |
| Stage II - Vapor Recovery | 0.00 |
| Nonroad Gasoline - Reformulated Gasoline | 0.88 |
| <i>Point Source</i> | |
| Flexographic Printing (MACT early implementation) | 0.18 |
| Gravure Printing - MACT early implementation | 0.12 |
| Web Offset Lithography - ACT control | 0.06 |
| Marine Vessel Loading - National Rule | 1.08 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 17.75 |
| <i>VM Reductions</i> | |
| Best Estimate | 33.86 |
| Low Enhanced | 3.16 |
| High Enhanced | 33.86 |

New York
New York-N New Jersey-Long Is

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 11.84 |
| Wood Product Coating - Reformulation | 6.07 |
| Consumer Solvents - Federal Rule | 20.15 |
| Solvent Cleaning - Substitution/Equipment | 8.59 |
| Graphic Arts - Web Offset Control | 2.20 |
| Autobody Refinishing - ACT control | 3.87 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 6.78 |
| Stage I - P/V Vents | 0.99 |
| Stage II - Vapor Recovery | 0.00 |
| Nonroad Gasoline - Reformulated Gasoline | 3.59 |
| <i>Point Source</i> | |
| Other Dry Cleaning - SCAQMD 1102 | 0.03 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 64.57 |
| <i>VM Reductions</i> | |
| Best Estimate | 127.22 |
| Low Enhanced | 13.19 |
| High Enhanced | 127.22 |

Ohio
Cincinnati-Hamilton

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 2.76 |
| Wood Product Coating - Reformulation | 1.57 |
| Industrial Adhesives - Reformulation | 6.03 |
| Consumer Solvents - Federal Rule | 6.06 |
| Solvent Cleaning - Substitution/Equipment | 5.08 |
| Graphic Arts - Web Offset Control | 0.02 |
| Autobody Refinishing - ACT control | 0.88 |
| Open Burning - Seasonal Ban | 3.12 |
| TSDFs - Federal Rule (early implementation) | 20.69 |
| Cutback Asphalt - 100% Ban | 9.08 |
| Other Dry Cleaning - SCAQMD 1102 | 0.98 |
| Stage I - P/V Vents | 0.75 |
| Stage II - Vapor Recovery | 5.65 |
| Nonroad Gasoline - Reformulated Gasoline | 0.73 |
| <i>Point Source</i> | |
| Flexographic Printing (MACT early implementation) | 0.19 |
| Gravure Printing - MACT early implementation | 0.00 |
| Web Offset Lithography - ACT control | 1.04 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 12.56 |
| <i>I/M Reductions</i> | |
| Best Estimate | 24.74 |
| Low Enhanced | 3.42 |
| High Enhanced | 24.74 |

Pennsylvania
Philadelphia-Wilmington-Trenton

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 6.12 |
| Wood Product Coating - Reformulation | 1.03 |
| Consumer Solvents - Federal Rule | 5.66 |
| Solvent Cleaning - Substitution/Equipment | 4.11 |
| Graphic Arts - Web Offset Control | 1.19 |
| Autobody Refinishing - ACT control | 4.93 |
| TSDFs - Federal Rule (early implementation) | 10.48 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.15 |
| Stage I - P/V Vents | 5.14 |
| Stage II - Vapor Recovery | 18.23 |
| Nonroad Gasoline - Reformulated Gasoline | 2.01 |
| <i>Point Source</i> | |
| Other Dry Cleaning - SCAQMD 1102 | 0.07 |
| Flexographic Printing (MACT early implementation) | 0.34 |
| Gravure Printing - MACT early implementation | 1.66 |
| Web Offset Lithography - ACT control | 0.35 |
| Marine Vessel Loading - National Rule | 10.14 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 26.13 |
| <i>UM Reductions</i> | |
| Best Estimate | 45.51 |
| Low Enhanced | 0.01 |
| High Enhanced | 45.51 |

