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Office of Air Quality
Planning and Standards
Research Triangle Park, NC 27711

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National Emission Standards for Hazardous Air Pollutants: Metal Coil Surface Coating Background Information for Promulgated Standards

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U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Emission Standards Division
Research Triangle Park, North Carolina 27711

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Appendices

1.0 INTRODUCTION

On July 16, 1992 (57 FR 31576), we published a list of source categories slated for regulation under section 112(c). The source category list included the metal coil coating (surface coating) source category. We proposed standards for the metal coil surface coating source category on July 18, 2000 (65 FR 44616).

The preamble for the proposed standards described the rationale for the proposed standards. Public comments were solicited at the time of the proposal. The public comment period lasted from July 18, 2000 to September 18, 2000. Industry representatives, regulatory agencies, environmental groups, and the general public were given the opportunity to comment on the proposed rule and to provide additional information during the public comment period. Although we offered at proposal the opportunity for oral presentation of data, views, or arguments concerning the proposed rule, no one requested a public hearing, and a public hearing was not held.

We received a total of 17 letters containing comments on the proposed rule. Commenters included individual companies with coil coating operations, industry trade associations, State regulatory agencies, and an association of air pollution control vendors. Copies of the comment letters are available for public inspection in docket number A-97-47.

The purpose of this document is to present the EPA's responses to the comments on the proposed rulemaking. An index of commenters is presented in Table 1-1. Many of the comment letters contain multiple comments regarding various aspects of the rulemaking. For the purpose of orderly presentation, the comments are categorized by the following topics:

- Chapter 2.0 Impacts Analysis
- Chapter 3.0 Rule Requirements
- Chapter 4.0 Administrative Requirements

TABLE 1-1. INDEX TO COMMENTERS ON METAL COIL SURFACE COATING PROPOSED NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Commenter Docket Item Number	Commenter Name
IV-D-1	R. F. Klein President Metal Coaters, L.P. 10943 North Sam Houston Parkway West Houston, TX 77064
IV-D-2	Kelly Garbin Executive Director National Coil Coating Association 401 North Michigan Avenue #2200 Chicago, IL 60611-4267
IV-D-3	Steven J. Rowlan General Manager, Environmental Affairs NUCOR 2100 Rexford Road Charlotte, NC 28211
IV-D-4	David C. Foerter Deputy Director Institute of Clean Air Companies 1660 L Street NW Suite 1100 Washington, DC 20036-5603
IV-D-5	Samuel H. Bruntz Environmental Engineer Commonwealth Aluminum 1372 State Road 1957 P.O. Box 480 Lewisport, KY 42351-0480

Table 1-1 (continued)

Commenter Docket Item Number	Commenter Name
IV-D-6	Neil E. Bashore Executive Vice President Euramax International, Inc. 5445 Triangle Parkway Suite 350 Norcross, GA 30092
IV-D-7	Alexander Ross Government Affairs Director Radtech International, North America 3 Bethesda Metro Center, Suite 700 Bethesda, MD 20814
IV-D-8	Kelly Garbin Executive Director National Coil Coating Association 401 North Michigan Avenue #2200 Chicago, IL 60611-4267
IV-D-9	Jesse Hackenberg Engineer, Environmental Compliance Chromagraphic Processing Company 2475 Trenton Avenue Williamsport, PA 17701
IV-D-10	Karen Ekpenyong National Coil Coating Association 401 North Michigan Avenue #2200 Chicago, IL 60611-4267
IV-D-11	Michael E. Fogle Manager, Industrial Source Monitoring Program Georgia DNR Environmental Protection Division Air Protection Branch 4244 International Parkway, Suite 120 Atlanta, GA 30354

Table 1-1 (continued)

Commenter Docket Item Number	Commenter Name
IV-D-12	Robert J. Nelson Senior Director, Environmental Affairs National Paint and Coatings Association 1500 Rhode Island Avenue, NW Washington, DC 20005
IV-D-13	Robert P. Strieter Director, Environmental Affairs The Aluminum Association 900 19th Street NW Washington, DC 20006
IV-D-14	Mark E. Pederson Environmental, Health, and Safety Coordinator Rollprint Packaging Products 320 Stewart Avenue Addison, IL 60101-3310
IV-D-15	David J. Kolaz Chief, Bureau of Air Illinois EPA 1021 North Grand Avenue East P.O. Box 19276 Springfield, IL 62794-9276
IV-D-16	Kevin S. Barnett Senior Consultant - Air Programs Alcoa Corporate Center 201 Isabella Street at 7th Street Bridge Pittsburgh, PA 15212-5858
IV-D-17	Kelly Garbin Executive Director National Coil Coating Association 401 North Michigan Avenue #2200 Chicago, IL 60611-4267

Table 1-1 (continued)

Commenter Docket Item Number	Commenter Name
IV-D-18	Eric L. Hiser The Test Law Practice Group Von Oppenfeld, Hiser, and Freeze, P.C. Western Regional Office 2633 E. Indian School Road, Suite 400 Phoenix, Arizona 85016

2.0 IMPACTS ANALYSIS

2.1 MACT DATABASE

2.1.1 Number of Facilities and Lines

Comment: One commenter (IV-D-8) notes that the number of facilities and total number of lines operated by these facilities identified by EPA in Section 2.2.2 of the BID as providing sufficient information to complete a MACT floor analysis differs significantly from the database developed by the industry. The commenter stresses that the total number of plants and coating lines included in the characterization of the industry is important, as it establishes the baseline emission rates and provides the basis for estimating total reductions that will be achieved by implementing the MACT floor. The commenter adds that it appears that EPA included data from facilities that submitted incomplete ICR responses or who responded to a different version of the ICR that did not contain all of the pertinent data to assess HAP emission rates. The commenter proposes that these incomplete ICR responses should be eliminated from the analysis and adds that if the EPA redefines the MACT floor and ranks facilities by post-control HAP emission rate, only those facilities with sufficient information to calculate this parameter should be included in the MACT database.

Response: We agree that the total number of plants and coating lines included in the characterization of the industry is important, as it does establish baseline emission rates and provides the basis for estimating total emission reductions that will be achieved by implementing the MACT floor. We based the number of facilities in the database and the total number of lines operated by these facilities on all facilities that indicated in their ICR response that they were engaged in the surface coating of metal coil. We made non-confidential business information (CBI) ICR responses available to the public in EPA Metal Coil Surface Coatings MACT Docket number A-97-47.

To provide the most complete characterization of the metal coil coating industry from all available data, we included plants in the database that returned either the generic version of the ICR or an alternative, more specialized version of the ICR tailored to the metal coil coating industry. Responses were received from 119 facilities, of which 26 indicated that the facilities are not coil coaters, 2 provided information showing that the facility only coats foil, and 2 were not in operation in 1997. Therefore, 89 coil coating facilities returned completed questionnaires; 14 companies did not respond to the questionnaire. The results of the data collection efforts provided the 89 facilities that constitute the MACT database. We had enough data to rank 85 of the facilities in the MACT database on the basis of facility organic HAP overall control efficiency. This subset of facilities was used to determine the number of facilities equal to12 percent of the sources (85 x 0.12 = 10.2, rounded up to 11) constituting the MACT floor. However, a different base number of facilities would have resulted in the same MACT floor technology (thermal oxidizer and permanent total enclosure) since many more than the top 11 sources reported using this technology.

See the response to Comment 3.4.1 regarding whether facilities should be ranked by post-control HAP emissions to redefine the MACT floor.

2.2 MODEL PLANTS

2.2.1 Oven Flow Rates

Comment: Two commenters (IV-D-8, IV-D-9) assert that a discrepancy exists between EPA compliance cost estimates and industry compliance cost estimates due to EPA's failure to calculate air flows at scfm (standard cubic feet per minute) measurements for the model plant analysis. Commenter IV-D-8 notes that it appears that the air flow requirements were calculated as 10,000 cubic feet per gallon of solvent evaporated in the oven, and adds that this conversion should be based on standard cubic feet instead of actual cubic feet. Commenter IV-D-8 adds that at the temperatures that the ovens operate, misstating the flow units means that the actual flow is 1 ½ to 2 times higher than the flow used in the model plant analysis. Commenter IV-D-8 states that understating the flow creates a major impact on estimates for costs of control device upgrades and replacements because it is the parameter used to size the control device. Furthermore, commenter IV-D-8 notes that underestimating flow also impacts the calculation of incremental gas combustion and incremental increase in electricity usage by oxidizer blowers. Commenter IV-D-8 proposes that EPA revise its cost estimates to use the correct flow rates for oxidizer replacement costs.

Response: Contrary to the commenters' assertion, the flow rates in acfm were derived from ICR information and converted to scfm for the design of oxidizers. However, original calculated air flows for model plants were based on an assumption of 10,000 cubic feet of dilution air per gallon of solvent evaporated to maintain a safe oven atmosphere. The calculated air flows for the model plants were 9,333 acfm, 8,500 acfm, 14,700 acfm, 16,300 acfm, and 6,650 acfm for Model Plants 1 through 5, respectively. These calculations were based on applying the 10,000 cubic feet of dilution air to the average of all reported values for oven solvent capacity for each plant in each model plant group.

After further analysis of reported flow rates and oven solvent capacities in the MACT database in response to commenters' concerns, we agreed that the original assumption underestimated oven air flow rates. Therefore, a factor was developed to adjust the model plant air flow rates. This factor was derived from all facilities in the database that reported air flows in units of acfm. The factor is an average of the ratio of the calculated air flow rate to the reported air flow rate for all facilities in the database that reported air flow rates in units of acfm, where the calculated air flow rate is based on the assumption of 10,000 cubic feet of dilution air per gallon of solvent evaporated to maintain a safe oven atmosphere. The average of this ratio for all facilities in the database that reported oven solvent capacity information and air flow rates in units of acfm is 0.66, indicating that the model plant air flow rates should be about 50 percent higher. In other words, information in the MACT database indicates that 15,000 cubic feet of dilution air per gallon of solvent evaporated is current industry practice, rather than the assumed ratio of 10,000 cubic feet of dilution air per gallon of solvent evaporated. The 0.66 factor was applied to the original calculated air flows for model plants and yielded the following air flow rates:

Model Plant Number	**Factored Air Flow (acfm)**
Plant 1	14,141
Plant 2	12,879
Plant 3	22,273
Plant 4	24,697
Plant 5	10,076

The adjusted oven air flow rates were used to revise compliance cost estimates.

2.2.2 PTE Flow Rates

Comment: Two commenters (IV-D-8, IV-D-9) state that EPA assumes no flow increase when upgrading control systems in BID Section 6.2, which presents EPA's methodology and assumptions used to determine the incremental increase in natural gas combustion. Commenter IV-D-8 completed an analysis of flow requirements as part of an estimate of the incremental natural gas combustion using procedures outlined in the EPA document EPA-450/4-91-020, "The Measurement Solution: Using a Temporary Total Enclosure for Capture Efficiency Testing." Commenter IV-D-8 reports that, despite an assumption that 50% of the oven make-up air can be drawn from the PTE, upgrading units to achieve the 98% OCE limit would generate approximately 40% more flow that has to be treated by the oxidizer. The commenter asserts that the additional flow is primarily related to installing new PTE that must have sufficient ventilation to comply with OSHA permissible exposure limits (PELs) for the mix of solvents used in the process.

Commenter IV-D-8 acknowledges that EPA's assumption that the existing process exhaust air flow will be adequate to provide for worker safety is based on experience reported by several engineering contractors that install PTE. The commenter also states that the potential to minimize additional ventilation from an enclosure is directly affected by the ability to install close capture devices that minimize the amount of fugitive VOC circulating within the enclosure because this is the configuration that minimizes the requirement for dilution air. The commenter asserts that a typical coil coating operation has a substantially sized roller applicator system that is not readily fitted with an effective close capture hood, and that virtually all of the companies in the industry association that have installed PTE on their processes have had to design for an increase in ventilation air to protect worker safety.

Commenter IV-D-8 further states that data from an industry survey taken by the industry association for a cost-effectiveness assessment indicate that the cost of such enhancements to comply with a 98% OCE limit ranges from $9,200 to $624,000 per line. The commenter further asserts that a failure to include costs associated with additional flow increases from the installation of PTE has a major impact on the estimate of the initial capital investment and annual operating costs of an affected coating line. The commenter states that EPA's assumption will underestimate these costs and proposes that EPA's costs be re-evaluated in a revised economic impact statement.

Response: To evaluate the commenters' concerns, we reviewed the additional capture measures reported by respondents to the metal coil coating ICR that reported the use of a PTE. In the ICR, respondents were asked to provide information regarding the enclosure/capture status for each coating application station. Check boxes were provided for the respondent to indicate the use of measures including PTE, hoods, oven extensions, and extra ventilation to the control device among others. The ICR review revealed that a large majority (83 percent) of facilities reporting existing PTE did not report the use of additional ventilation.

We also reviewed the detailed analysis of flow requirements submitted by one of the commenters and agree that, for the situations where additional flow is needed, approximately 40 percent more flow is needed for a PTE that cannot be designed with adequate local exhaust ventilation in the form of hoods and oven extensions to ensure worker safety. We developed additional costs for the 17 percent of facilities requiring extra ventilation (represented by plant models 1, 2, and 3 as described in the response to Comment 2.4.1) for added ventilation, duct work, plant make-up air heating, and a concentrator to allow continued use of an existing oxidizer. The additional cost elements were based on information submitted by Commenter IV-D-8 showing a breakdown of the actual costs incurred by a coil coating facility to install a coating room on a tandem coating application station and the estimated costs of adding a rotary concentrator required to achieve the 98 percent OCE.

Rotary concentrators may be used in operations where ventilation systems are increased in size over original design specifications. For metal coil coating lines requiring added ventilation, plant operators may elect to add a concentrator and use an existing oxidizer rather than purchase a new, larger oxidizer. The advantage of the concentrator is its ability to adsorb VOCs from large streams having relatively low concentrations of constituents, then desorb them from the concentrator activated carbon bed using a much smaller air stream for the desorption. Typically, the flow rate of the desorption stream is about 10 percent of the flow rate for the waste stream entering the concentrator.

For coil-coating costing, installation of a rotary concentrator was assumed to allow the plant to reduce the load to an existing oxidizer to 10 percent of the flow used for a new permanent total enclosure (PTE), which was assumed to be 140 percent of the flow before installation of the PTE. The 10-percent flow rate provided a component concentration greater than 25 percent of the lower explosive limit (LEL) for each model plant, therefore, dilution air was added to the flow to reduce the component concentration to no more than 25 percent of the LEL.

A costing algorithm for rotary concentrators was adapted from a volatile organic compound (VOC) project using such equipment. Because only a single cost point was available, the six-tenths rule (*Chemical Engineering Cost and Estimation*, Aries and Newton, 1955) was used to develop a cost curve for concentrator sizes other than the one available. The six-tenths rule estimates cost of equipment for a new size by multiplying the cost of the old size by the ratio raised to the six-tenths power of the new size to the old size. The equation for the cost curve is

$$Y = 371.9 \times Q^{0.6}$$

Where: Y = cost of concentrator, $\$ \times 10^{-3}$

371.9 = ratio of (old size concentrator cost in $) to (flow rate entering old concentrator in acfm)$^{0.6}$

Q = flow rate entering new size concentrator, acfm

Appendix A consists of spreadsheets titled “Coil Coating - Rotary Concentrator” that show the application of the cost curve for concentrators for Model Plants 1, 2, and 3. Methodology from the OAQPS Control Cost Manual (Docket No. A-97-47, Document No. II-A-8) is used to estimate direct and indirect capital and annual costs. Direct and indirect capital costs are estimated by the factor method, in which factors are used to estimate the various cost elements associated with overall direct and indirect installation. The factors are applied to a concentrator capital cost developed from the six-tenths cost equation. For example, the cost of the concentrator for Model Plant 1 shown in the first spreadsheet is $244,917 after adjustment for inflation from the date of the costs used in the six-tenths cost equation. This cost also includes capital costs of duct work, a fan, and a heater for makeup air. Instrumentation for the concentrator is assumed to be 10 percent, therefore, the instrumentation is estimated at $24,492. Costs are similarly estimated for sales taxes and freight, and the total of the four costs is the purchased equipment cost (PEC). Remaining capital costs are based on factors applied to the PEC. As shown on the Coil Coating-Rotary Concentrator spreadsheet for Model Plant 1, typical factors are shown for each cost element, but can be adjusted for special cases. Engineering, construction and field expense, and contractor fees are shown as zero because they are included in the concentrator cost.

Annual costs, like capital costs, are divided into direct and indirect elements as shown in the spreadsheets mentioned above. Direct costs are based on labor to operate and maintain the system and on utilities and waste disposal, while indirect costs are based on overhead and administrative charges, property taxes, insurance, and capital recovery. The sum of these costs represents the yearly cost of owning and operating the system, with the direct annual costs representing operation and maintenance (O&M).

The spreadsheet calculation of annual costs for the concentrator does not account for the reduced oxidizer operating costs resulting from the reduced air flow being routed to the oxidizer. As was noted previously in this response, installation of a rotary concentrator was assumed to allow the plant to reduce the load to an existing oxidizer to 10 percent of the flow used for a new PTE, which was assumed to be 140 percent of the flow before installation of the PTE. This reduced flow reduces the cost of operating the oxidizer, which is calculated as the difference between baseline operating costs and operating costs at 14 percent air flow (i.e., 10 percent of 140 percent of the flow before installation of the PTE). If the reduced flow increases the constituent concentration to more than 25 percent of the

LEL, dilution air is added to reduce the concentration to 25 percent or less of the LEL. The following flow rates were calculated as the air flow entering the oxidizer after treatment in the concentrator and addition of dilution air: Model Plant 1, 10,400 acfm; Model Plant 2, 10,500 acfm; and Model Plant 3, 22,000 acfm. For example, for Model Plant 1 (one oven), this reduced gas flow to the existing thermal oxidizer would result in a reduced operating cost of $103,123 (the baseline operating cost of $404,517 minus the operating cost at 14 percent airflow plus dilution air of $301,394) resulting in an increase in total annual cost above baseline of only $12,609 for upgrading the control system to meet the standard.

It should be noted that because a catalytic oxidizer requires less supplemental fuel than a thermal oxidizer for operation, the reduced air flow to the oxidizer results in less reduction in O&M costs, e.g., for Model 1 (catalytic oxidizer, one oven), the increase in annual costs is estimated to be $94,876. However, because of the small number of catalytic oxidizers in the MACT database, few if any facilities currently using catalytic oxidizers should encounter extra ventilation requirements related to the addition of a PTE.

2.3 CONTROL COSTS

2.3.1 New PTE

Comment 1: One commenter (IV-D-4) submits that the capital costs for PTE as shown in BID Table 7-2 incorrectly show an increasing cost per square foot as the PTE/room size increases. The commenter offers that, similar to the cost of control equipment, the capital cost for PTE is likely to decrease on a square foot basis as size increases.

Response 1: Costs per square foot may increase with size because of greater complexity and different construction materials for larger sizes. Capital costs for PTE are derived from an article by Lukey (Permanent Total Enclosures Needed in Response to Subpart KK and Changes to Test Procedures, AWMA Paper No. TA4B-05, annual meeting, 1997 [Docket No. A-97-47, Item II-I-6]) These costs are assumed to represent typical installations.

Comment 2: One commenter (IV-D-8), noting that EPA's estimates of total capital investment costs per facility for PTE range from $42,720 to $57,120 for small, medium, and large sized PTE in BID Section 7.2.1, states that PTE costs are significantly underestimated. The commenter offers that data from a National Coil Coating Association survey of coil coating lines showed that actual costs of PTE would likely range from $14,500 to $425,000 per line, with most lines requiring costs well in excess of EPA's estimates. The commenter claims that many large coil coating plants operate tandem coating lines installed in a mezzanine arrangement, and that the design and installation of a functional PTE for such an application would likely exceed $200,000. Furthermore, the commenter claims that one industry association member company provided a cost summary of a tandem coating line mezzanine arrangement PTE installed at one of their facilities that totaled $446,000. This cost summary included the reconfiguration of make-up air duct work, new exhaust duct work, a new plant make-up air heater, and explosion-proof electrical systems. The commenter asserts that EPA's estimates neglect modification in duct work, additional control dampers, explosion-proof electrical systems, and instrumentation required for a properly designed coil coating PTE. The commenter adds that one of the more significant components is a system that would draw PTE air into the oven as make-up air, which would require substantial modifications to duct work and additional flow control systems. The commenter further adds that without this modification, virtually all of the PTE exhaust would have to be routed directly to the oxidizer, which would substantially increase the size and operating costs of the control device. The commenter proposes that EPA's cost estimate be revised to include more realistic cost estimates for new PTE.

Response 2: The PTE sizes used in the cost analysis were provided by coil coating stakeholders. As is noted in Response 1 above, the capital costs for the PTE are derived from an article that presents costs that are assumed to represent typical installations. In an earlier article by Lukey (Designing Effective and Safe Permanent Total Enclosures, AWMA Paper No. 93-TA-33.05, Annual Meeting, 1993 [Docket No. A-97-47, Item IV-J-2]), the costs of 13 PTE for rotogravure and flexographic printers ranges from $25,000 up to $140,000, with all but one being less than $80,000 and nine being $50,000 or less. The commenter does not submit data from the survey of coil coater lines beyond noting that the design and installation of a functional PTE for a tandem coating line designed in a mezzanine arrangement would likely exceed $200,000. Therefore, the $425,000 per line top of the cost range most likely represents the cost of a PTE for a mezzanine arrangement.

Regarding tandem coating lines in a mezzanine arrangement and associated PTE costs, this arrangement represents the worst case situation for the application of a PTE due to the size and configuration of the area to be enclosed. Our review of the 89 facilities in the MACT database revealed that seven facilities use a mezzanine arrangement. Of these facilities, four currently have PTE and six comply with either the 98 percent OCE or the 0.38 lb/gal emission rate limit. The seventh facility reported being in the process of installing a PTE in the ICR response submitted in the summer of 1998. Therefore, no additional cost for construction of PTE on tandem application stations in the mezzanine arrangement to comply with the MACT standard should be attributed to the standard.

We agree with the commenter that electrical fittings used in the presence of flammable solvents should be assumed to be specified as explosion proof to meet typical building codes. To account for the additional cost of explosion-proof fittings, the estimated cost of auxiliaries has been increased from 50 to 80 percent of the PTE capital cost. Table 7-2 in Appendix B presents a summary of the revised coating room (PTE) costs. This is a revision of Table 7-2 from the background information document (EPA-453/P-00-001, April 25, 2000 [Docket No. A-97-47, Item III-B-1]) for the proposed Metal Coil Surface Coating NESHAP. The ventilation system costs cited by the commenter are associated with the provision of additional ventilation to the PTE to provide for worker safety. The costs of providing additional ventilation are presented in response to Comment 2.2.2.

2.3.2 Oxidizer Replacement

Comment 1: Two commenters (IV-D-4 and IV-D-8) note that EPA assumes the reasonable life of an oxidizer is 15 years in Section 7.3 of the BID. Commenter IV-D-4 asserts that 10 years is a more reasonable assumption for equipment life for the coil coating industry while Commenter IV-D-8 asserts that the life is well beyond 15 years.

Response 1: Equipment life varies from one type of equipment and one installation to another. As is noted in the comment summary above, a national trade association of companies that supply air pollution control and monitoring technologies [Docket No. A-97-47, Item IV-D-4] suggests that a 10-year life is a reasonable assumption. In reviewing our draft model plants prior to proposal of the NESHAP, metal coil surface coating stakeholders submitted that for the purpose of estimating the annualized costs of control system capital expenditures, the useful life of an incinerator is 15 to 20 years. To balance different experiences reported by these information sources, we believe the assumed expected life of 15 years is reasonable.

Comment 2: Two commenters (IV-D-8 and IV-D-9) note that Section 7.2.2 of the BID states many of the assumptions that EPA used to determine the cost of upgrading or replacing thermal oxidizers. The commenters believe that many of these assumptions are flawed and that they have contributed to control system upgrade/replacement cost estimates that are substantially less than what is truly needed. The commenters claim that the following assumptions should be revised or eliminated:

(1) The gas flow rate estimates for model plants used in the OAQPS cost estimating manual calculations appear to be 1½ to 2 times too low because they were incorrectly stated as actual cubic feet per minute (acfm) instead of standard cubic feet per minute (scfm).

(2) EPA has assumed that costs for duct work, dampers, fans, motors and stacks are not required for a replacement oxidizer. The commenters claim that this assumption is not correct as additional and larger duct work would be required to handle the excess flow generated by increases in capture efficiency, especially for new PTE. Commenter IV-D-8 adds that installation of larger oxidizers may require placement at a location different than the existing unit.

(3) A 20% discount is assumed for purchase of two oxidizers in the same order. The commenters claim that this is highly unlikely given laws of supply and demand, and the demand for new oxidizers created by the promulgation of multiple NESHAPs in the next one to two years.

(4) New oxidizers are assumed to operate with 70% heat recovery. Commenter IV-D-8 claims that this would likely preheat the inlet stream to above auto-ignition temperatures for the VOCs involved and may not be feasible. The commenter submits that, based on data in a heat balance assessment conducted by an industry association, 50% heat recovery is more appropriate to avoid preheating the inlet stream above auto-ignition temperatures. The commenter states that this assumption contributes to EPA's underestimating incremental natural gas consumption.

(5) EPA assumed that existing units will be upgraded to achieve higher destruction efficiencies and accommodate increased flow. Commenter IV-D-8 does not believe that upgrades are

practical, and claims that older oxidizers were not designed to operate at the higher temperatures necessary to assure 98% destruction efficiency. The commenter adds that substantial modifications would be required to increase the flow capacity of the unit including enlarging the combustion chamber, increasing the oxidizer blower capacity, increasing the size of the heat exchanger, and enlarging duct work to handle additional flow. The commenter claims that it is much more likely that a facility would choose to replace rather than upgrade a unit, given the cost of these modifications.

Commenter IV-D-8 claims that the above-listed factors have caused EPA to underestimate the cost of replacing catalytic or thermal oxidizers. The commenter also cites data from a National Coil Coaters Association survey that show required oxidizer costs to comply with the 98% OCE limit ranging from $140,000 to $900,000 per line. The commenter proposes that EPA correct its assumptions and revise its oxidizer replacement cost estimates.

Response 2: Comments on each of the numbered assumptions above are addressed in the corresponding paragraphs that follow:

(1) Contrary to the commenters' assertion, the model plant gas flow rates in acfm are derived from MACT database information and converted to scfm for incinerator design. However, as discussed in the response to Comment 2.2.1, a review of the MACT database suggested that increased flow is appropriate. Costs have been revised to be consistent with increased flow rates. The revised flow rates for the model plants are 14,141; 12,879; 22,273; and 24,697 acfm, respectively for model plants 1 through 4.

(2) For cases in which increased flow to the replacement oxidizer is not required, the assumption has been made that new ducting is not required. For cases in which air flow is increased , but a rotary concentrator is installed, the air flow to the oxidizer is not increased, but new ducting is needed to route air to the rotary concentrator and from the concentrator to the oxidizer. New costs for the concentrator and associated equipment have been estimated for these cases and any others in which increased ventilation air is required. See the response to Comment 2.2.2 for a description of the estimation of the additional costs associated with increased air flow to the oxidizer.

(3) Oxidizer costing was based on conditions in 1997. Examination of the Vatavuk Air Pollution Control Cost Indexes (VAPCCI) shows that index values for thermal oxidizers and catalytic oxidizers are now greater than for most other control devices so that discounts may not be available. Under these circumstances, it is reasonable to eliminate the discounts. New costs have been developed that have no discount for the purchase of two oxidizers in the same order.

(4) We reviewed the heat recovery information in the MACT database. The heat recovery reported by facilities in the database ranged from 10 percent up to 100 percent for oxidizers at

three different facilities. The average heat recovery reported was 52 percent. In addition, we contacted two oxidizer vendors [Docket No. A-97-47, Items IV-E-4 and IV-E-5] concerning the potential for auto-ignition of the inlet stream. One vendor [Docket No. A-97-47, Item IV-E-4] responded that auto-ignition is not ordinarily a problem when going to higher heat recovery, but it should be checked during the design process. The second vendor [Docket No. A-97-47, Item IV-E-5] has found auto-ignition to be a problem only at heat recovery efficiencies in the 80 to 95 percent range. This vendor stated that proper design of the oxidizer, if it is regenerative, can avoid auto-ignition problems even at higher efficiencies by providing for transfer of the heat of auto-ignition to the combustion chamber through proper flow design. In spite of the high heat recovery efficiencies reported by some facilities in the database and the potential for designing recuperative oxidizers to avoid auto-ignition problems, we agree there is still the potential of auto-ignition problems for certain organic compounds used in the metal coil coating industry. Hence, we followed a conservative approach in reevaluating the assumptions used in costing replacement oxidizers. Replacement oxidizers are assumed to achieve a heat recovery of 60 percent versus the 50 percent heat recovery of baseline oxidizers. This number is based on our review of the database balanced by information provided by oxidizer vendors and is appropriate for impact analysis. In actuality, some sources may achieve higher recovery and some lower.

(5) In determining whether an existing oxidizer would be upgraded or replaced, we assumed that the useful life of an oxidizer is 15 years (see Response 1 above); therefore, as the commenter suggests, older oxidizers are assumed to be replaced and costs have been allocated accordingly. Regarding the commenter's concern with the ability to upgrade an existing oxidizer to accommodate increased air flow, as is explained in response to Comment 2.2.2, to account for specific situations where the addition of PTE will result in increased flow requirements, concentrators have been sized and costed. A concentrator will pretreat the exhaust stream and result in a stream with reduced flow and higher organic concentration being routed to the existing oxidizer, serving to potentially increase the oxidizer destruction efficiency through increased residence time and the higher organic concentration in the inlet stream.

Table 7-4 in Appendix B presents a summary of the revised oxidizer replacement costs for coil coating solvent-borne model plants. This is a revision of Table 7-4 from the background information document (EPA-453/P-00-001, April 25, 2000 [Docket No. A-97-47, Item III-B-1]) for the proposed Metal Coil Surface Coating NESHAP. The revised oxidizer replacement costs show that estimated incremental capital costs of replacing existing thermal oxidizers will range from $132,932 for Model Plant 1, one oven, to $254,820 for Model Plant 4, 2 ovens, and the associated incremental annual costs for these model plants, respectively, will range from $40,542 to $111,745.

2.3.3 Heat Loss

Comment: One commenter (IV-D-4) states that EPA has assumed much higher heat loss than what actually occurs from the process exhaust stream in BID section 7.2.2. The commenter offers that in reality insulated process exhaust ductwork will be used to maintain higher process temperatures and to protect personnel.

<u>Response:</u> The estimated heat loss between the oven and oxidizer is not an assumption but is based on ICR responses. A typical temperature drop of 20 °F between the exhaust from the oven and the control device inlet was reported by several operators. Therefore, this value was used to reduce the temperature between the oven outlet and the inlet to the oxidizer for each model plant.

2.3.4 <u>Cost Effectiveness and Economic Impact of 98 Percent OCE Standard</u>

<u>Comment</u>: Two commenters (IV-D-8 and IV-D-13) claim that it is not cost effective to push the existing source OCE limit to 98%. The commenters state that the incremental cost of increasing the OCE limit from 95% to 98% is approximately $35,000/ton HAP removed whereas the incremental cost of moving from the current baseline to 95% control is approximately $5,000/ton HAP removed based on an economic assessment done by Commenter IV-D-8's contractor.

Commenter IV-D-8 states that EPA's failure to develop cost effectiveness information in its economic analysis stems from its use of an "affordability" measure to evaluate economic consequences of the 98% OCE limit. This affordability measure compares the level of costs imposed by the regulation against the revenues of the affected industries. This test is intended to measure whether the industry can "afford" the financial costs of the standard. Separate measures are calculated using revenues from the sale of metal coils (i.e., metal substrate and coil coating services) and revenues to coil coater companies alone. The commenter claims that such a test is inconsistent with standard principles of economic evaluation of proposed regulations as outlined in EPA and OMB guidelines and fails to provide adequate information to evaluate the economic prudence of undertaking the proposed regulations for the following reasons:

(1) It fails to consider the benefits of the proposed regulation. Failure to consider such benefits may lead to the imposition of a standard whose costs exceed or are disproportionate to the benefits received from implementation of the standard. EPA's affordability test fails to provide any evidence that the additional expenditures on controls by industries and consumers would be warranted by the level of benefits achieved. The commenter's discussion of this concern equates "benefits" to "emission reductions."

(2) It fails to consider incremental costs. Use of an affordability test fails to provide information on the incremental costs of alternative regulatory standards. Consequently, it fails to provide any information on the prudent choice between alternative regulatory standards.

(3) It provides limited information on industry impacts. As a measure of impacts to the affected industry, EPA's cost-to-revenue test does not provide a reasonable test of the financial impacts to the affected industry. First, the test considers costs relative to overall revenues rather than

profit margins (i.e., the difference between revenues and operating costs), which is a truer measure of financial impact to the firms. Second, the measure compares increases in only one component of costs against all revenues. By this measure, most standards would lead to "small" costs since there are many cost components to the operations costs of any particular industry. As a result, it is not clear what level of impacts would be "significant," nor does EPA provide any information as to levels of impacts it would consider significant.

(4) In addition to these conceptual problems with the use of an affordability test, EPA's evaluation of the economic impacts of the proposed 98% OCE limit may provide an inaccurate measure due to underestimation of the costs of the proposed regulation. EPA states that the ratio of costs to coil coater revenues would be 0.8% based on EPA's estimate of the cost of the proposed limits. Using the contractor's estimate of the cost of a 98% OCE limit, the ratio of costs to coil coater revenues would be about 2.8%. An impact of this magnitude could significantly impact many firms, particularly given that many firms will experience costs that are higher on average than 2.8%.

<u>Response</u>: Regarding the basic premise of the commenters' claim that it is not cost effective to push the existing source OCE to 98 percent, Section 112(d) of the Clean Air Act directs the EPA to develop standards that require the maximum degree of reduction in emissions of HAP that is achievable, which are commonly referred to as MACT standards. For existing major sources, the CAA requires MACT to be no less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources among the data available to the Administrator. This minimum stringency level for existing sources is referred to as the "MACT floor."

As documented in the preamble to the proposed regulation (65 FR 44622-44623, Tuesday, July 18, 2000), all of the best-performing 12 percent of existing sources use thermal oxidizers and eight of the facilities report achieving 100 percent capture of application station emissions through the use of permanent total enclosures. The average reported OCE of the MACT floor facilities is 99.4 percent. However, because of concerns with the achievability of such a high level of control under variations in source operating conditions and inlet loadings to the control device, we reviewed literature and information from vendors and determined that 98 percent destruction is in practice a more achievable control efficiency for thermal oxidizers. Therefore, a 98 percent sourcewide coating line OCE, based on 100 percent capture efficiency of PTE and 98 percent destruction efficiency of thermal oxidizers, was determined to be the MACT floor for existing sources. Hence, the existing source OCE was not "pushed to 98 percent", but rather was determined to be the MACT floor using data available to the Administrator. Overall control efficiency limits less stringent than the MACT floor level of 98 percent could not be considered as regulatory alternatives, and therefore, evaluations of the incremental cost per ton of emission reduction of reaching 98 percent from lower levels of control are not relevant. Consequently, the Agency's economic impact analysis was conducted only for the MACT floor level of 98 percent OCE. The appropriate cost effectiveness analysis considers the cost of reducing HAP emissions at the MACT floor level of control compared to the baseline level rather than the increment between 95 percent and 98 percent OCE which the commenters suggested. The MACT floor analysis results in a cost effectiveness of approximately $4,500/ton HAP removed.

Responses to the other economic analysis issues raised by the commenter are as follows:

1) Comment re failure to consider benefits of proposed regulation: We note that the commenter's reference to "benefits" is actually a reference to "cost-effectiveness." Benefits analysis involves the quantification and monetization of the improvements in environmental quality (e.g., human health and welfare effects) whereas cost-effectiveness analysis measures the compliance costs of acheiving specific emission reductions. These analyses are distinct and should not be confused. The cost-effectiveness analysis of the MACT floor level of 98 percent OCE results in a cost-effectiveness measure of approximately $4,500/ton HAP removed, which is well within the range estimated for many other NESHAP. This further confirms the reasonableness of the level of the standard.

2) Comment re failure to consider incremental costs: As discussed above, the only relevant cost-effectiveness measure is that for the MACT floor level of control compared to the baseline level of control because there is no regulatory alternative. The economic impact analysis must address the issue of "affordability" of the MACT floor level of control. The economic impact analysis conducted in support of this MACT standard follows the same approach as those conducted in support of previous MACT standards and is consistent with EPA and OMB guidance and policy.

3) Comment re providing limited information on industry impacts: We agree with the commenter that "the relationship of costs to profit margins (i.e., revenues minus operating costs) will provide a more reliable measure of impacts than the relationship of costs to revenues." However, data on profits for manufacturers covered under this source category were not available nor are these data typically available for other MACT source categories. In lieu of profits data, we used the cost-to-sales ratio as an impact measure here as it has been used previously for economic impact and SBREFA screening analyses. We compared the cost-to-sales ratios to profit margins for the metal coil coating industry to gauge the significance of the economic impact. This approach is consistent with the approach outlined by the commenter, and it provided no evidence of a significant economic impact of this regulation. The use of cost-to-sales ratios is consistent with EPA and OMB guidelines as evidenced by its inclusion as one of the "recommended quantitative criteria for evaluating economic impacts on small entities" in the *EPA Interim Guidance for Implementing the Small Business Regulatory Enforcement Fairness Act and Related Provisions of the Regulatory Flexibility Act* (EPA, 1997f).