Rhode Island
Providence

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 1.19 |
| Consumer Solvents - Federal Rule | 1.78 |
| Solvent Cleaning - Substitution/Equipment | 2.23 |
| Graphic Arts - Web Offset Control | 0.73 |
| Autobody Refinishing - ACT control | 1.69 |
| TSDFs - Federal Rule (early implementation) | 0.01 |
| Cutback Asphalt - 100% Ban | 4.55 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.03 |
| Stage I - P/V Vents | 0.62 |
| Stage II - Vapor Recovery | 4.09 |
| Nonroad Gasoline - Reformulated Gasoline | 0.71 |
| <i>Point Source</i> | |
| Other Dry Cleaning - SCAQMD 1102 | 0.05 |
| Flexographic Printing (MACT early implementation) | 0.18 |
| Gravure Printing - MACT early implementation | 0.00 |
| Web Offset Lithography - ACT control | 0.09 |
| Marine Vessel Loading - National Rule | 4.57 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 9.20 |
| <i>VM Reductions</i> | |
| Best Estimate | 18.02 |
| Low Enhanced | 1.75 |
| High Enhanced | 18.02 |

Texas
Dallas-Fort Worth

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 6.34 |
| Wood Product Coating - Reformulation | 4.51 |
| Consumer Solvents - Federal Rule | 6.82 |
| Solvent Cleaning - Substitution/Equipment | 3.68 |
| Graphic Arts - Web Offset Control | 0.28 |
| Autobody Refinishing - ACT control | 4.80 |
| TSDFs - Federal Rule (early implementation) | 0.03 |
| Cutback Asphalt - 100% Ban | 0.87 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 1.01 |
| Stage I - P/V Vents | 10.25 |
| Stage II - Vapor Recovery | 21.29 |
| Nonroad Gasoline - Reformulated Gasoline | 2.04 |
| <i>Point Source</i> | |
| Other Dry Cleaning - SCAQMD 1102 | 0.04 |
| Flexographic Printing (MACT early implementation) | 0.40 |
| Gravure Printing - MACT early implementation | 0.22 |
| Web Offset Lithography - ACT control | 0.40 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 45.45 |
| <i>V/M Reductions</i> | |
| Best Estimate | 65.30 |
| Low Enhanced | 10.32 |
| High Enhanced | 77.54 |

Texas
El Paso

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 1.06 |
| Wood Product Coating - Reformulation | 0.18 |
| Consumer Solvents - Federal Rule | 0.01 |
| Solvent Cleaning - Substitution/Equipment | 1.27 |
| Graphic Arts - Web Offset Control | 0.46 |
| Autobody Refinishing - ACT control | 0.92 |
| TSDFs - Federal Rule (early implementation) | 0.00 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 0.17 |
| Stage I - P/V Vents | 1.01 |
| Stage II - Vapor Recovery | 2.19 |
| Nonroad Gasoline - Reformulated Gasoline | 0.27 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 4.33 |
| <i>I/M Reductions</i> | |
| Best Estimate | 1.03 |
| Low Enhanced | 1.03 |
| High Enhanced | 7.91 |

Reformulated gasoline reductions are overstated - area has adopted low RVF.

Texas
Houston-Galveston-Brazoria

| Measure | VOC Reduction (tpd) |
|---|------------------------|
| Area Source | |
| AIM Coatings - Federal Rule | 8.02 |
| Wired Product Coating - Reformulation | 1.75 |
| Consumer Solvents - Federal Rule | 7.37 |
| Solvent Cleaning - Substitution/Equipment | 5.33 |
| Graphic Arts - Web Offset Control | 2.74 |
| Autobody Refinishing - ACT control | 5.82 |
| TSDFs - Federal Rule (early implementation) | 11.79 |
| Outback Asphalt - 100% Ban | 0.74 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 1.05 |
| Stage I - P/V Vents | 13.18 |
| Stage II - Vapor Recovery | 19.78 |
| Nonroad Gasoline - Reformulated Gasoline | 4.43 |
| Point Source | |
| Landfills - National Rule, early implementation | 0.00 |
| TSDFs - National Rule, early implementation | 0.69 |
| Stage I - P/V Vents | 0.00 |
| Flexographic Printing (MACT early implementation) | 0.04 |
| Gravure Printing - MACT early implementation | 0.00 |
| Marine Vessel Loading - National Rule | 19.28 |
| Motor Vehicle | |
| Reformulated Gasoline | 20.97 |
| V/M Reductions | |
| Best Estimate | 80.85 |
| Low Enhanced | 81.70 |
| High Enhanced | 82.54 |