As discussed in the proposal BID, the cost-to-sales analysis completed for this source category includes an analysis of many cost components. Based on our compliance cost estimates, the economic impact analysis found that these costs represented roughly 0.2 percent of the revenues from coated metal coils, which indicates little or no changes in market price and output. Furthermore, the regulatory costs are also expected to represent only 0.8 percent of the computed value of coating services ($150 per ton of coated metal coil), which does not indicate the cost of coating operations will increase sufficiently to cause producers to cease or alter their current coating operations.

4) Comment re underestimation of the costs of the proposed regulation providing an inaccurate measure of economic impacts of a 98 percent OCE limit: The responses to comments in Section 4.1.2 of this document describe the revised cost analysis conducted in response to public comments. The economic impact analysis was also revised to account for the revised cost of the standard. Based on the revised costs, the ratio of cost to revenues is 0.2%. The commenter's estimate of cost to revenues considers only the cost of complying with the 98 percent OCE limit, which assumes that all facilities would be upgrading or installing new control systems to comply with the standard. We considered the other compliance alternatives provided in the NESHAP as well which allow a source to meet the standard with less efficient control systems, or even with no add-on controls at all, if sufficiently low-HAP coating materials are used. Thus, our cost estimates are based on the least-cost alternative to achieve the standard that the sources are likely to use.

2.4 NATIONWIDE COST EXTRAPOLATION

2.4.1 Nationwide Cost

Comment: One commenter (IV-D-8) notes that Preamble Section VII(D) (65 FR 44621) and BID Section 1.3 provide EPA's estimates of the nationwide incremental costs to implement the rule. At proposal, EPA estimated that a nationwide total capital investment of $11.6 million and a total annual cost of $5.9 million would be incurred by the coil coating industry. The commenter strongly disagrees with these cost estimates and cites data from an economic assessment done by their contractor which determined the incremental annual cost for 13 coating lines selected as a representative cross-section of the industry. The average annual incremental cost for these lines was approximately $372,000. Based on these estimates, the total annual incremental costs for the coil coating industry are projected to be approximately $20.8 million. This is over 3 times higher than the $5.9 million annual cost estimated by EPA.

Commenter IV-D-8 also notes that BID Section 7.3 presents the methodology and assumptions used to project model plant costs to nationwide costs. The commenter notes the following list of assumptions that should be modified:

1) EPA calculates the incremental cost by subtracting a baseline cost from the upgrade or replacement cost. This assumes that the replacement or upgrade would have been necessary for continued compliance with the VOC standards, even in the absence of the new coil NESHAP. This assumption is not correct, given the less stringent VOC standards (RACT at 81% OCE and NSPS at 90% OCE) and the proven track record of oxidizer operating life well beyond the 15 years assumed by EPA.

2) Nationwide costs are extrapolated by multiplying the model plant costs by the ratio of the total HAP emissions reported by all facilities in the MACT database divided by emissions from all plants covered by the model plant analysis. This assumes that EPA has collected HAP emission data on all existing coil coating lines in the country, which is likely not the case. Therefore, this procedure will underestimate nationwide HAP control costs.

3) EPA estimates monitoring, reporting and record keeping costs by amortizing certain "one time costs" over a 15-year period and then adding the annual cost of compliance demonstrations, reports, and record keeping. One of the significant elements of the "one time cost" is a control system performance test. Most permitting agencies would require testing at a frequency greater than 15 years; therefore, this estimate is likely understated.

Commenter IV-D-8 states that these factors have contributed to the significant underestimation of the nationwide cost of the coil NESHAP. The commenter proposes that EPA modify or eliminate the assumptions and recalculate the nationwide total capital investment and annual incremental cost.

Response: We reviewed our cost estimates and have made several revisions that have increased the capital and annual costs. The nationwide cost estimates have been revised to incorporate the revised MACT floor costs associated with adding PTE (see response to Comment 2.3.1), upgrading or replacing existing oxidizers (see response to Comment 2.3.2), and installing new condenser systems (revised on basis of increased flow rate to the control device). The revised MACT floor costs reflect the following revisions in response to comments: (1) increased air flow of 50 percent for each model plant, (2) no discount for second incinerator, (3) 60 percent heat recovery for the replacement oxidizer, and (4) increased costs for permanent total enclosure (PTE) auxiliaries (from 50 to 80 percent of capital cost of PTE) to account for the need for explosion-proof fixtures. In addition, costs have been added to account for the increased flow required by some PTE to maintain OSHA personal exposure limits (PELs) required for worker safety and health. The estimation of the incremental control costs associated with the increased ventilation required for some PTE is described in response to Comment 2.2.2.

To estimate the number of facilities requiring increased flow through the PTE for the purpose of determining the incremental nationwide cost impact, the metal coil coating MACT database was examined to determine the number of facilities reporting the use of PTE with extra ventilation to capture emissions from the coating application station. Of 41 facilities reporting the use of PTE, 7 reported also using extra ventilation, or 17 percent of the facilities with PTE. Of these 7 facilities, 5 facilities provided sufficient information on coatings material usage to determine the model plant category that would apply. One facility would be represented by one Model 1, two by one Model 2, and two by one Model 3. No facility in the Model 4 (large) size category reported the use of PTE with extra ventilation.

In evaluating the measures that would be required of facilities in the MACT database to comply with one of the control options, we projected that 21 facilities (with 37 lines) would require the addition of 62 PTE to existing emission control systems to comply with either the facility OCE or the emission rate limit. Assuming that 17 percent of these 21 facilities would require extra ventilation yields an estimate of 4 facilities that would require extra ventilation and would incur the associated costs. To estimate nationwide costs, we assumed that the extra ventilation costs would be incurred by one facility represented by Model 1, two facilities represented by Model 2, and one facility represented by Model 3 (2 ovens).

Table 7-6 in Appendix B presents a summary of the revised metal coil surface coating model and nationwide compliance costs. This is a revision of Table 7-6 from the background information document (EPA-453/P-00-001, April 25, 2000 [Docket No. A-97-47, Item III-B-1]) for the proposed Metal Coil Surface Coating NESHAP. The revised nationwide total costs for all plants show an increase in capital costs to $18.1 million from the $11.6 million estimated at proposal and an increase in annual costs to $7.6 million from the $5.9 million estimated at proposal.

Regarding the list of assumptions that the commenter recommended should be modified, these assumptions have not been changed, for the following reasons. The commenter asserts that calculating incremental cost by subtracting a baseline cost from the upgrade or replacement cost assumes that the replacement or upgrade would have been necessary for continued compliance with the VOC standards, even in the absence of the new coil NESHAP. No assumption concerning continued compliance with VOC standards was made. Incremental costs were calculated from a baseline level of control that represents the average level of control being attained by facilities in the MACT database, which reflects the requirements of operating permits that may be more stringent than federally enforceable requirements (e.g., two floor facilities are permitted at greater than 98 percent OCE). Estimating upgrade costs as the difference between baseline and the MACT floor level of control is a technique for deriving incremental costs when detailed site specific data are not available. Similarly, estimating incremental costs for replacement of an oxidizer that has served its expected life is a method of apportioning the replacement cost between the burden imposed by the more stringent MACT floor requirements and the baseline level of control. The assumption of a 15 year oxidizer useful life is addressed in Response 1 of Section 2.3.2.

With respect to using total HAP emissions reported by facilities in the database to extrapolate model plant costs to nationwide costs, EPA believes that most metal coil surface coating facilities in the country are in the database; therefore, any facilities omitted would lead to a small underestimation of nationwide costs. In developing the database, a total of 110 companies performing metal coil surface coating operations were identified through literature sources (including background information for the Metal Coil Surface Coating NSPS) and stakeholder contacts (including the National Coil Coating Association and The Aluminum Association). Survey questionnaires were sent to each of these companies in the summer of 1998. The intent of the survey was to acquire data on HAP use and emission control in metal coil surface coating operations and associated ancillary activities such as storage of HAP-containing materials in tanks, wet section operations, equipment cleaning, and wastewater treatment. Responses were received from 119 facilities, of which 26 indicated that the facilities are not coil coaters, 2 provided information showing that the facility only coats foil, and 2 were not in operation in 1997. Therefore, 89 coil coating facilities returned completed questionnaires; 14 companies did not respond to the questionnaire. The results of the data collection efforts provided the 89 facilities that constitute the MACT database.

Finally, regarding the assumption that the control system performance test is a "one time cost" over the 15-year life of the oxidizer, the NESHAP only requires an initial performance test. Any subsequent testing would not be a result of the NESHAP requirements, but would be at the discretion of the permitting authority. Therefore, the cost of performance testing subsequent to the initial performance test was not attributed to the Metal Coil Surface Coating NESHAP.

2.4.2 Facilities Requiring Upgrades

Comment: One commenter (IV-D-8) noted that Section 6.3 of the proposal BID includes a discussion of the number of facilities in EPA's MACT database that would be required to reduce HAP emissions to meet the coil NESHAP emission limits. The commenter questions two of the assumptions used by EPA in determining how many facilities will have to make control system upgrades. First, EPA assumed that ten of the facilities would pursue synthetic minor permits and be exempt from the coil NESHAP. The commenter believes there is no certainty in this assumption, as changes in market demand and/or product mix at a facility may require it to pursue a major source Title V permit. Second, EPA estimated that 26 facilities would be in compliance with the OCE or emission rate limit in the coil NESHAP. The commenter believes there are insufficient data to determine whether a facility will be able to comply with the monthly average requirements of the emission rate approach. The basis for this statement is that the ICR data represent annual average emissions of HAP per solids applied and the equivalent emission rate limit, as proposed, will be enforced on a monthly basis. Variation in the product mix on a month-to-month basis could cause monthly average HAP emissions to spike significantly above the annual average and eliminate this compliance option for many facilities, especially toll coaters who do not control the selection of coatings that they apply. The commenter proposes that the assessment of facilities requiring upgrades should be based on meeting the 98% OCE floor. The commenter's assessment of control system upgrades indicates that approximately 90% of the production lines will require upgrades.

Response: In determining the number of facilities requiring upgrades, the ten facilities that the commenter describes as "pursuing synthetic minor permits" was the number of facilities in the MACT database reporting being already permitted as synthetic minors. An examination of the actual HAP emissions reported by other facilities in the MACT database indicated that several seem to have the option of establishing operational limits in the Title V permit and "permitting out" of the NESHAP requirements. However, we recognize that some facilities may have concerns with establishing operational limits and thereby limiting operating flexibility; therefore, we made no assumptions as to which facilities will choose to be permitted as synthetic minor sources and, therefore, be exempt from the control requirements of the NESHAP.

Regarding the estimate that 26 facilities in the database would be able to comply with either the 98 percent OCE or the emission rate limit, the commenter has a valid point that basing the assumption of whether a facility can comply with the emission rate limit during monthly compliance periods on annual emission rate data does not account for monthly variations in product mix resulting in emission rate spikes that would be out of compliance. As explained in response to comments in Section 3.4.3 of this document regarding the averaging period for the emission rate limit, the averaging period has been revised to a 12-month rolling average. In addition, as is also explained in response to comments in Section 3.4.3, the proposed emission rate limit of 0.24 lb of HAP per gallon of solids applied has been revised to 0.38 lb of HAP per gallon of solids applied. These two revisions to the emission rate limit make the limit less stringent and will accommodate sources that experience significant variation in coating mix from one month to another since the emissions can be averaged over a 12-month period.

In reevaluating the number of facilities requiring upgrades, the revised emission rate limit of 0.38 lb/gal solids is already being achieved by an additional 3 facilities over the number that would have achieved the proposed limit of 0.24 lb/gal solids, based on information in the MACT database. However, each of these facilities has an emission rate between 0.32 and 0.35 lb of HAP per gallon of solids applied. Therefore, small changes in the product mix or coating formulation could lead to each of these facilities being required to take measures to reduce HAP emissions to comply with the NESHAP. In reevaluating the nationwide costs impacts, we used a conservative approach of assigning costs of adding or upgrading emission control systems to these 3 facilities to account for potential enhancements needed to comply with the final NESHAP requirements.

In conclusion, we believe that our determination of the number of facilities that will require upgrades to comply with the NESHAP appropriately reflects the data and information available to us. Therefore, we did not adjust this number when evaluating the impacts of the final standard.

2.5 ENVIRONMENTAL IMPACTS

2.5.1 Nationwide Emissions Estimate

Comment: One commenter (IV-D-8) notes that Preamble Section VII(A) (65 FR 44620) and BID Section 6.3 state that implementation of the final coil NESHAP will reduce HAP emissions by approximately 55%. The commenter estimates that the actual HAP reductions in the regulated activities (the coating application and curing process) that would be achieved by the 98% OCE limit is approximately a 77% reduction from the baseline emission rate. This emission reduction is much more aggressive than the projected emission reductions achieved by any of the surface coating NESHAPs already promulgated, and further supports setting the OCE limit at 95%. A 95% OCE limit will reduce HAP emissions from regulated activities by approximately 55%, which is still at the upper end of the range of emission reductions projected for the other surface coating NESHAPs.

Commenter IV-D-8 believes that EPA's estimated emission reductions are too low because the Agency's assessment relies on several questionable assumptions. The most significant assumption is that there is adequate information to determine that facilities are in compliance with the equivalent emission rate limit. The commenter stresses that the data from the ICR responses are annual totals of HAP applied, solids applied, and overall control efficiency, and that any calculation of pounds of HAP emitted per gallon of solids applied represents an annual average. Since the emission limit, as proposed, will be enforced on a monthly basis, the annual average calculation does not truly indicate the facility's compliance status with the proposed limit. If there is significant variability in the types of coatings applied on a month-to-month basis, the monthly emission rate could spike significantly above the annual average during any given month and preclude the use of the equivalent emission rate compliance option. The commenter proposes that EPA base the emission reductions and economics on the worst-case scenario of compliance with the OCE limit. When limiting the assessment to compliance with the OCE limit, the commenter calculated a 77% reduction in HAP emissions from regulated activities when the 98% OCE limit is applied.

The commenter evaluated the ICR data to determine percent reductions in regulated activities (the coating application and curing process) that would be achieved under 95% and 98% OCE MACT compliance options. Results of the analysis were that at a 98% and a 95% OCE, percent reductions from the baseline were 77% and 55%, respectively. The commenter then compared these projected reductions to reductions achieved by other surface coating NESHAPs to determine if the commenter's proposed OCE emission limit (95%) was consistent with other standards. The commenter states that the average percent reduction achieved by other surface coating NESHAPs (shipbuilding, printing/publishing, magnetic tape, aerospace, and wood furniture) is 45%, which is less than the percent reductions estimated for the commenter's proposed 95% OCE limit, and is roughly half of the percent reduction that would be forced by EPA's 98% limit. The commenter stresses that the 98% limit generates a percent reduction (77%) that substantially exceeds the most aggressive reduction (59% for wood furniture) achieved by the existing surface coating NESHAPs. The commenter further states that the average baseline HAP emissions for this group of coating industries was approximately 59,000 tons per year. This average is more than 20 times higher than the projected baseline HAP emissions for the coil coating industry. The commenter asserts that one of the reasons the baseline for coil coating is so low is that the industry has been extremely efficient at controlling its VOC and HAP emissions even before the MACT program was enacted. Furthermore, the commenter states that none of the five previously promulgated surface coating NESHAPs require an OCE above 95%. The commenter concludes that given these statistics, it is inappropriate to set a coil coating OCE limit that drives emission reductions well beyond the average achieved by other surface coating NESHAPs, especially considering the magnitude of coil coating HAP emissions compared to other surface coating industrial sectors.

Response: The commenter has a valid point that basing the assumption of whether a facility can comply with the emission rate limit during monthly compliance periods on annual emission rate data does not account for monthly variations in product mix resulting in emission rate spikes that would be out of compliance. As explained in response to comments in Section 3.4.3 of this document regarding the averaging period for the emission rate limit, the averaging period has been revised to a 12-month rolling average. In addition, as also explained in response to comments in Section 3.4.3, the proposed emission rate limit of 0.24 lb of HAP per gallon of solids applied has been revised to 0.38 lb of HAP per gallon of solids applied. These two revisions to the emission rate limit should make it a more viable option for metal coil coating facilities to comply with the NESHAP.

We believe that the analysis of potential to comply with any of the compliance alternatives for the purpose of impacts analysis is appropriate. The alternative emission rate limit is a viable option and is encouraged for its pollution prevention potential. With the revision of the level and averaging time of the emission rate limit, the HAP emission reduction achieved by this NESHAP is estimated to be 53 percent. The commenter's comparison of the baseline emissions and percent reductions attributed to other surface coating NESHAP is not relevant for determining MACT, particularly the comparison of the metal coil estimates to the average for 5 other NESHAP. Each NESHAP is developed independently and reflects the MACT level of control for that specific source category, regardless of how the emission reduction achieved compares to that for other NESHAP.

2.5.2 <u>HAP Emission Reduction</u>

<u>Comment</u>: One commenter (IV-D-8) notes that Preamble Section VII(A) (65 FR 44620) and BID Section 1.2 provide estimates of the total baseline HAP emissions and reductions that will occur when the final rule is implemented. EPA estimates baseline emissions at 2,484 tons per year and projects a 55% reduction in that baseline (1,366 tons per year) when the MACT rule is implemented. The commenter calculated baseline HAP emissions of 1,852 tons per year from the regulated processes (coating application and curing) operated by the 95 coil coating lines included in their database. When the number of lines is extrapolated to the projected industry-wide total of 133 lines, the baseline emission rate for the regulated processes is projected at 2,592 tons per year.

The commenter adds that EPA's projected reduction of 55% appears to be based on using the least restrictive reductions necessary to achieve either the 98% OCE or equivalent emission rate compliance options. The commenter believes that there is insufficient data to determine the emission reduction required to meet the equivalent emission rate limit. Therefore, the commenter's estimated reduction was based only on achieving 98% OCE and is estimated at 77%. Using the coating application and curing baseline emissions of 2,592 tons per year, this generates a projected emission reduction of 1,988 tons per year. The commenter notes that the estimated annual reductions are important to determine the economic impact of the proposed rule, and it appears that EPA has significantly underestimated this statistic. The commenter believes that the Agency should be consistent in its methods for determining emission reductions and should not rely on speculation of the annual reductions that will be achieved with the emission rate approach.

<u>Response</u>: Regarding the estimate of total baseline HAP emissons, the surveyed facilities were asked to provide facility HAP emissions from metal coil surface coating operations as well as HAP emissions from the specific unit operations associated with metal coil surface coating. Total nationwide HAP emissions were calculated to be 2,484 tons in 1997 by adding all the facility HAP emissions reported by the MACT database facilities.

The projected HAP emission reduction (55% for the proposed rule; 53% for the final rule) is based on assuming that sources would choose the least costly means necessary to achieve either the facility 98% OCE or the equivalent emission rate compliance option through upgrading or installing add-on emission control systems. We examined the average facility emission rate and the facility OCE for each facility and determined the least costly measure needed to reach compliance. For example, if a facility reported a 98 percent efficient thermal oxidizer but less than 100 percent capture efficiency, then we assumed the facility will need to install PTE's on application stations to meet the 98 percent OCE. Regarding the validity of the assumption that a facility will choose the least costly compliance option, we believe it is reasonable to assume that some facilities will choose the emission rate limit as the least costly compliance option, particularly since it has been made less stringent than the proposed limit. As explained in the response to Comment 2.5.1, the revisions to the emission rate limit will result in a revised estimated HAP emission reduction of 53%.

2.5.3 VOC Emission Reduction

Comment: One commenter (IV-D-4) notes that the same air pollution control devices used for HAP emissions can often substantially reduce VOC emissions, and that while the coil NESHAP must be primarily focused on HAP reductions, EPA should recognize this regulation as providing an efficient mechanism for addressing multi-pollutant problems (e.g., persistent problems with tropospheric ozone). The commenter states that it is noteworthy that some states already require approximately 90 percent control of VOCs for coil coating operations and that some of the largest numbers of existing metal coil coating facilities are located in areas with persistent ozone non-attainment problems (as an example, the commenter estimates that approximately 16 percent of all affected facilities are in Pennsylvania) or are implicated in transport of ozone and its precursor pollutants (i.e., VOCs). The commenter notes that quantification of VOC reductions resulting from this proposal is likely to provide additional support for any increase in stringency of the MACT limits and should provide states with a valuable planning tool for reducing public exposure to tropospheric ozone. The commenter adds that, at a minimum, any change to higher VOC coatings to comply with the proposed HAP emission standard should be discouraged by application of this NESHAP.

Response: We agree that the emission control systems (predominantly thermal oxidizers) used to reduce HAP emissions also reduce non-HAP VOC emissions to the atmosphere. Since the MACT database does not contain information on non-HAP VOC emissions, the reduction of VOC emissions cannot be quantified; however, many of the HAP compounds contained in materials used for metal coil coating are also VOC. Therefore, as was noted in the proposal preamble (65 FR 44621, Tuesday, July 18, 2000), the percent reduction in VOC emissions should be similar to the percent reduction in HAP emissions, i.e., about 53%. Although it is not our intent to encourage the substitution of non-HAP VOC for materials regulated by the NESHAP, the NESHAP does not prohibit such substitution.

2.5.4 Greenhouse Gas Emission Increase

Comment: Four commenters (IV-D-8, IV-D-9, IV-D-13, and IV-D-16) state that the 98% control efficiency requirement would create increases in greenhouse gas emissions from fuel combustion for the control equipment operation compared to the 95% efficiency recommended by the industry.

Commenter IV-D-8 states that the incremental increase in natural gas combustion when moving from a 95% to 98% OCE limit is +65%, while the rate of HAP removed only increases by 3% more of the pre-control HAP emissions. The commenter notes that environmental impacts of the proposed rule are discussed in preamble Section VII(B) (65 FR 44620-621) and that BID Section 6.3 presents EPA's assessment of air pollution impacts. The commenter states that neither of these sections acknowledges the substantial increase in both greenhouse gases and tropospheric ozone emissions (NO_X, CO2, CO, etc.) that will occur when the industry applies control system upgrades necessary to achieve 98% OCE.

Commenter IV-D-8 evaluated the control system upgrades for each coil coating line in the MACT database to estimate the increased supplemental fuel demand (natural gas) to control HAP emissions at 98% OCE (See Comment 2.6.1). These flow increases were determined by estimating the amount of additional air flow that would be required above the baseline air flow by the enhanced capture systems needed to achieve both 95% and 98% OCE. In addition, it was assumed that existing catalytic oxidizers would have to be retired because they would be incapable of continuously meeting 98% destruction efficiency. Conversion from catalytic to thermal recuperative oxidizers also contributed to the increased supplemental fuel demand.

The increases in flow directed to the thermal oxidizers and associated supplemental fuel (natural gas) needed to treat this excess flow were analyzed by the commenter using a thermodynamic heat balance. The increased natural gas demand of thermal oxidizer replacements for lines currently relying on catalytic oxidizers was also calculated. The results of the thermodynamic heat balance performed by the commenter are as follow:

	Percent Change between OCE Limits		
Change in Pollutant Removal or Generation Rate	Baseline to 95% OCE Limit	Baseline to 98% OCE Limit	95% OCE to 98% OCE Limit
HAP Removed	+4.5%	+7.8%	+3.2%
NO_x Generated	+5.2%	+74%	+65%
CO_2 Generated	+5.2%	+74%	+65%

The commenter submits that the industry-wide change in secondary emissions when moving from a 95% to 98% OCE limit is approximately 233 tons per year additional NO_X and 279,000 tons per year additional CO_2, while removing only 3.2% more of the pre-control HAP emissions. The commenter claims that this represents a 74% increase over the baseline values for these greenhouse gases. The commenter further claims that the incremental increase in gas combustion is 4,653 mmscf/yr. The commenter asserts that controlling beyond the 95% OCE limit to reduce HAP emissions below levels that already achieve acceptable health risks comes at a price of substantial increases of greenhouse gas emissions.

Response: We do not agree that the increase in greenhouse gases (NO_X and CO_2) resulting from the NESHAP will be significantly more than was estimated at proposal. As explained in the response to

Comment 2.6.1, our re-analysis of fuel consumption resulted in an estimated increase beyond baseline levels of about 170 million standard cubic feet per year of natural gas usage that could occur due to compliance with the NESHAP. This is significantly lower than the commenter's estimate of the increased natural gas usage resulting from achieving a 98% OCE rather than a 95% OCE (by a factor of about 27). Our estimate of increased natural gas combustion also yields an estimate of much lower greenhouse gases than the commenter's estimate (about 3% increase rather than the commenter's 74% increase). We have also estimated the mass of greenhouse gas emissions resulting from the increased natural gas consumption. The emissions are based on the following emission factors for gas turbines from AP-42 (AP-42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 3.1 Stationary Gas Turbines, Supplement F, April 2000, www.epa.gov/ttn/chief/ap42/ch03): 0.32 lb NO_X / 10^6 Btu and 110 lb CO_2 / 10^6 Btu. Applying these factors to the increased natural gas consumption of almost 170 million standard cubic feet per year yields estimated emissions of 27.7 tons of NO_X and 9,520 tons of CO_2, also much lower than the commenter's estimates.

Our estimated impacts on energy usage and greenhouse gas emissions are significantly lower than the commenter's for the following reasons. First, as explained in response to Comments 2.4.2 and 2.5.2, we have assumed that a facility will choose the least costly compliance option that can be achieved through upgrading or installing add-on emission control systems. A facility choosing to comply with the emission rate limit will not have to attain a 98% OCE, and therefore, will not increase natural gas consumption and the associated greenhouse gas emissions as much as has been assumed by the commenter. Second, as described in response to Comment 2.2.2, we have reviewed information contained in the MACT data base regarding control measures including PTE, hoods, oven extensions, and extra ventilation to the control device, and determined that 17 percent of facilities reporting the use of PTE also report the use of additional ventilation. In addition, for the situations where extra ventilation is required, we have assumed the facility will install a concentrator, which will reduce the amount of air being treated by the oxidizer and the fuel required for stable combustion. Third, as explained in response to Comment 2.6.1, we believe the two catalytic oxidizers in the MACT database that will need to achieve 98 percent destruction efficiency to comply with the NESHAP can be upgraded to that level. Finally, our analysis of the increase in natural gas usage required to comply with the emission limits of the NESHAP indicates that some plants currently use an excess of natural gas beyond what is required for combustion of the solvents in the flue gas. The additional natural gas currently being consumed is required for flame stabilization and is sufficient to also provide 98 percent OCE.

2.5.5 Solid Waste Increase

Comment: One commenter (IV-D-8) notes that BID Section 6.5 presents EPA's assessment of the possible increases in solid waste generation by implementing the coil NESHAP. The commenter states that EPA's discussion is limited to a possible increase in spent catalyst from oxidizer upgrades. The commenter expresses concern that in the absence of a compliant coating option, water-borne plants may have an incentive to operate with solvent-borne coatings again. The commenter states that if this occurs, there will be a significant increase in the amount of spent-solvent hazardous wastes generated both by the coating line in its cleanup operations and by the coating suppliers in their formulation operations. The commenter adds that if EPA does not include a compliant coating option, the solid waste impact section should acknowledge the potential increases in spent solvent waste streams from possible back-tracking on water-borne coating development.

Response: The proposed and final rules do include a compliant coating option. As noted above and explained in response to comments in Section 3.4.3 of this document, the emission rate limit has been changed in the final rule so that it is less stringent than the proposed limit. First, the averaging period has been revised to a 12-month rolling average. Second, the proposed emission rate limit of 0.24 lb of HAP per gallon of solids applied has been revised to 0.38 lb of HAP per gallon of solids applied. These two revisions to the emission rate limit should make it a more viable option for metal coil coating facilities to comply with the NESHAP through the use of compliant coatings without controls or through the use of waterborne coatings and a solvent recovery system such as a condenser system. Therefore, we do not expect facilities currently using waterborne coatings to convert to solvent-borne coatings and have not conducted an analysis to estimate any increases in solid waste that would result from such conversion.

2.5.6 Non-traditional Coating Materials

Comment: One commenter (IV-D-8) notes that BID Section 3.3 characterizes Kynar®, which is a polyvinylidene fluoride (PVDF) coating, as a non-traditional material used by the coil coating industry. The commenter states that the members of the coil coating industry association report that PVDF coatings are becoming a standard paint specified for certain building products and their use is expected to increase significantly. This is important because PVDF coatings will be very difficult to reformulate to a low HAP content. The commenter claims that the predominant VOC in PVDF coating is isophorone, and efforts to replace it with a non-HAP substitute have not been successful to date. The commenter adds that this example confirms that because certain coatings are not amenable to low-HAP reformulation, some coil coating industry sectors will have a very difficult time meeting emission standards that were based on average HAP coating assumptions. The commenter also notes that EPA states that the average HAP content reported by all of the facilities was 16% by weight. The commenter asserts that the industry association's database yields a different average HAP percentage (approximately 20% by weight).

Response: Only one facility in the EPA MACT database reported using a Kynar® coating. Further review of the information reported in the ICR response from that facility shows the following Kynar® coating formulation: 88% solids by volume, 94% solids by weight, 0.1% HAP by weight, and 0.3% HAP by volume. Based on this formulation and information on coating density from a vendor (http://www.sdplastics.com/kynar.html, March 2001 [Docket No. A-97-47, Item IV-J-1]), the HAP emission rate for Kynar® coating use at this facility would be approximately 0.017 pounds HAP/gallon coating solids. The proposed facility emission rate limit was 0.24 pounds HAP emitted/gallon of solids applied and the final emission rate is 0.38 lb of HAP emitted/gallon of solids applied; therefore, Kynar® could be termed a "compliant coating".

We recognize that some coatings will be more difficult to reformulate to a low HAP content than others; consequently, multiple compliance options are offered to provide flexibility in the rule. Facilities that are unable to meet the OCE limit by using control devices or the emission rate limit by using "compliant coatings" can use a combination of reformulation and emission control devices to comply with the emission rate limit.

2.6 ENERGY IMPACTS

2.6.1 Natural Gas Consumption Increase

Comment: One commenter (IV-D-8) notes that Preamble Section VII(C) (65 FR 44621) and BID Section 1.4 estimate the energy impacts created by implementing the final coil NESHAP. The commenter states that EPA estimates that the nationwide incremental national gas usage will be approximately 111 mmscf/yr. The commenter also estimated nationwide annual gas usage to determine secondary emissions resulting from the rule. The commenter claims that the incremental gas consumption for the 87 lines operating with controls in the industry association's database was estimated at 3,184 mmscf/yr. When projected to an industry-wide total of 133 coating lines, the nationwide estimate of incremental gas combustion is 4,653 mmscf/yr. The commenter notes that this estimate is approximately 40 times higher than EPA's published estimate of 111 mmscf/yr in the preamble and BID. The commenter requests that EPA correct its estimate of natural gas consumption in the final rule preamble so that secondary emissions are properly accounted for. The commenter believes the primary difference relates to the following errors by EPA: 1) an assumption that no additional flow will be generated by enhanced capture systems, 2) a unit error in the model plant flow estimates, and 3) an assumption that catalytic oxidizers can continue to be operated under a 98% OCE emission limit.

Response: We agree with the commenter that the energy impact estimates should be revised to reflect adjusted values for flow rates and catalytic oxidizer parameters. As discussed in the response to Comment 2.2.2 , the estimated ventilation flows associated with the addition of PTE have been increased for portions of the industry as represented by Models 1, 2, and 3 in EPA's revised cost analysis. As discussed in the response to Comment 2.2.1 regarding oven flow rates, a unit error in flow estimates was not made. However, we reviewed the ICR responses and assigned new flow rates to the model plants. For the two catalytic oxidizers in the MACT database that we determined will need to achieve 98 percent destruction efficiency to comply with the NESHAP, we believe that they can be upgraded to that level for the remainder of their useful life. For inlet concentrations greater than 100 ppm (no facility in the MACT database using a catalytic oxidizer reported inlet concentrations as low as 100 ppm), catalytic oxidizers can achieve 95 to 98 percent destruction (Handbook Control Technologies for Hazardous Air Pollutants, EPA/625/6-91/014, June 1991 [Docket No. A-97-47, Item II-A-9]). Catalytic oxidizers capable of attaining 98 percent destruction are usually designed on a site-specific basis. Though 95 percent destruction is typical, 98 percent can be achieved through the use of larger catalyst volumes and/or higher temperatures. For the purpose of costing upgrades, the combustion temperature was increased from a baseline of 1,000 °F to 1,200 °F and catalyst volume was slightly increased. In addition, retrofit costs, part of which could be assigned to increasing catalyst volume, were assumed to add 40 percent to total capital installed costs.

With respect to the commenter's estimate of increased natural gas consumption, as noted in the proposal BID and reflected in our estimates of increased natural gas consumption, some plants will not require an increase in natural gas usage because the quantity they now use is in excess of the amount required for combustion of the solvents in the flue gas. The additional natural gas currently being consumed is required for flame stabilization and is sufficient to also provide 98 percent OCE.

Increased flue-gas flows for the model plants have led to increased energy impacts. Table 6-1 in Appendix B of this document presents a summary of metal coil surface coating model and nationwide energy impacts. This is a revision of Table 6-1 from the background information document (EPA-453/P-00-001, April 25, 2000 [Docket No. A-97-47, Item III-B-1]) for the proposed Metal Coil Surface Coating NESHAP and shows each model plant's contribution to increased natural gas usage on a nationwide basis. Summing the incremental quantities projected to apply to existing facilities covered by model plants and multiplying by 1.411, the ratio of HAP emissions reported by plants that are represented by model plants to the HAP emissions reported by all plants in the MACT database, gives a total increase in natural gas consumption of about 170 million standard cubic feet per year.

2.7 ECONOMIC IMPACTS

Comment 1: Two commenters (IV-D-8 and IV-D-9) claim that over-controlling the coil coating industry may have the unanticipated backlash of sending coating application facilities "backwards" towards less environmentally friendly, post-fabrication paint application methods of production. Commenter IV-D-8 notes that coil coating lines achieve 100% coating transfer efficiency, versus a typical value of less than 70% for spray application that is most commonly used in post-fabrication coating. Therefore, coil coating consumes far less coating to accomplish the same task, while generating much less paint waste and fewer air emissions. Commenter IV-D-8 adds that coil coating lines are already operating at a much higher level of air pollution control than the corresponding post-fabrication surface coating industry sectors, as evidenced by the much higher MACT floors proposed for these categories (e.g., miscellaneous metal parts = 2.6 pounds per gallon solids and large appliances = 1.2 pounds per gallon solids). Commenter IV-D-8 also states that surface preparation on coil coating lines minimizes waste and discharges because no metal working fluid residuals have to be removed. The industry has also implemented innovations such as "dried-in-place" chromating that generates no wastewater and very little hazardous waste.

One of the commenters (IV-D-9) questions whether an analysis has been attempted across surface coating industries to determine the national impacts of controlling pre-fabrication paint operations (such as the metal coil coating process) to efficiencies greater than post-fabrication paint operations, i.e., an analysis that seeks to discern whether regulating existing coil coaters to even higher levels of control will lead to a regressive move to less efficient and less environmentally friendly production methods.

<u>Response 1</u>: We agree that many facilities within the metal coil surface coating source category are more highly controlled than some facilities in other surface coating source categories. One would expect that emission levels achieved in source categories where control devices are less prevalent and emission reductions are achieved primarily by coatings reformulation would be higher than the emission rates seen in the metal coil source category. Many facilities in the metal coil coating MACT database are already achieving 98% OCE or the alternative emission rate limit of 0.38 lb/gal solids. Others would be able to achieve these limits with only minor adjustments to control systems or coating formulation. Therefore, we do not agree that this NESHAP would be "over controlling" the industry. Based on our economic impact analysis, the regulatory costs are expected to represent only one percent of the computed value of coating services, which does not indicate the cost of coating operations will increase sufficiently enough to cause facilities to cease or alter their current coating operations. As discussed by the commenter, coil coating has benefits over some post-fabrication coating (100% transfer efficiency, consumes less coating, fewer air emissions, and ease of achieving higher levels of control efficiency). These benefits would further support our conclusion that this NESHAP would not cause the industry to change to post-fabrication coating with its less efficient application methods; therefore, we have not conducted any analysis of such a change.

<u>Comment 2</u>: One commenter (IV-D-16), citing an economic analysis done by an economic consultant to Commenter IV-D-8, asserts that the actual incremental costs of a standard with options of 98% OCE or a 0.24 lb/gallon emission rate limit are extreme at $35,000/ton HAP removed.

<u>Response 2</u>: The economic analysis referenced by the commenter includes the incremental cost between the MACT floor of 98% OCE and their suggested OCE limit of 95%. This incremental cost analysis is invalid since 95% OCE is not a valid regulatory alternative for the MACT level of control for this source category. The appropriate cost-effectiveness analysis compares the cost and HAP reductions at the MACT floor level of control to the baseline level of control (i.e., 98 percent OCE vs. baseline). This analysis results in a cost effectiveness of approximately $4500/ton HAP reduced.

2.8 RISK ANALYSIS

<u>Comment</u>: Commenter IV-D-8 retained the services of a contractor to conduct a risk assessment to determine if reducing the OCE limit from 98% to 95% would create unacceptable health risks. The contractor used information from the industry association's ICR database to estimate dispersion model HAP emissions from each of the five model plant types established by EPA for its economic analysis.

The commenter states that the non-carcinogenic hazard quotients were less than 1.0 for all modeling scenarios. This indicates acceptable non-carcinogenic risk levels for chronic and sub-chronic exposures, even at the baseline emission rates prior to any reductions achieved by implementation of the coil NESHAP. The average hazard quotients (chronic and sub-chronic) calculated for the commenter's proposed 95% OCE limit are at or below 10% of the acceptable risk threshold. The commenter adds that although further reductions could be achieved by the implementation of EPA's proposed 98% OCE limit, they only represent a marginal improvement in an already low-risk scenario.