Virginia
Washington DC

| Measure | VOC Reduction (tpd) |
|--|------------------------|
| <i>Area Source</i> | |
| AIM Coatings - Federal Rule | 2.24 |
| Consumer Solvents - Federal Rule | 2.93 |
| Solvent Cleaning - Substitution/Equipment | 1.04 |
| Graphic Arts - Web Offset Control | 1.07 |
| Autobody Refinishing - ACT control | 1.97 |
| TSDFs - Federal Rule (early implementation) | 0.01 |
| Cutback Asphalt - 100% Ban | 0.23 |
| Landfills - Federal Rule | 0.00 |
| Other Dry Cleaning - SCAQMD 1102 | 1.01 |
| Stage I - P/V Vents | 2.79 |
| Stage II - Vapor Recovery | 8.85 |
| Nonroad Gasoline - Reformulated Gasoline | 1.16 |
| <i>Point Source</i> | |
| Stage I - P/V Vents | 0.02 |
| Gravure Printing - MACT early implementation | 0.01 |
| Web Offset Lithography - ACT control | 0.00 |
| <i>Motor Vehicle</i> | |
| Reformulated Gasoline | 14.21 |
| <i>I/M Reductions</i> | |
| Best Estimate | 25.98 |
| Low Enhanced | 3.52 |
| High Enhanced | 25.98 |

ATTACHMENT II

Boilerplate "As Soon As Practicable" Standard for Action on 15 percent VOC SIPs for Federal Register Notice and Technical Support Document

[Background on State's I/M submittal]

Section 182(b)(1) of the CAA requires that States containing ozone nonattainment areas classified as Moderate or above prepare State Implementation Plans (SIPs) that provide for a 15 percent volatile organic compound (VOC) emissions reduction by November 15, 1996. Most of the 15 percent SIPs originally submitted to the Environmental Protection Agency (EPA) contained enhanced inspection and maintenance (I/M) programs because this program achieves more VOC emission reductions than most, if not all other, control strategies. However, because most States experienced substantial difficulties with these enhanced I/M programs, only a few States are currently actually testing cars using the original enhanced I/M protocol.

In September, 1995, the EPA finalized revisions to its enhanced I/M rule allowing states significant flexibility in designing I/M programs appropriate for their needs. Subsequently, Congress enacted the National Highway Systems Designation Act of 1995 (NHSDA), which provides States with more flexibility in determining the design of enhanced I/M programs. The substantial amount of time needed by States to re-design enhanced I/M programs in accordance with the guidance contained within the NHSDA, secure state legislative approval when necessary, and set up the infrastructure to perform the testing program has precluded States that revise their I/M programs in

obtaining emission reductions from such revised programs by November 15, 1996.

Given the heavy reliance by many States upon enhanced I/M programs to help achieve the 15 percent VOC emissions reduction required under CAA section 182(b)(1), and the recent NHSDA and regulatory changes regarding enhanced I/M programs, the EPA recognized that it was no longer possible for many States to achieve the portion of the 15 percent reductions that are attributed to I/M by November 15, 1996. Under these circumstances, disapproval of the 15 percent SIPs would serve no purpose. Consequently, under certain circumstances, EPA will propose to allow States that pursue re-design of enhanced I/M programs to receive emission reduction credit from these programs within their 15 percent plans, even though the emissions reductions from the I/M program will occur after November 15, 1996.

Specifically, the EPA will propose approval of 15 percent SIPs if the emissions reductions from the revised, enhanced I/M programs, as well as from the other 15 percent SIP measures, will achieve the 15% level as soon after November 15, 1996 as practicable. To make this "as soon as practicable" determination, the EPA must determine that the SIP contains all VOC control strategies that are practicable for the nonattainment area in question and that meaningfully accelerate the date by which the 15 percent level is achieved. The EPA does not believe that measures meaningfully accelerate the 15 percent date if they provide only an insignificant amount of reductions.