The carcinogenic risk assessment yielded similar results, with an average cancer risk of 1.1 x 10^{-6} for Model Plants 1 through 4 at the 95% OCE limit. Individual model plant cancer risks at the 95% OCE limit ranged from 0.35 x 10^{-6} to 2.3 x 10^{-6}. The commenter notes that given that the dispersion modeling used in the assessment was very conservative (a screening model), the actual risk could be orders of magnitude less than these estimates. The commenter stresses that there is *de minimis* risk from coil coating HAP emissions even before reductions that will be achieved by implementation of the NESHAP due to the exceptional level of emission control already employed by the coil coating industry. The commenter states that its recommended 95% OCE limit is protective of public health.

Response: Section 112(d) of the Act, under which MACT standards are developed, directs us to base MACT on what is technologically achievable considering cost, energy, and non-air quality health and environmental impacts. Air quality health impacts is not included in this list of considerations for determining the technology-based MACT level of control. In some cases, we evaluate the health risk impact of beyond-the-floor control levels to help determine if requiring such levels is warranted. However, we did not identify any beyond-the-floor control levels for the metal coil coating source category and, therefore, have done no risk analysis.

3.0 RULE REQUIREMENTS

3.1 APPLICABILITY

3.1.1 Coating Lines Covered by Multiple NESHAP

Comment 1: Two commenters (IV-D-8 and IV-D-16) note that preamble section II(B) (65FR 44617-618) states that some facilities may perform both foil and coil coating operations on the same equipment and specifies that when this situation occurs both the foil and the coil operations would be subject to the Coil NESHAP. One of the commenters (IV-D-8) submits that since a production line coating only stock <0.006 inches thick (foil) would be subject to the POWC NESHAP, which has proposed emission limits of 95% OCE and 0.20 lbs of HAP per lb of solids applied for existing lines, subjecting a foil coating operation to the Coil NESHAP would impose a much tighter emission limit. The commenter claims that this situation highlights the need for setting similar emission limits for surface coating NESHAPs that could apply to the same production line.

The commenters suggest several ways to synchronize the various MACTs. One of the commenters (IV-D-8) encourages EPA to strongly consider a 95% OCE limit for coil coating lines and an alternative emission rate described in Section 3.4.2 of this document to better synchronize the Coil NESHAP with the POWC NESHAP. Alternatively, the commenter proposes that a source be allowed to establish alternative operating scenarios in its Title V permit that would allow a coating line to switch between overlapping NESHAPs. The second commenter (IV-D-16) requests that EPA propose a 95% OCE and 0.2 lb HAP /lb solids emission rate for existing coating operations with percent solids less than an average 20 percent, consistent with the 80/20 representative coating used for both POWC and Printing rather than the representative coating of 60/40 used for the coil coating MACT. Alternatively, this commenter requests that EPA follow the guidance of the Printing MACT (61 FR 27135) and consider incidental coil coating as a separate subgroup and allow sources applying less than 500 kg of solids each month under coil to be regulated under the POWC MACT. Both commenters suggest that the governing NESHAP be based on a threshold percentage of production time, e.g., 80 percent of the activity level on a line under the POWC MACT, or total surface area coated for metal coil above or below 0.006 inches thick.

Response 1: As discussed in Section 2.3.4, the CAA directs EPA to develop standards that require the maximum degree of reduction in emissions of HAP that is achievable for each source category, which are commonly referred to as MACT standards. For existing major sources, MACT must be no less stringent than the average emission limitation achieved by the best preforming 12% of sources in the source category, which is referred to as the "MACT floor." As discussed in 3.4.2, the 98% OCE was established using data submitted by coil coating facilities on their ICR. Data from facilities in the metal coil source category indicates that 98% is MACT for this source category. Selecting a 95% OCE is, therefore, not an option for the MACT floor.

Section 3.4.3 describes how the emission rate limit for the metal coil source category was established. To arrive at the emission rate limit, we used the average volume solids reported by each MACT floor facility. We used a conservative assumption that the entire volatile fraction of the coating was HAP to determine the HAP to solids ratio for a representative coating for the metal coil industry. For proposal, this ratio was 60/40. For the final rule, we revised this ratio using the lowest solids reported by each MACT floor facility to represent the most adverse circumstance that could reasonably be expected to occur at a facility (see section 3.4.3). The resulting HAP to solids ratio is now 70/30, which based on the available data, reflects the HAP/solids mix of a representative coating for the coil coating industry. The resulting emission rate limit is 0.38lb of HAP/lb of solids. The HAP/solids ratio used to establish the proposed emission rate limit for the POWC rule and the final printing and publishing rule were based on information on coating characteristics for each respective source category and is not, according to our data, representative of coatings on average in the metal coil source category.

The commenters proposed that we allow a cutoff limit based on threshold percentage of activity for each source category which would determine the rule with which a facility would comply. Additional data analysis was done to determine the degree to which overlap occurs. Our data analysis revealed there are six facilities in the metal coil MACT database reporting coating application on substrates of thicknesses less than 0.006 inches, which would be considered foil. One facility reported the percentage of foil coating as CBI. Four facilities reported less than 25% foil coating, making coil coating the principal surface coating activity for their coating lines and would therefore not warrant special consideration under this NESHAP. However, one facility reported at least 85% of the substrate being coated as foil, making foil coating the principal surface coating activity for their coating lines. We believe that coating lines for which the principal coating activity is foil coating should be covered by the POWC NESHAP. Therefore, using the available data, we have established a cutoff for predominant use. If 85% or more of the substrate coated on a line, based on surface area, is of a thickness of less than 0.006 inches, then that line will be covered under the paper and other webs NESHAP and is not subject to the metal coil surface coating NESHAP. Facilities that may have coil and foil coated on the same line, regardless of the percentage of surface area, may opt to subject that line to the metal coil surface coating NESHAP. In addition, facilities that have metal coil and foil coated on separate lines at a facility may opt to include all lines under the metal coil NESHAP if all lines are controlled by a common control device. If for any year a line utilizing this cutoff limit and complying with the POWC NESHAP coats more than 15% coil substrate based on surface area, that line will from that point forward be subject to the metal coil NESHAP, and will no longer be able to utilize the cutoff limit option. The applicability section of the final rule has been revised to include this cutoff limit.

The commenters suggested that sources be allowed to switch between rules through their Title V permits when their coating substrate changes. To do this, sources would have to keep records of substrate and coating use separately for the POWC and metal coil rules, as well as calculations for compliance demonstrations and reports for each rule. This option imposes the unnecessary burden of complying with both NESHAP. Allowing a cutoff limit as an alternative enables facilities to comply with one of these two NESHAP that represents their principal coating activity.

<u>Comment 2</u>: One commenter (IV-D-14) submits that Product and Packaging companies applying coatings onto continuous metal substrates greater than 0.006 inch thick for flexible packaging should be exempt from the coil coating MACT rule. The commenter notes that the facility and its process equipment is either already subject to the Printing and Publishing NESHAP standard or will be subject to the POWC NESHAP standard and that subjecting the same process unit and its associated control device to two different standards and two different levels of control provides no flexibility for complying with the regulations and creates no pollution prevention incentives. The commenter further notes that other NESHAP rules have exempted certain operations or industries based on applicability or incidental operations and suggests that incidental operations can be exempted from the standard by limiting material usage to no more than 500 kg/month or no more than 400 kg/month of organic HAP applied.

<u>Response 2</u>: We agree that the coating of metal substrates for the purpose of flexible packaging is an operation that is covered under the proposed Paper and Other Web NESHAP. Upon review of the metal coil MACT database, we found that the data used in setting emission limits and analyzing rule impacts for the metal coil surface coating industry did not include data from facilities processing metal substrates for the flexible packaging industry. The final rule has been revised to clarify that the metal coil NESHAP does not apply to substrates coated for flexible packaging. A definition for flexible packaging has been added to the final rule.

<u>Comment 3:</u> One commenter (IV-D-18) requested that EPA clarify the inapplicability of the coil rule to printing operations. The commenter suggested that the proposed definition of coil coating line, coil coating station, and coil coating operation were broad enough to include printing operations, and as a result, incidental activities such as printing a company name or logo or other markings for inventory control purposes could be pulled into the coil rule. The commenter suggested revising the definition of "coil coating operation" to read, "the collection of equipment used to apply an organic coating to all or substantially all of the surface width of a continuous metal strip......" to exclude labels and incidental markings for inventory control purposes that were not intended to be covered under the coil rule.

<u>Response 3:</u> We are aware of certain operations where the surface of bare, uncoated metal coils are printed with a company logo for identification purposes, or other markings for inventory control purposes, using flexographic printing equipment. No other coating is applied to these metal coils. This type of operation was not considered to be coil coating during the data analysis phase of the metal coil coating rule development, and it is not the intent of the rule to cover this specific type of operation. However, there are printing operations that occur in the metal coil surface coating industry that are integral to the coil coating operation. They typically use web-offset lithographic printing equipment and apply a printed image onto a coated metal coil. These printing operations are part of the coil coating line. Since including the language suggested by the commenter may inadvertently exclude these printing operations, the definition of coil coating line has not been revised as such (comment response 3.1.2 discusses other revisions to the definitions of coil coating operation and coil coating line).

3.1.2 Exclusions/Exemptions

Comment 1: One commenter (IV-D-3) strongly supports EPA's proposal to exclude from Subpart SSSS "decorative, protective, or functional materials that consist only of solvents, protective oils, acids, bases, or any combination of these substances..." under the definition of "coating" in 40 CFR 63.5110. The commenter notes, however, that the proposed applicability section 40 CFR 63.5090 provides that "The provisions of this subpart apply to each facility that is a major source of HAP, as defined in §63.2, at which a coil coating line is operated" (underlined emphasis added). The commenter submits that the phrase "coil coating line is operated" is not defined and "coil coating line" includes any coating operation, including those operations EPA seeks to exclude in the definition of coating. The commenter requests clarification of the proposed applicability section to clearly identify regulated facilities using the terms defined at proposed 40 CFR 63.5110 and recommends the following revised language: The provisions of this subpart apply to each facility that is a major source of HAP, as defined in §63.2, where a coil coating line applies an organic coating in a coil coating operation.

Response 1: We agree with the commenter that the proposed applicability language was not clear. It has been revised in the final rule and addresses the commenter's concern (see revised Section 63.5090 and the revised definition for "coil coating line" in Section 63.5110).

Comment 2: Two commenters (IV-D-8 and IV-D-16) request that EPA streamline the MACT by specifically stating in the preamble that all of the equipment included has been evaluated and thus is exempt from the Miscellaneous Organic NESHAP (MON). The commenters note that the MON is for totally different types of source categories in the chemical production source category and that the coil coaters'operations do not meet the applicability criteria listed in the April 2, 1998 memorandum to the MON project file prepared by the Agency's MON rule contractor.

Response 2: The proposed MON to which the commenters refer would regulate coating manufacturing operations and would require controls on the following emission sources in these operations: storage tanks, process (mixing) vessels, equipment components, wastewater treatment and conveyance systems, transfer operations, and ancillary sources such as heat exchange systems. Thus, if an operation is determined to be an affected source under the MON, it would have to comply with many requirements. However, the preamble to the proposed MON will specifically request comment on whether and how the MON should apply to coating users who are also coating manufacturers of the coatings they use; as proposed, it will only apply to sources that manufacture coatings described by SIC codes 285 or 289 or NAICS code 3255. Coil coating facilities are not typically in these SIC and NAICS codes and, therefore, would not be subject to the MON as proposed. Furthermore, even if a facility would meet the proposed definition of coating manufacturing in the MON, its operations may not meet the specific criteria in the MON that determine whether or not controls are required on the emission points in the source (for example, the capacity of mixing vessels an storage tanks; the concentration of total organic HAP in wastewater; and throughput for product loading to tank trucks and railcars). Facilities that are potentially affected by the proposed MON or concerned about how it may apply to coating users should respond to EPA's request for comment on its applicability during the public comment period for the MON.

3.1.3 Once In, Always In

Comment: One commenter (IV-D-3) claims it is not appropriate to apply the Once In, Always In policy where a facility is no longer a major source of HAP because of a HAP delisting. The commenter expresses concern that EPA's decision not to address the possible delisting of EGBE and MEK in the proposed NESHAP may lead to the application of the Once In, Always In policy and subject facilities to continued compliance with the NESHAP, even though a facility's potential to emit HAP is below the 10/25 ton threshold. The commenter submits that because the delisting process ensures that the health and environmental protection provided by the MACT standards are not undermined by facilities evading MACT control levels, facilities should not be required to comply with the MACT standard after delisting. The commenter requests that EPA specifically recognize in this rulemaking that a facility can be removed from the Metal Coil NESHAP (and avoid the application of the Once In, Always In policy) if the facility no longer exceeds the 10/25 ton threshold due to a HAP delisting, such as the potential EGBE and MEK delistings.

Response: Our intent is for the metal coil surface coating NESHAP to apply to major sources and not area sources. Existing facilities have until the compliance date, which is three years after the publication of the final rule in the Federal Register, to establish area source status. Decisions for the delisting petitions for MEK and EGBE are expected to precede the NESHAP's compliance date; therefore, if these pollutants are delisted, facilities should be able to establish area source status before becoming subject to the control requirements of this rule. However, if decisions for the delisting petitions are delayed until after the compliance date, we will address the effect of the petitions on the Once-In, Always-In policy in the context of the decision on the petitions, and not within individual NESHAP.

3.1.4 Subcategorization

Comment: Several commenters (IV-D-5, IV-D-8, IV-D-12, IV-D-13, and IV-D-16) submit that EPA has proposed a single set of emission standards to regulate the entire coil coating industry, thereby failing to account for the significant diversity in various segments of the industry. Examples of diversity cited by the commenters as justifying either subcategories with separate emission limits or a less stringent compliant coating option include type of coating use (waterborne vs. solvent-borne), type of coating business (toll vs. captive), and unique processes such as electro-deposition coating lines. Commenter IV-D-8 notes that the performance specifications required by the end user also add to the variability in coating formulation.

Four of the commenters (IV-D-5, IV-D-8, IV-D-13, IV-D-16) request either subcategorization by waterborne and solvent-borne operations, or preferably, a less stringent compliant coating option (discussed in Section 3.4.3 of this document). The commenters claim that waterborne lines currently comply with VOC regulations without employing add-on controls and that the proposed rule would force most of these facilities to install controls. The commenters submit that this, in turn, would discourage pollution prevention goals of the Agency by inhibiting further development of waterborne coatings. The commenters also believe that the proposed rule could drive some existing waterborne lines back to solvent-borne coatings, based on the economics of having to use expensive add-on pollution controls to treat emissions from waterborne operations. Two of the commenters (IV-D-8 and IV-D16) note that EPA specifically requested comment on the appropriateness of requiring the proposed emission limits for electro-deposition coating (e-coat) lines using waterborne coatings that comply with NSPS and RACT VOC limits through application of compliant coatings. Commenter IV-D-8 adds that the MACT floor facilities on which the emission limits are based are comprised of a disproportionate number of coating lines that produce stock for architectural and building products, a segment of the coil coating industry characterized by application of solvent-borne coatings with significant HAP content and the use of enhanced VOC control systems.

Four commenters (IV-D-8, IV-D-12 , IV-D-13, and IV-D-16) suggest subcategorization by end use as an option. Commenter IV-D-8 notes that diversity in end-use products was also a significant concern in the Miscellaneous Metal Parts MACT floor development and that for this source category, EPA relaxed the emission rate standard to accommodate a single standard covering a diverse set of plants. The commenter prefers a revision of the proposed emission limits but alternatively requests subcategorization by end-use industrial sector. Commenter IV-D-12 provides information concerning performance characteristics required of industrial OEM coatings and submits a chart providing information on the prevalent coatings technology used in six major coil coating industrial sectors. The chart indicates the probability of reformulation of each of the prevalent coatings technologies used in each of these industrial market sectors and shows that while a particular coating may be able to be reformulated to low HAP content for one market segment, it may not be capable of being reformulated for another market because of unique specifications (e.g., chemical resistance or extremely high gloss).

Commenter IV-D-8 proposes in the absence of more flexible emission limits or end-use industrial sector subcategories, that EPA develop emission limits for subcategories covering toll and captive coaters. The commenter submits that toll coater operations have significant variability in the HAP and solids content of coatings that they are directed to use by their customers. This variability limits the ability of toll coaters to comply by using the emission rate limit.

Response: We agree with the commenters that there is some diversity in the industry and designed the standard with sufficient flexibility to accommodate that diversity. The MACT floor facilities report coating coil for many different end products, including can lids, automotive products, appliances, furniture, and light fixtures, in addition to architectural and building products. We believe the MACT floor is representative of the diversity in the industry. As discussed in Section 3.4.3 of this document, revisions were made to the emission rate limit as well as the compliance period in such a way that there is no need for subcategorization. The emission standard is in two different formats and allows 4 options for demonstrating compliance, providing significant compliance flexibility for the various segments of the industry. The 98 percent OCE emission limit is a likely choice for facilities using solvent-borne coatings with high HAP contents, regardless of the variability in coating formulation resulting from the performance specifications required by the end user. The emission rate limit, in terms of mass of HAP per volume of solids, can be used by sources using compliant coating materials, coating materials that on average meet the emission rate, or a combination of coating materials and add-on controls. The various options for demonstrating compliance with the emission rate limit provide viable alternatives for facilities using waterborne coatings, electro-deposition coating lines, or solvent-borne coatings with relatively higher solids and lower HAP contents than facilities that choose to comply with the 98 percent OCE. As described in response to the fourth comment in Section 3.4.3 regarding the emission rate limit, the Agency has used a HAP to solids ratio to derive an emission rate limit in the final rule that is less stringent than the level proposed and is also allowing a rolling 12-month compliance period rather than the proposed block month compliance period. This HAP to solids ratio is higher than the ratio used at proposal based on commenters' concerns that it needs to reflect the emissions expected under the most adverse conditions using the emission control representing the MACT floor.

EPA does not believe that subcategorization of waterborne versus solvent-borne coating operations is warranted. The revised emission rate limit is already being achieved by at least 2 of the 6 MACT database facilities currently using waterborne coatings without add-on controls, and EPA does not expect that the remaining sources using waterborne coatings will require the use of PTE or thermal oxidizers to comply (see response to second comment in Section 3.4.4). Also, it should be noted that though the waterborne coatings applied by coil coaters may comply with VOC rules, the VOC emitted are HAP and result in HAP emission rates that are higher than emission rates achieved by the best-performing 12 percent of sources in the category.

Regarding the use of waterborne coatings that comply with VOC rules, in the preamble to the proposed regulation (65 FR 44622, Tuesday, July 18, 2000) EPA requested specific comments on the appropriateness of the proposed emission limits to electro-deposition coating of metal coil using VOC-compliant coatings. We received comments and in response to the comments reevaluated the technical feasibility and cost of bringing an electro-deposition coating line into compliance with the final emission limits. We determined that the same emission reduction strategies are appropriate for an electro-deposition metal coil coating line as for other metal coil coating lines; and therefore, it is appropriate to subject electro-deposition coating to the same emission limits.

Subcategorization by end use would be difficult and would limit the flexibility of facilities with a diversity of product lines. A number of the coil coating facilities in the MACT database report coating coil for multiple end uses, and coating compositions (emission rates) are not broken down by end use. Furthermore, though a number of facilities report coating coil only for each of 3 end uses (building products, interior architectural uses, and metal can or other containers), no facilities report coating coil only for large appliances, metal furniture or automotive components. One third of the facilities in the database that reported end use are coating coil for 2 to 5 different products (e.g., one facility reported coating coil for building and construction products, transportation products, appliances, furniture, and containers and packaging). A facility coating multiple products would have to control to the most stringent level required, or dedicate specific coating lines to particular product lines.

Regarding subcategorization by toll versus captive facilities, data in the MACT database show that despite the variability in the HAP and solids content of coatings required by customers, toll facilities are attaining higher average facility OCE than captive facilities (toll facilities report average OCE of 94.6 percent, captive facilities report average OCE of 92.74 percent) and lower emission rates (toll facilities report emission rates averaging 0.24 lbs of HAP per gallon of solids, captive facilities report emission rates averaging 0.62 lbs of HAP per gallon of solids.) Therefore, the data do not indicate that the emission rate limit should be less achievable for toll coaters than for captive coaters.

3.2 AFFECTED SOURCE

3.2.1 Other Ancillary Sources

Comment: One commenter (IV-D-4) notes that the MACT proposal considers stringent HAP reductions from the application system, which are a significant source of emissions involved in the metal coil coating process. The commenter submits that it also appears that additional and substantial HAP emissions associated with the coating process are not covered by the MACT proposal, citing the estimates that application of 98 percent OCE will only eliminate 55 percent of the major source HAP emissions. The commenter surmises that approximately 45 percent of the HAP emitted from the metal coil coating process are not covered by the MACT proposal and points out that specifically, EPA did not include the following "other" sources of HAP emissions: storage tanks, wet section operations, coating mixing/thinning operations, quenching, parts and equipment cleaning, and wastewater operations. The commenter notes that EPA estimated that these emissions are about 15 percent of the HAP emissions from metal coil coating processes and suggests that EPA should consider how these other HAP emissions associated with the metal coil application system could be captured and controlled.

Four commenters (IV-D-5, IV-D-8, IV-D-13, and IV-D-16) support EPA's decision to limit regulated activities to the coating application and curing process. The commenters submit that the Agency correctly recognized that the remaining ancillary operations have de minimus emissions, and that, in any event, the MACT floor would be no control.

Response: As noted in Chapter 3 of Docket A-97-47, Document No. III-B-1, we estimated at proposal that emissions from storage tanks, wet section operations, coating mixing/thinning operations, quenching, parts and equipment cleaning, and wastewater operations account for 10 percent of nationwide HAP emissions. Emissions from these operations are controlled to the extent that some mixing/thinning and equipment cleaning may take place inside the coating rooms and are vented to the control system, and at some plants, emissions released in the quench area are captured by the oven ventilation system. We anticipate that PTE added to existing control systems to upgrade capture efficiency as a means of complying with the emission limit for application and curing will also result in additional capture and control of HAP emissions from these "other sources." However, as in the proposed rule, the final rule does not regulate emissions from ancillary operations. Available data were not adequate to determine MACT for the ancillary operations, which as some of the commenters noted, account for a small portion of the HAP emissions for this source category. In response to the comments on this issue, we reviewed the industry survey data and found that few of the surveyed facilities reported controlled HAP emissions from ancillary operations. For facilities that did report control for these sources, the data were not sufficiently detailed to determine if the reported control represented the facility level of control or the control for one unit operation of this type out of several in the facility. For example, mixing may be performed in a mix room and at the application station. It was not clear from the reported data if a facility reporting mixing in a permanent total enclosure vented to a control device conducted all mixing at this level of control or possibly just the mixing at the coating application station. When these operations occur inside a PTE, emission reductions can be achieved at the OCE level of the capture and control system. When these operations occur outside of a PTE, the limited data available from the metal coil surface coating survey for these operations is indadequate to determine what control level could constitute MACT. Therefore, emission limitations have not been set for these operations.

3.2.2 Facility-wide Compliance

Comment: Three commenters (IV-D-8, IV-D-13, and IV-D-16) support EPA's decision to allow compliance with the emission standards to be demonstrated on a facility-wide basis, because it adds the flexibility of cross-line averaging. Commenters IV-D-13 and IV-D-16 add that facility-wide compliance addresses the industry practice of multiple coatings utilized for a range of products.

Three commenters (IV-D-8, IV-D-9, and IV-D-13) request that in addition to the facility-wide compliance demonstration, the addition of a line-by-line compliance option at the discretion of the facility would achieve added flexibility. Commenter IV-D-8 provides two examples of situations where the line-by-line compliance demonstration might be preferable. In the first, a plant with multiple coating lines that all achieve the 98 percent OCE is forced to collect records on coating usage, volatile matter content, and calculate a facility-wide average control efficiency in accordance with Equation 9 under Section 63.5170. With a line-by-line compliance demonstration, this facility would avoid the record keeping and compliance demonstration burden associated with determining the facility-wide average control efficiency. In the second situation, some coil coating facilities with multiple lines have segmented their production to dedicate certain products to specific coating lines. Under this scenario, it is possible that individual coating lines could meet the equivalent emission rate limit as a stand-alone operation while the facility-wide average emissions exceed the limit. With a line-by-line compliance demonstration option, this type of facility may have an opportunity to minimize the number of lines that have to be retrofitted with new or enhanced HAP control equipment.

Response: We intended for the rule to also allow line-by-line compliance as the commenter has suggested. The final rule has been amended to clarify this.

3.3 DEFINITIONS

3.3.1 Deviation

Comment: Several commenters (IV-D-5, IV-D-8, IV-D-9, IV-D-11, IV-D-13, and IV-D-16) submit that the definition of "deviation" in the proposed rule is very broad or overly complicated and request that the definition be deleted. Five of the commenters (IV-D-5, IV-D-8, IV-D-9, IV-D-13, and IV-D-16) point out that under the definition, a deviation could be a failure to meet emission limitations (e.g., the 98 percent OCE requirement), or a failure to meet operating parameters (e.g., temperature monitoring for an oxidizer). These commenters also claim that the regulation contains detailed requirements for reporting "deviations", and point out several problems with the concept of "deviation", with its definition, and with its use in this regulation. First and foremost, it is not clear to these commenters whether EPA intends that all deviations constitute violations of the standard. These commenters believe this should not be the case, but that the broad language of the definition could be interpreted this way. Second, according to these commenters, not all excursions or exceedances of operating parameters should be considered violations of the emission standards. Finally, these commenters submit that environmental protection is better served if excursions compel a source to take corrective action.

Commenter IV-D-11 notes that a shift to a new term such as "deviation" in lieu of the usual "excess emissions" which is utilized in other standards, or even "exceedance" or "excursion" which must be used for the applicable Compliance Assurance Monitoring Plan under part 64, without making changes to those subparts as well causes confusion for State permitting authorities. Two commenters (IV-D-5 and IV-D-8) request that in place of the term "deviation", we include a definition for "excursion" or "monitoring excursion". Commenter IV-D -8 provides the following definition as an example:

> "Excursions in operating parameter monitoring are defined as events where the operating parameter level, established over three (3) consecutive hours, is below the minimum value established during the initial compliance demonstration. For purposes of oxidizer temperature monitoring, the minimum value is defined as 50 $^{\circ}$F less than the average temperature recorded during the control device performance test that is conducted as part of the initial compliance demonstration. For purposes of capture efficiency monitoring, the minimum value is defined as the limit of the operating parameter range established in accordance with §63.5150(a)(4)."

Commenters IV-D-5, IV-D-8, and IV-D-13 recommend an alternative monitoring approach using their excursion concept, which includes requirements for submissions of operations, maintenance and monitoring plans (OM&M Plan) as part of applications for Title V permits to follow when excursions occur, development of Quality Improvement Plans (QIP) consistent with the compliance assurance monitoring rule, 40 CFR subpart D (62 FR 54900, Oct. 22, 1997) to be followed if a facility has excursions for more than 5 percent of the total operating time during a 6-month block reporting period, and a statement that exceedances of certain identified operating parameters are only excursions of those operating requirements and not violations of emisson limits. The commenters believe that EPA should define violations of the standards solely as exceedances of the 98 percent OCE or the emission rate limit. The commenters also maintain that exceedances that occur during startup, shutdown or malfunction (SSM) should not be considered violations as long as the facility follows its SSM plan.

<u>Response:</u> We are using the term "deviation" to standardize the regulatory language used in NESHAP, and to avoid any confusion that might be caused by using multiple, related terms such as excess emission, exceedence, excursion, and deviation in the same regulatory program. The definition of deviation is consistent with the use of the term deviation in the title V operating permit program.

The definition of deviation clarifies that any failure to meet an emission limitation (including an operating limit or work practice standard) is a deviation, regardless of whether such a failure is specifically excused, or occurs at times when the emission limitation does not apply, for example, such as during startup, shutdown, and malfunction. All deviations, therefore, are not necessarily violations. The enforcement authority determines violations. All deviations from emission limitations (including operating limits and work practice standards) are required to be reported, regardless of whether or not they constitute violations, in accordance with the provisions in §63.5180, "What reports must I submit?"

Operating parameters and deviations from them are discussed in §63.5150 (a) and (b). In this NESHAP, the agency allows facilities to establish their own operating parameter values during the initial compliance demonstration, as opposed to assigning operating limits as has been done in other programs. This allows facilities to set their parameter values based on site- specific operating conditions. Given this flexibility, it is reasonable to expect facilities to operate within these parameter values without the 50 ^{o}F tolerance suggested in the definition of excursion offered by Commenter IV-D-8. We agree that a monitoring parameter deviation occurs when the three-hour average of the operating parameter is above or below (as appropriate) the parameter limit established during the initial compliance demonstration and will make this clarification in the final rule. Deviations that occur during startup, shutdown, and malfunction would not likely be considered violations provided the facility has followed its SSM plan. The provisions of part 64 (Compliance Assurance Monitoring) do not apply to this NESHAP, as expressly exempted in §64.2(b)(i).

3.3.2 <u>Coating</u>

<u>Comment 1</u>: Commenter IV-D-8 states that the definition of coating is very broad, including printing inks. This commenter proposes that the definition of coating be revised to eliminate specific references to printing ink. The commenter claims that including the printing operation under the surface coating emission limits is not appropriate, since it is not included in the coil coating NSPS definition (40 CFR 60.461(a)) and printing operations likely represent a very small percentage of the total HAP emissions compared to coating. In addition, the commenter notes that inks used on coil coating lines are typically closer to the 20% solids/80% HAP by weight "representative coating" used to develop the Printing NESHAP equivalent emission rate than to the 40% solids/60% HAP by volume "representative coating" used in the Coil NESHAP, making it difficult to meet the coil coating HAP emission rate limit when applying printing inks at the coater.

<u>Response 1</u>: We agree that inks would generally represent a small percentage of materials used in a coil coating operation. However, they were included in the coating definition and, therefore, were not quantified as a separate group of coating materials by respondents to the ICR. Consequently, they were not excluded from emission rates calculated for facilities in the database while developing the standard. Therefore, the compliance determination by each facility should not exclude them either. Since they make up such a small percentage according to the commenter, they should not significantly affect the overall OCE or emission rate levels.

<u>Comment 2</u>: Commenter IV-D-9 requests that the definition of "coating" be adjusted with language to better reflect what constitutes a change in formulation. The commenter notes that color changes may be accomplished by the addition of tints and asks at what point should a color change be considered a formulation change. The commenter submits that recordkeeping requirements will be reduced if a broad definition is adopted, e.g., if HAP content is not changed by more than 10 percent from the product average, a change in color would not constitute a formulation change for recordkeeping purposes.

<u>Response 2</u>: Facilities complying with the emission rate limit using coatings that on average meet the limit, as-applied, must track the amount of HAP that is added to the coating. This is necessary to assure compliance with the emission limit. A 10 percent allowance on the HAP content of a formulation would not reduce recordkeeping, as accurate records must be kept to demonstrate that the coating formulation has not changed by more than 10 percent. This would be no less burdensome than the recordkeeping for the rule as proposed. Therefore, the final rule does not include the provision requested by the commenter.

<u>Comment 3</u>: Commenter IV-D-16 recommends that EPA use common definitions as used in the Printing and Publishing and/or Paper and Other Web MACTs. As an example to clarify different coating types, the commenter states it would be prudent to use the definitions of "solvent-borne" and "water-borne" coatings. The definitions are important to differentiate between common water-borne coatings and the commenter's product-specific, unique and proprietary coatings used in the unique ECOAT process.

<u>Response 3</u>: The terms "solvent-borne" and "water-borne" are not used in the metal coil surface coating NESHAP; therefore, definitions are not needed.

<u>Comment 4</u>: Commenter IV-D-8 notes that the coating definition excludes materials that consist only of solvents, protective oils, acids, or bases. The commenter interprets this language to mean that any material with a zero solids content that is applied on the line for purposes other than forming a protective or decorative film on the metal coil is not a coating. The commenter requests EPA's confirmation of this interpretation in the final rule preamble.

<u>Response 4</u>: We agree with the commenter that a material with zero solids content that does not perform a decorative, protective, or functional purpose is not a coating subject to this NESHAP. It should be noted that coatings may or may not form a film on the surface of the substrate; therefore, the material's film-forming properties are not relevant.

3.3.3 Definition of H_{Sa}

Comment: Commenter IV-D-8 states that §63.5170(b)(2) sets forth Equation 5, which determines the monthly average organic HAP to solids applied ratio (H_{Sa}) for purposes of demonstrating compliance with the equivalent emission rate limit. The commenter notes that the term H_{Sa} is not defined in the symbol definitions under §63.5110(b) and requests that a definition be added.

Response: Equation 5 in §63.5170(b)(2) of the proposed rule incorrectly uses the symbol H_{Sa}, which is not defined. Equation 5 determines H_s, the monthly average as-applied organic HAP to solids ratio, which is defined in the definitions section of the proposed rule. The symbol H_{Sa} has been replaced with the correct symbol, H_s, in §63.5170(b)(2) of the final rule.

3.4 EMISSION STANDARDS

3.4.1 Flexibility in Setting MACT Floor

Comment: Commenter IV-D-8 asserts that the approach followed by EPA in setting the overall control efficiency MACT floor is flawed and proposes an alternative approach to setting the MACT floor. The commenter notes that CAA §112(d)(3)(A), 42 U.S.C. §7412(d)(3)(A) provides that for categories or subcategories with 30 or more sources, such as the metal coil coating category, the MACT floor for existing sources shall be no less stringent than "the average emission limitation achieved by the best performing 12 percent" of existing sources (emphasis added by commenter). The commenter points out the Clean Air Act gives EPA no direction on how to determine which sources are "best performing", accordingly EPA has maximum flexibility in making that determination. The commenter cites Sierra Club v. EPA in which the Court explicitly held that the Clean Air Act does not dictate how EPA should select the "best performing" sources for purposes of setting the MACT floor.

The commenter submits that EPA has not hesitated to exercise its flexibility as appropriate in setting particular MACT standards and cites the secondary aluminum production and wool fiberglass manufacturing NESHAPs as examples. According to the commenter, the three approaches that the Agency uses most commonly in determining the "best performing sources" are (1) state regulatory or permit limits; (2) source test data that characterizes actual emissions discharged by sources; and (3) use of a technology floor and an accompanying demonstrated achievable emission level that accounts for process and air pollution control device variability. The commenter states that EPA has followed the third approach in the coil coating MACT proposal, ranking coil lines by overall control efficiency (capture times destruction efficiency), and setting the MACT floor accordingly.

The commenter offers the approaches used in setting the MACT floor for the Miscellaneous Metal Parts and Products (MMPP) (based on State VOC limits) and Paper and Other Web Coating

(POWC) (incorporating ICR data from the Printing NESHAP rule development and using the mode of the floor facilities) NESHAPs as examples of EPA's continued use of flexibility in setting MACT floors in some of the other surface-coating NESHAP rule-makings currently under way. The commenter submits that EPA followed a flexible approach in setting these MACT floors because of the diversity of industry sectors and types and formulation of coatings used, diversity that is also found in the coil coating industry, making it very difficult for some sectors of the industry to comply with the very tight emission limits for existing facilities set forth in the proposed rule.

Commenter IV-D-8 proposes an alternative approach to calculating the MACT floor in accordance with CAA §112(d)(3). In the commenter's approach, the plants in their database operating with add-on controls were sorted from the lowest to the highest post-control HAP emissions in terms of lbs of HAP per lb of solids applied. The OCE was calculated for each facility, and the arithmetic mean of the best performing 12 percent of the data set was calculated as 93.6 percent. The commenter asserts that this approach to setting the MACT floor is more appropriate than EPA's method, because it better defines the "best performing sources," basing performance on the amount of HAP emitted per solids applied rather than just focusing on OCE. The commenter claims that this approach also generates a more diverse group of coating lines in the MACT floor facilities than EPA's method, an important consideration if the entire industry is to be regulated as a single group without any subcategories.

Response: We agree that we have significant flexibility in determining what constitutes the best-performing 12 percent of sources; however, using the methodology for determining the best-performing 12 percent of facilities proposed by the commenter erroneously accepts that low post-controlled emissions is the result of OCE alone, when in fact, it is a combination of coating formulation and OCE. If the data are analyzed based on post-controlled emissions, this would be a methodology for establishing an emission rate standard rather than a technology-based OCE standard. Such an approach is more appropriate where add-on controls are not widely used and maximum achievable emissions reductions are generally achieved through coating reformulation. Given the nature of the metal coil surface coating process and the prevalence of add-on controls in the industry, we determined that a technology-based OCE standard is most appropriate for this industry and obtains the maximum emission reductions achievable. Ranking facilities by the highest level of control their control devices achieve is the correct method of establishing the best performers for a technology-based OCE standard. This ranking methodology generated a universe of floor facilities that represents the diversity of facilities in the industry. The floor facilities coat the range of product types found in the metal coil coating source category.

3.4.2 Overall Control Efficiency (OCE)

Comment 1: Commenter IV-D-4 submits that EPA should be congratulated on doing a thorough job of preparing the proposal for the metal coil coating NESHAP/MACT, and also for including a proposed limit for existing sources that is reasonable. The commenter states that in general, the proposed limit of 98 percent OCE for HAP has been achieved in practice by this industry, as reported by EPA, and cites as additional evidence of the reasonableness of the proposed standard a recently posted case study on the commenter's website that demonstrates that VOC destruction efficiency of greater than 99 percent, using a regenerative thermal oxidizer system was achieved at a facility with a 60-process line capability.

The commenter also agrees with EPA's conclusion that the emission standard should rely on a capture efficiency of 100 percent; noting that this level of capture is reasonable and is already being achieved, as well as necessary to ensure that the maximum amount of HAP emissions are being treated by a destruction device. The commenter notes that the higher capture efficiency and potentially the use of concentrators could become increasingly important if a facility moves to metal coil coatings that have lower HAP content (i.e., waterborne coatings).