In the case of [name of nonattainment area], the [name of State] has submitted a 15 percent SIP that would achieve the amount of reductions needed from I/M by [date]. The [name of State] has submitted a 15 percent SIP that achieves all other reductions by 1996--also reference federal rule situation]. The EPA proposes to determine that this SIP [does or does not] contain all measures, including enhanced I/M, that achieves the required reductions as soon as practicable.

The EPA proposes to determine that the I/M program for the [name of nonattainment area] [does or does not] achieve reductions as soon as practicable. [Explain]

The EPA has examined other potentially available SIP measures to determine if they are practicable for the [name of nonattainment area] and if they would meaningfully accelerate the date by which the area reaches the 15 percent level of reductions. The EPA proposes to determine that the SIP [does or does not] contain the appropriate measures. [Explain--Add in information from Pechan's analysis, cite results, add in your language about cost, feasibility, timing, etc.]

Information for Technical Support Document

Why cannot EPA require the States to do annual testing instead of biennial testing?

- To require States which currently operate or propose to operate biennial programs to switch to annual testing would require them to take legislative action to do so. Most legislatures mandate the testing frequency with the inspection and maintenance (I/M) authorizing legislation. Therefore, requiring a change to annual testing would result in further delay in achieving real reductions.
- For a State to manage the testing of its entire subject vehicle fleet every year, test capacity would have to be double that of a biennial program. The State would have to overbuild its network considerably, adding significantly to the cost of facilities, operations and the test fee itself. Once a State achieves the 15% level the extra capacity will not be needed, should they opt to go back to biennial testing.
- An important issue of inequity would occur in the intended event that a State achieves the 15% level after a number of years of annual testing. For the State to switch back to biennial testing, those vehicles subject to testing in the second year of the first biennial cycle would effectively receive a "bye", which the public could perceive as unfair.

- Annual testing means that twice as many vehicles would fail and require repair during the first year than would have failed under a biennial program. The resulting influx of failed vehicles to repair shops could easily overburden technicians who would be dealing with an unprecedented volume and complexity of emissions repairs. Overburdened technicians are more likely to not perform the appropriate repairs, leading to lost emissions reductions, ping-ponged motorists, added expense, and increased public backlash.

Why cannot the States begin testing with final cutpoints?

- The biggest emissions reductions from I/M will be achieved by failing and repairing the dirtiest vehicles, the grossest polluters. The phase-in (less stringent) cutpoints will still fail those gross polluters while passing the marginal polluters during the first cycle of testing. While additional benefits will be achieved by implementing final cutpoints and at an additional cost, those benefits would be compromised by the drawbacks of applying them during the first testing cycle. The added volume and complexity of repairs would lead to the problems described above.
- Cutpoint phase-in is crucial to the process of building a cadre of trained and experienced repair technicians, the foundation of an effective I/M program. Technicians build key skills and expertise by successfully handling the first "wave" of gross polluter repairs on vehicles failed by the

phase-in cutpoints. A more sophisticated level of diagnosis and repair is often needed to clean the marginal polluters failed by the final cutpoints, and to achieve the optimal emission benefit.

- The grossest polluters (identified by the phase-in cutpoints, but excluding marginal polluters) are often the easiest to diagnose and the cheapest to repair, e.g., fouled plugs or poor ignition timing. The repair industry will accustom its technicians to the program with less onerous diagnosis and repair work while vehicle owners face the burden of simpler and cheaper repairs. To start a program with final cutpoints would send additional vehicles to the repair shops and lead to the same problems described above for annual testing.
- The phase-in period allows the public to become accustomed to this new responsibility to ensure that their vehicles meet the applicable standard. This requirement will generally be more palatable to a public which sees only the dirtiest vehicles failing and getting repaired. Once the benefits of I/M are realized by the public, they are more likely to accept similar costs of cleaning up the marginal polluters which will be failed by the final cutpoints.

Why cannot EPA require the States to do high enhanced testing instead of low enhanced testing?

- In order for all enhanced areas to be required to do high enhanced testing, the States would have to make additional SIP changes, thus further delaying program implementation and real emissions reductions.