Response 1: We agree with the commenter on the reasonableness of the standard and its achievability by the industry.

Regarding the commenter's assertion that the emission standard should rely on a capture efficiency of 100 percent, the emission limit can be met through a combination of capture and control device reduction efficiency. A capture efficiency of 100 percent is not required as long as the combination of capture and reduction efficiency equals 98 percent.

We also agree with the commenter that the use of concentrators could become increasingly important; however, we have assumed that condensers would be used to control HAP emissions from lines applying waterborne coatings as described in Chapter 7 of the background information document (EPA-453/P-00-001, April 25, 2000 [Docket No. A-97-47, Item III-B-1]) for the proposed Metal Coil Coating NESHAP. For costing purposes, we have assumed that concentrators would be used in a situation where the installation of a PTE leads to the requirement for additional ventilation (see response to Comment 2.2.2).

Comment 2: Six commenters (IV-D-3, IV-D-8, IV-D-12, IV-D-13, IV-D-16, and IV-D-19) assert that the proposed OCE of 98 percent is too stringent for existing sources. The commenters support an OCE of 95 percent for existing sources and 98 percent for new sources. The commenters submit that thermal oxidation (the overwhelming choice for VOC/HAP control in the coil coating industry) is limited to achieving 98 percent destruction efficiency for new, properly designed units and that existing thermal and catalytic oxidizers cannot achieve 98 percent destruction efficiency on a long-term, continuous basis. One commenter (IV-D-4) believes that 98 percent destruction efficiency is reasonable, and also believes the significance of variations in source operating conditions and inlet loadings is overstated, particularly as applied to the ability to control at new or reconstructed facilities.

Comments regarding the proposed 98 percent OCE for existing sources focused on the following issues: (1) destruction efficiencies were likely measured when the oxidizer was new under near-maximum inlet loadings, (2) oxidizer performance is impacted by fluctuations in operating conditions and gradual degradation of certain oxidizer components with aging (such as air-to-air heat exchangers and RTO isolation valves), (3) the study EPA relied on to set the OCE at 98 percent is specifically directed at new oxidizers, and (4) existing coil lines operating with catalytic oxidizers will not be able to meet the 98 percent OCE limit. The comments related to each issue are summarized in the following corresponding paragraphs:

(1) Commenter IV-D-8 submits that contacts with a number of MACT floor facilities to verify their basis for reporting extraordinarily high OCEs in the ICR response indicate that most of the respondents based OCE on their most recent or best oxidizer destruction efficiency test. In addition, destruction efficiencies were likely measured during an initial compliance demonstration when the oxidizer was new and tested under a near-maximum inlet loading; favorable conditions in terms of VOC and HAP destruction efficiency. Accordingly, Commenter IV-D-8 does not believe existing oxidizers will be able to meet the 98 percent destruction efficiency on a continuous basis.

(2) Commenter IV-D-3 claims that while EPA determined that a 98 percent control efficiency is supported by test data representing "best case" results at new facilities presumably operating at the best possible control efficiency, EPA did not provide any analysis addressing the substantial variation in inlet flow concentrations or the degradation of performance over time. Similarly, Commenter IV-D-8 submits that MACT floor facilities contacted to verify the basis for their reported OCE in the ICR response acknowledged that the stack tests represent a snapshot-in-time of the oxidizer's performance and do not account for the fluctuations that occur under actual operating conditions, such as variable VOC and HAP loadings of the oxidizer and gradual degradation of certain oxidizer components with aging (such as air-to-air heat exhangers and RTO isolation valves).

Commenter IV-D-3 states that no statistical analysis was attempted to quantify the impacts of inlet concentration variability on control device performance, despite the documented presence of substantial variation. Similarly, no longitudinal evaluation of system performance over time was attempted, despite recognition that degradation does occur. The commenter adds that no analysis took place and no data was gathered on the combined effects of variability in inlet loadings and degradation over time on the continuous achievability of the 98 percent OCE threshold. The commenter notes that facilities must comply with the proposed standard 8760 hours per year for years on end.

Commenter IV-D-3 asserts the record does not contain adequate data to justify EPA's contention that the 98 percent MACT floor OCE standard is consistently achievable. The commenter cites the court's observation in *Portland Cement v. Costle*, 657 F.2d 298 (D.C. Cir. 1981), that standards must be capable of being met under reasonably expected adverse conditions including inlet concentration variability, normal wear and tear and maintenance of oxidizer components. Thus, the commenter maintains that EPA must demonstrate that the best-performing facilities can meet 98 percent OCE 8760 hours per year for the years a typical control device would be expected to operate. The commenter claims that in the best case, this requires consideration of whether the same facility can consistently meet the standard over a reasonably representative period; at worst the agency should consider all of the available data and the variability in performance it suggests. In this case, the commenter submits there is no clear indication the agency considered the inherent variability in control system performance in evaluating whether the standard is achievable. The commenter states that the Clean Air Act requires that the standards be "achievable" (42 U.S.C. § 7412(d)(2)) and that Congress' intent is further seen in Section 112(d)(3), where it emphasizes that the standards should be set at the level demonstrated "in practice." 42 U.S.C. § 7412(d)(3). Accordingly the commenter urges

EPA to carefully review the proposed 98 percent MACT floor OCE standard to confirm that it is "achievable" within the meaning of the statute given the inherent variability in control practices. The commenter concludes that if EPA determines the proposed 98 percent OCE standard is not achievable in practice, then it should revise the standard and the corresponding equivalent emission rate alternative for compliant coatings accordingly.

Regarding the degradation of certain oxidizer components with aging, Commenter IV–D–8 notes that air-to-air heat exchangers on recuperative thermal oxidizers are often configured to operate with the untreated gas stream (cold side) at a higher pressure than the treated gas stream (hot side). This is a common practice to minimize the oxidizer blower size, as a much larger unit would be needed to pull treated air from the hot side than to push untreated air through the cold side. The commenter claims this situation would be exacerbated by increased flow rates generated by enhanced capture systems that will be necessary to achieve 98 percent overall control. The commenter further explains that when the oxidizer and heat exchanger are configured in this forced-draft arrangement, any small cracks caused by thermal fatigue of the heat exchanger components will leak untreated VOC/HAP-laden air into the treated air stream, degrading the efficiency of the oxidizer. Similarly, the commenter states that isolation valves that divert airflow between heat exchange canisters in a regenerative thermal oxidizer can also develop minor leaks as the unit ages from thermal deformation or accumulation of resinous condensate from the oven. The commenter also notes that some two (2) canister or single-bed regenerative thermal oxidizer designs will allow a brief "puff" of untreated air in the inlet plenum to flow out of the exhaust plenum when the valves cycle to switch flow between canisters or reverse the flow direction in a single-bed system. If these units must cycle frequently, these brief puffs of untreated air could also make it very difficult to continuously comply with a 98 percent OCE limit.

Commenter IV-D-4 notes that EPA states that "thermal incinerators are not well suited for streams with highly variable flow because reduced time and poor mixing caused by increased flow conditions decrease the completeness of combustion; this causes the combustion chamber temperature to fall and decreases destruction efficiency." The commenter submits that while this may be true if the airflow through the incinerator or oxidizer is increased beyond the maximum capacity of the system, most designs are based on worst-case conditions of airflow and solvent (HAP) emissions. The commenter claims this results in the temperature of the oxidizer being maintained at design values even at maximum airflow rates and no solvent emission, ensuring that the system will perform as desired under all process conditions as long as airflow rates do not exceed the capacity of the equipment.

Commenter IV-D-4 also notes that EPA states destruction efficiency will degrade with time due to leaking heat exchangers and valve leakage. The commenter submits that leaks associated with exchangers and valves are generally more of a problem for older and improperly designed control devices; older thermal recuperative oxidizers have suffered from leaking heat exchangers particularly when thermal expansion was not adequately considered, or when provisions for expansion deteriorated over time. According to the commenter, in general RTO units are designed with valving that could provide a small amount of leakage, particularly if valves are not properly designed or installed.

(3) Commenter IV-D-8 notes the study EPA relied on to set the OCE limit at 98 percent (Docket Item No. II-I-3) is specifically directed at new oxidizers and that the document specifically states,

"Existing incinerators may not be physically capable of achieving the temperature, residence time and heat recovery conditions listed in this memo. Thus these incinerators may not be able to reach 98 percent or 20 ppmv." (Emphasis added by commenter).

(4) Commenter IV-D-8 submits that existing coil lines operating with catalytic oxidizers will not be able to meet a 98 percent OCE limit; based on the observation that no companies in the ICR database reported destruction efficiencies at or above 98 percent for catalytic oxidizers. The commenter notes that the normal cycle of catalyst fouling, followed by cleaning or replacement of the catalyst bed, typically results in nominal decreases in destruction efficiency between cleaning or replacement events. The commenter claims if the OCE limit for existing sources is set too high, these dips in destruction efficiency could not be tolerated in trying to assure continuous compliance with the standard. The commenter believes the increased maintenance of catalyst beds and uncertainty in achieving continuous compliance will likely cause most plants to retire their catalytic units and replace them with recuperative thermal oxidizers, resulting in increased consumption of natural gas and the generation of more nitrogen oxide, carbon dioxide, and other greenhouse gas emissions. This commenter also contends that the EPA study utilized to support the 98 percent OCE limit for thermal oxidizers states that existing oxidizers may not be physically capable of achieving 98 percent OCE or 20 ppmv outlet concentrations.

Regarding the performance of catalytic incinerators, Commenter IV-D-4 asserts that EPA incorrectly characterizes iron oxide and mixed metal oxides as catalyst poisons instead of as masking agents. The commenter claims that being involved only as masking agents, the metal oxides can easily be removed by today's regenerative techniques, resulting in the return of the catalyst to like-new performance.

Response 2: First it should be noted that EPA used data submitted by coil coating facilities on their ICR as the primary basis for establishing a 98 percent OCE. Reported values show that these control systems are capable of achieving greater than 99 percent HAP destruction, based on 100 percent capture and greater than 99 percent destruction efficiencies. The average reported OCE of the MACT floor facilities is 99.4 percent. To determine the level of emission control that is consistently achievable with this technology, we also considered the level of control that the EPA has generally found to be achievable. As discussed in the proposal preamble, this approach was taken to ensure that the variables that may affect incinerator performance mentioned by the commented are accommodated in establishing a MACT floor that is achievable. In addition to general EPA guidance, available literature was reviewed and state agencies and vendors of control equipment were contacted [Docket No. A-97-47, Items II-I-8 and II-A-10] for further information indicating the appropriate control efficiency for thermal oxidizers. All of these sources indicate that thermal oxidizers routinely achieve destruction efficiencies of at least 98 percent.

Comments on each of the numbered issues are addressed in the correspondingly numbered sections that follow:

(1) As is noted above, the average OCE of the MACT floor facilities is 99.4 percent. We

recognized that this level of control likely represents the results of initial performance tests conducted under favorable operating conditions and used information from various sources to determine the level of control that has generally been found to be achievable in setting the MACT floor at 98 percent OCE.

Furthermore, contrary to commenters concerns with demonstrating continuous compliance, initial compliance with the 98 percent OCE limit is demonstrated for oxidizers by conducting a performance test under representative operating conditions (chosen and documented by the owner or operator) and thereafter achieving on a continuous basis the operating limit (temperature limit established during the performance test). The standard does not require continuous emission monitoring for oxidizers or repeated performance tests.

(2) The commenters presented no performance data that would demonstrate significant performance degradation over time. Conversely, at least one floor facility that had a 15-year-old device at the time of the ICR did a performance test after seven years of operation and was still demonstrating a destruction efficiency of 99.6%. Commenter IV-D-4, a national trade association of companies that supply air pollution control and monitoring technologies, notes that control efficiencies in excess of 98 percent can readily be achieved, and some systems have been in use for well over 8 years. Two vendors of control equipment [Docket No. A-97-47, Items IV-E-4 and IV-E-5] were contacted to collect information about oxidizer performance. Both stated that there should be no appreciable performance degradation of these devices as long as the appropriate maintenance is performed. One vendor emphasized that maintenance is required to ensure that valve seals are not leaking.

It should be noted that 97 percent of oxidizers in the database that would require upgrading or replacement to comply with the standard will be greater than or equal to 20 years old on the compliance date. During a stakeholder meeting held pre-proposal, stakeholders informed us that the useful life of an incinerator is 15 to 20 years [Docket No. A-97-47, Item II-E-8]. The national trade association of companies that supply air pollution control and monitoring technologies submitted that 10 years is a more reasonable assumption for equipment life for the metal coil coating industry [Docket No. A-97-47, Item IV-D-4]. It could be said that these existing devices would require some additional maintenance or possibly replacement even in the absence of the standard. For costing purposes, the EPA only accepted incremental costs of upgrading/replacing oxidizers that were beyond their useful lives. The agency should not be expected to create a standard that accommodates equipment that may not be operating at its design efficiency due to operation beyond its useful life.

In summary, we agree that there will be some performance degradation over time, but that it should be minimal as long as proper maintenance is exercised. While we acknowledge Commenter IV-D-4's statement that most designs are based on worst-case conditions of air flow and solvent loading, we also realize that these factors can contribute to decreased destruction efficiency in a worst-case scenario and find it necessary to account for this in establishing the level of the standard. The MACT floor was found to be 98 percent OCE.

We also recognize that low inlet concentrations may reduce the efficiency of oxidizers. Therefore, in addition to the 98 percent OCE limit, the final standard includes an alternative limit of a minimum of 20 ppmv outlet concentration on a dry basis, as long as 100 percent capture efficiency is achieved. For a coil coating line applying coatings that result in low inlet concentrations to the oxidizer, the minimum ppmv lowers the efficiency required. The agency would also like to stress that the 98 percent OCE and minimum 20 ppmv outlet concentration limits are only two of the compliance options provided in this rule. The emission rate limit promotes pollution prevention and affords 3 options for compliance that do not require control to 98 percent OCE. One option allows facilities that reduce the HAP usage in their coating formulations to control at lower levels with control devices. In other words, a facility would not have to control to 98 percent OCE if it exercises the appropriate balance of coating formulation and control. A second compliance option allows a facility to meet the emission rate limit by averaging the HAP content of all coatings used during the compliance period. A facility may also comply with the compliant coating option. Under the compliant coating option, which is also included for the encouragement of pollution prevention, a facility may comply by using only coatings that individually contain less than the allowable limit of HAP. With either of the last 2 compliance options, control device efficiency is not considered.

(3) Regarding commenter IV-D-8's observation that the EPA study utilized to support the 98 percent OCE limit [Docket No. A-97-47, Item II-I-3] states that existing incinerators may not be physically capable of achieving 98 percent OCE or 20 ppmv outlet concentrations, the study does go on to explain that the existing incinerators in question are small units included as part of the study, that were designed "over a decade ago" [approximately 1970] "to meet a 90 percent reduction. These units were in many cases designed for the same geographical area and by the same vendor. Thus, their lower level of OCE can be attributed to common factors and do not represent a widespread inability to meet 98 percent reduction or 20 ppmv." It should also be noted that 57 percent of the existing incinerators in question were still able to achieve 98 percent destruction efficiency or higher, even with being near the end of their useful lives. The same study goes on to confirm that a 95 percent destruction efficiency is too lenient, that 98 percent OCE/20 ppmv could be reached with moderate adjustment, and that 95 percent would represent criteria not based on the best available units, considering cost, energy, and environmental impact.

(4) Regarding the Commenter IV-D-8's claim that existing catalytic oxidizers will not be able to comply with the 98 percent OCE, we acknowledge that no catalytic oxidizers in the database reported 98 percent destruction. However, of the 13 catalytic oxidizers in the database, 6 are at a facility that should be able to comply with the emission rate limit by installing PTE, 5 will be between 16 and 30 years old by the compliance date (older than the useful life of 15 years), and only 2 will be less than 15 years old. The 2 catalytic oxidizers that will be less than 15 years old by the compliance date have been assigned upgrade costs in the estimate of the nationwide costs of the standard. It is possible that for these two, the facility could use lower-HAP coatings that, combined with the current control system, would achieve the HAP emission rate limit.

With respect to the performance of catalytic oxidizers, for inlet concentrations greater than 100 ppm (no facility in the MACT database using a catalytic oxidizer reported inlet concentrations as low as 100 ppm), catalytic oxidizers can achieve 95 to 98 percent destruction [Docket No. A-97-47, Item II-A-9]. Catalytic oxidizers capable of attaining 98 percent destruction are usually designed on a site-specific basis. Though 95 percent destruction is typical, 98 percent can be achieved through the use of larger catalyst volumes and/or higher temperatures. For the purpose of costing upgrades, the combustion temperature was increased from a baseline of 1,000 °F to 1,200 °F and catalyst volume was slightly increased. In addition, retrofit costs, part of which could go to increasing catalyst volume, were assumed to add 40 percent to total capital installed costs.

3.4.3 Emission Rate Limit

Comment 1: Commenter IV-D-7 submits that there are very viable alternatives to the emission rate limit that are not mentioned in the proposal; this in spite of the fact that the concept of Pollution Prevention (P2) has been declared to be the primary approach of the EPA. The commenter offers as a good example of available P2 technologies that meet the proposed standards the use of Ultraviolet (UV) or Electron Beam (EB) cured coatings. The commenter claims that these products constitute the fastest growing segment of the coatings industry and states that they have totally eliminated the use of the solvents that are the major sources of HAP. According to the commenter, the use of UV/EB coatings will totally eliminate the solvent HAP problem without the high costs associated with the capture and control technology. In addition, UV/EB coatings cure thoroughly and rapidly at room temperature, eliminating the need for curing ovens. The commenter suggests that such a description of a compliant technology will give balance to the two-option proposal for meeting the standards and give practitioners a viable and legal alternative to the capture and control technology which has dominated the field in the past.

Response 1: We acknowledge that there are several pollution prevention alternatives that may be viable for some sources in this industry to use for compliance. We encourage facilities to explore UV/EB cured coatings and other P2 alternatives where available and appropriate to comply with the compliant coating option or the emission rate limit option.

Comment 2: Commenter IV-D-4 questions the use of an alternative emission rate limit that could become the rule rather than the exception, given the reasonableness of the proposed OCE emission limit. The commenter notes that the alternative limit appears to be offered primarily for those facilities wishing to comply through the use of waterborne coatings in conjunction with capture and control technologies. The commenter observes that of the facilities included in EPA's industry survey, only five were currently using waterborne coatings to comply with State or Federal VOC requirements, but EPA also anticipates that these facilities will "incur the cost of installing a complete emission control system" to comply with the proposed MACT. The commenter submits it is unclear whether the availability of this alternative compliance option may encourage or provide opportunity to avoid compliance with the MACT limits. The commenter believes alternative compliance options should equate to the same overall reduction in HAP emissions. Therefore, the commenter states EPA should require equal stringency regardless of the compliance method of the facility. The commenter submits that the organic HAP limit provides greater certainty, and provides less opportunity to depart from reducing actual process emissions. The commenter believes facilities should have flexibility in choosing the compliance mechanism, but they should not be allowed options that increase HAP emissions.

<u>Response 2</u>: The commenter is correct that the alternative emission rate limit would be attractive to facilities wishing to comply with the NESHAP by using coatings with lower HAP contents. The alternative emission rate limit offers facilities the opportunity to use coatings that are more environmentally friendly instead of requiring all facilities to upgrade or install control devices. This approach promotes pollution prevention, which is a high priority for the Agency. To achieve the emission rate limit, a source has the option of using "compliant coating materials" that contain no more HAP than the alternative limit allows, either individually or on average. The other option available to meet the alternative limit is to use add-on control devices to reduce HAP emissions if the HAP content of the coating materials exceeds the limit.

The alternative limit was developed by determining the HAP/solids content of a representative coating used by the sources that are the best-performing 12 percent in the source category. This HAP/solids ratio was factored by the MACT floor level of control (98% OCE), to assure that facilities utilizing the alternative limit would not be allowed to emit more HAP than a facility using the same coating and applying the MACT floor level of control. We believe, therefore, that the alternative emission rate limit is no less stringent than the 98 percent OCE limit, and it promotes pollution prevention.

For costing purposes, we assumed that facilities currently operating without controls would incur the cost of installing a complete emissions control system. This was a conservative approach used in the absence of cost information for coating reformulation. Facilities choosing to reformulate coatings would likely incur less costs than they would installing, operating, and maintaining control devices. We encourage facilities to use pollution prevention alternatives wherever possible, and believe that in most cases, they would be economically beneficial.

<u>Comment 3</u>: Commenter IV-D-4 notes with regard to the emission rate limit that methyl ethyl ketone (MEK) and glycol ethers account for 50 percent of the HAP emissions from metal coil coating processes. The commenter submits that if EPA takes action to "delist" MEK as a HAP, the substance of the proposed limit for metal coil coatings could be significantly affected.

<u>Response 3</u>: The emission rate limit was established by determining a representative coating for the best-performing 12 percent of sources in this industry. This was done by calculating the lowest average volume solids applied (taken from data reported by the industry on ICR responses), assuming that the entire volatile (non-solids) fraction of the coating is HAP to determine the HAP to solids ratio, converting the volume of HAP to mass of HAP, and then factoring this HAP to solids ratio by the MACT floor level of control (98% OCE). Delisting certain HAP would not affect the emission rate limit which is based on the assumption that the entire volatile fraction of coating is HAP. This assumption would not change because there would continue to be many coating materials containing solvents other than the delisted HAP, and the emission rate limit needs to reflect this.

To determine whether the emission rate limit could be impacted by a change in the OCE set by the MACT floor, we reviewed data for the MACT floor facilities and found one facility that may become an area source if both MEK and ethylene glycol monobutyl ether (EGBE) are delisted (although the commenter did not specifically express concern about the delisting of EGBE, we considered the impact of such an action since a delisting petition for this HAP is under consideration by the Agency). Removing this facility's data from the MACT floor analysis would not change the level of the standard set by the MACT floor. Therefore, the emission rate limit would not change in response to the effect of these potential HAP delistings on the MACT floor.

<u>Comment 4</u>: Six commenters (IV-D-8, IV-D-9, IV-D-12, IV-D-13, IV-D-16, and IV-D-19) submit that the emission rate limit should be less restrictive and also request that the compliance averaging period should be a 12-month rolling average (See Section 3.8.1 of this Chapter). Commenter IV-D-16 asserts that a key factor in establishing workable MACT requirements for the coil coating industry is the development of an achievable equivalent emission rate option. Commenter IV-D-8 states that toll coaters will be especially hard hit for the following reasons: (1) toll coaters do not control the selection or formulation specifications of coatings that they apply; these selections are made by their outside customers; (2) toll coaters work for many customers and will have significant variability in the types of coatings they will apply, typically running hundreds of different coatings over a one-year period; and (3) toll coaters are producing stock for multiple end uses, some of which have limited opportunities for reformulation to lower HAP coatings. Commenter IV-D-9 adds that the lack of flexibility in the proposed MACT will be especially harsh on small coaters.

Three of the commenters (IV-D-8, IV-D-13, and IV-D-16) assert that since the data used by EPA to establish the alternative emission rate limit represent annual average values, it is not an appropriate limit to establish for a monthly compliance period. The commenters claim that to require a monthly average limit using the annual average data, the limit would need to be adjusted to account for variability in emissions during short-term periods.

Four of the commenters (IV-D-8, IV-D-12, IV-D-13, and IV-D-16) state that Section 112(d) of the Clean Air Act requires that the MACT floor, and any emission rate derived from it, be based on the best performing 12 percent of the existing facilities. The commenters submit that, therefore, the equivalent emission rate should be derived solely from the MACT floor facilities to be consistent with the Act. In addition, the commenters believe the procedure should use an upper-bound HAP content approach to prevent the limit from being more stringent than the emission rate achieved by the average MACT floor facility applying its highest HAP, lowest solids coating.

Accordingly, commenter IV-D-8 presents an alternative emission rate proposal based on upper-bound HAP formulation. Commenters IV-D-12, IV-D-13, and IV-D-16 endorse this proposal. Under the commenters' proposal, the average minimum solids content for the eleven MACT floor facilities is 29.1 percent solids by volume. Therefore, the commenters request that EPA use a representative coating of 30% solids/ 70% HAP to derive the equivalent emission rate compliance option instead of the 40% solids/ 60% HAP ratio used for the proposed standard. The representative coating would then yield a pre-control emission rate of 18.5 lbs HAP/gal solids applied, which then generates an equivalent emission rate of 0.37 lbs HAP/gal solids applied when applying the 98% OCE limit. The commenters note that adoption of a 95% OCE would also set the basis for the alternative emission rate limit above 0.37 lbs HAP/gal solids applied.

Commenter IV-D-19 cites the D.C. Circuit's opinion in the Sierra Club's and the National Lime Association's challenge to the cement manufacturing NESHAP, in which the court stated that EPA explained it must ensure that emission "standards are achievable 'under [the] most adverse circumstances which can reasonably be expected to recur,'" as support for the use of an upper-bound HAP content in the derivation of the "representative coating" used to calculate the equivalent emission rate. The commenter submits that the upper-bound HAP content would be the most "adverse circumstance that could reasonably be expected to recur" when a facility is complying with the alternative emission rate standard in the coil coating NESHAP.

Response 4: A description of how the emission rate limit was established can be found in the response to Comment 3 above. We agree with the commenters that in this case, the equivalent emission rate limit should be a 12-month rolling emission rate because the data on which the limit was set reflect annual averages and some segments of the coil coating industry may experience significant variation from month to month in types of coatings used and their HAP contents. This revision has been incorporated into section 63.5170 of the final rule. In addition, we agree that the alternative emission rate limit and compliant coating option should be revised to reflect the average of the lowest solids/highest HAP applied by the MACT floor facilities in the database. Basing the emission rate limit on the lowest solids/highest HAP coatings used by the MACT floor facilities represents the most adverse circumstance that could reasonably be expected to recur. Coincidentally, using data from all facilities in the database (not just the floor facilities) would result in the same limit, 0.38 lb/gal solids. This is another indication of the representativeness of the MACT floor facilities for the industry.

Comment 5: Commenter IV-D-17 submits that in the proposed Leather Finishing NESHAP, EPA determined that the industry did not merit subcategorization because it concluded that raw materials, emissions, and process steps were similar for all industry operations. The commenter continues that EPA noted however that there were differences in achievable emissions levels depending on the types of leather products produced. Accordingly, EPA established four separate emission standards for four leather product process operations because of "differences in finish properties and coating formulations which affect the achievable level of HAP emissions."

The commenter claims that the range of products and performance specifications in the coil coating industry is far more diverse than in leather finishing operations. The commenter requests that in lieu of subcategorization, the EPA should, at a minimum, set different emission limits for different types of coil coating operations, based on coating use, or end use industrial sector, or the type of coating business, just as the Agency has set differing emission limits for the leather finishing industry. The commenter proposes the following methodology for establishing the emission limits:

- Subdivide the MACT database by the coil coating operations that qualify for separate emission limits. The commenter provides a proposed list of 10 coil coating operations that should be evaluated for development of operation-specific HAP emission limits.
- Identify the "best-performing" facilities (or lines) as the top 12 percent of facilities for groups of more than 30 plants or top 5 facilities for groups with less than 30 plants.
- Establish a representative coating for each set of "best-performing" facilities (or lines) by averaging the minimum solids contents of the "best-performing" facilities to establish the "upper-bound" HAP content of the representative coating.
- Calculate the pre-control HAP emission rate (lbs/gal solids) for each representative

coating established for the coil coating operations that qualify for separate emission limits.

- Apply the final overall control efficiency standard for the Coil NESHAP to the Step 4 pre-control emission rates to determine an equivalent emission rate limit (lbs HAP/gal solids) for each coil coating operation that qualifies for a separate HAP emission limit.

Response 5: As discussed in Response 4 above, to account for the variability in coatings used from month to month, and to allow for additional compliance flexibility, we revised the emission rate limit and compliant coating option to reflect the lowest levels of solids used at facilities over a year. This revised limit, therefore, considers the variability in HAP usage scenarios for each facility. This has resulted in a final emission rate limit and compliant coating option that is less stringent than proposed. In addition to this, the final rule provides a rolling 12-month compliance period over which emission rates are determined rather than a block month compliance period. These allowances and adjustments to the final rule provide greater flexibility for compliance than subcategorization or dividing facilities into sectors and setting a separate limit for each sector.

Comment 6: Commenter IV-D-4 questions EPA's statement that "Costs could be much lower if facilities choose to use low-HAP coatings." The commenter notes that EPA's examples of both small and large new facility capital and operating control costs are considerably lower than the costs for a facility coating line applying waterborne coatings. The commenter states that EPA estimates that the 5 facilities currently using waterborne coatings will need to install a complete emission control system to comply with the proposed MACT standard. The commenter also notes that the use of waterborne coatings in this industry could require additional energy and longer ovens to dry and cure the coatings and that waterborne coatings contain a large percentage of VOC. From the information provided, the commenter concludes that "conventional" capture and destruction technologies appear to have lower absolute costs, a contention that the commenter believes is further supported by the industry's overwhelming use of these lower cost options.

Response 6: To clarify, there are 4 facilities in the MACT proposal database currently using non-compliant water borne coatings with no add-on controls. In the absence of cost information for coating reformulation, we estimated costs for installing and operating add-on emission control systems (condensers) at these facilities. Compliance with the MACT using the compliant coating option without installing control devices is a viable option for these facilities and is likely to be lower in cost than installing control devices. In addition, facilities with some degree of add-on control wishing to use the emission rate limit compliance option may find it less costly to reformulate their coatings and use current levels of control rather than upgrading control devices to comply at higher levels of control. The agency encourages facilities to use pollution prevention alternatives wherever possible, and believes that in most cases, this would also be economically beneficial.

3.4.4 Compliant Coating Option

Comment 1: Several commenters (IV-D-5, IV-D-8, IV-D-12, IV-D-13, and IV-D-16) note that the proposed NESHAP doesn't include the draft compliant coating option that was presented at a June 22, 1999 stakeholders meeting (Docket Item No. II-E-9), and they propose that the original compliant coating option (1.5 lbs HAP/gal solids, without controls) be included in the final rule as a second emission rate option. Commenter IV-D-8 submits that EPA was asked to reinstate this compliance option in a letter dated August 20, 1999 (Docket Item No. II-D-118), but a written response to the request was never received.

Commenter IV-D-8 asserts that inclusion of a compliant coating option would address water-borne coating lines without having to develop a separate subcategory. The commenter notes that the majority of water-borne coating lines affected by the Coil NESHAP operate without VOC controls, as they have been able to formulate coatings that meet existing NSPS or RACT VOC limits. The commenter claims that these lines will have a very difficult time complying with the proposed emission rate limit because they cannot receive credit for HAP emission reductions generated by add-on control devices. Commenter IV-D-8 submits that the inclusion of a compliant coating option would accommodate these lines without relaxing the emission limits that apply to coating lines that must rely on add-on VOC controls to achieve compliance. The commenter further adds that the compliant coating option as originally proposed (1.5 lbs HAP/gal solids) is more restrictive than the coil coating NSPS VOC emission limit [40 CFR §60.462(a)(1)] for facilities that operate without control devices.

Commenters IV-D-5, IV-D-13, and IV-D-16 submit that EPA is allowed to include the compliant coating option under section 112(h) of the Clean Air Act which allows EPA to use work practice, operational, or other standards when control-based emission standards are not feasible. These commenters note that in the case of waterborne coating operations, the currently proposed solvent-derived provisions are not feasible to retain operations without add-on controls, counter to the pollution prevention and operational benefits of the waterborne system. Commenters IV-D-8 and IV-D-12 add that ending the compliant coating option will effectively kill ongoing efforts by the coil coating industry to switch from solvent-borne to waterborne coatings, resulting in an incentive to switch back to solvent-borne coatings to avoid very high supplemental fuel costs and other problems with controlling emissions from water-borne coatings. In summary, Commenter IV-D-8 asserts that elimination of the compliant coating option is inconsistent with EPA's national policy goals regarding: (1) the promotion of pollution prevention, (2) minimizing greenhouse gas emissions, and (3) encouraging reformulation to waterborne coatings.

Response 1: A compliant coating option was included in the proposed rule in the form of an emission rate limit, and we have revised it to a less stringent level for the final rule. Facilities may comply with the rule by using coatings that contain no more than 0.38 lb of HAP per gallon of solids, as purchased or as applied, without add-on controls. This option is a viable option, as at least two of the six facilities in the MACT database using waterborne coatings with no add-on controls already demonstrate yearly average emission levels less than this limit. We rejected the draft compliant coating limit of 1.5 lb/gal solids which was discussed as a potential option at a June 22, 1999 stakeholder meeting when we determined that is was less stringent than the MACT floor level of control. Alternative limits must achieve levels of emission reductions no less stringent than the MACT floor control level. Although we did not respond to the commenter's request in writing, we did discuss our determination during a December 1999 meeting with industry stakeholders we held in response to the August 20, 1999 letter submitted by the commenter.

Comment 2: One commenter submitted that due to differences in operations and coating type, water-based deck lines with in-line tandem coating and roll forming operations must be considered separately from and treated differently than traditional coil coating lines using solvent-based coatings and requested that a water-based compliant emission rate alternative of 0.518 lb of HAP/gal of solids applied (i.e., 0.062 kg/l) be established because it is the lowest water-based HAP emission rate commercially demonstrated for all colors and all seasons of the year.

Response 2: A compliant coating option in the form of an emission rate was included in the proposed rule and has been revised to be less stringent in the final rule. The final emission rate is 0.38 lb organic HAP per gallon of coating solids applied, averaged over a 12-month period. This compliance option was included as a pollution prevention alternative for facilities using coatings that contain lower levels of HAP so that the application of controls like those needed for higher-HAP coating operations would not be necessary. Of the six facilities in the MACT database operating water-based deck lines, at least two of the facilities should be able to comply using this option without reformulating coatings or applying any controls. Data submitted by the remaining four deck facilities indicate that they will need neither oxidizers nor PTE to achieve the emission rate limit. They would be able to achieve the needed emission reductions using other options such as reformulation or solvent recovery. The commenter suggested an emission rate limit of 0.518 lb HAP per gallon of coating solids applied because purportedly, it is the lowest rate that can be achieved for all colors for all seasons. We believe the final emission rate of 0.38 lb/gallon is achievable, in part because the standard allows averaging of all coatings across a 12-month period. Thus, a source would be able to offset usage of higher-HAP coatings, such as the one the commenter describes, with usage of lower-HAP coatings at other times in order to average below the emission rate limit over 12 months. Therefore, given the compliance alternatives, EPA believes that the final rule provides sufficient flexibility for sources to comply.

3.4.5 Compliance Metric (Pounds HAP/Gallon of Solids Applied)

Comment: One commenter (IV-D-12) stated that they have gone on record with the Agency regarding major concerns over the use of pounds of HAP/gallon solids applied as the regulatory standard unit of measurement of emissions of HAPs from application of surface coatings. They attached a position paper sent to EPA before proposal which outlined the reasons for recommending the use of weight to weight metric: The commenter stated that EPA staff have indicated that use of the weight-to-volume solids metric is based on an "equity" issue and made the comparison of one technology or formulation to another easier. The commenter noted that EPA staff also have referred to earlier statements such as those found in the EPA Control Techniques Guidelines Series:

> "Other options such as lbs. or gallons of VOC per lb. of coating are generally less desirable although they may be entirely appropriate for a given industry. Basing limitations on the mass of a coating or paint solids is not recommended because the specific gravity of coatings tends to vary widely with the degree and type of pigmenting employed. Highly pigmented paints have a much greater density than unpigmented clear coats or varnishes. Furthermore, basing limits on paint mass may encourage users to employ a greater degree of pigmentation solely to meet air pollution limits."

The commenter does not believe that the Agency is serious about coating formulators intentionally adding pigment to formula to meet a compliance limit, but is concerned over the "equity" argument. The commenter claimed that if the Agency is truly concerned about equity, then why would the Agency in determining the MACT floor emission rate go through a convoluted process to come up with average volume solids data using glycol ethers as the chosen HAP to convert HAP from volume to mass. The commenter stated that the use of weight to weight metric would have eliminated the need to use an arbitrarily chosen HAP to determine the solids. The commenter cited this as another reason the commenter feels that the weight to weight metric is the proper metric for measuring the emissions of HAPs from surface coatings.

In the position paper sent to EPA before proposal, they outlined the following reasons why they believe the proposed metric of pounds of HAP/gallon solids applied is not the right metric: (1) virtually all of the data on volume solids of coatings (which must be known in order to determine the gal. of solids) is based on theoretical formulation values since test methods used to determine volume solids are not routinely run by coatings manufacturers; (2) test methods ASTM D-2697 and D-6093 that can be used to determine volume solids are flawed due to inaccuracies and high cost; and (3) it is hard to understand, hard to determine, and there is no acceptable test to verify compliance.

In the same position paper to EPA, they gave the following reasons for recommending the use of weight to weight metric: (1) it is easy to determine; information on the weight solids of a surface coating is readily available from the coatings manufacturer; (2) the ASTM Method D-2369 for determining weight solids is very accurate for all types of coatings; (3) it would provide a technically sound test method for compliance monitoring by manufacturers and coating applicators and, if necessary, enforcement; (4) the use of a coatings weight solids is an internationally recognized measurement of sale and use of coatings; (5) there needs to be consistency in the use of compliance metric since many facilities will be subject to one or more of the 11 new surface coating NESHAP.

<u>Response</u>: We selected the units of "mass of HAP per volume of coating solids used" to normalize the assessment of organic HAP emissions across all affected sources. These units relate directly to production rates, assuming that average dry coating film thicknesses are fairly constant across all product types. We believe that the use of mass of solids in the denominator of the standard would penalize operations using lower density pigmented coatings (i.e., a lower denominator in the emission calculation would lead to a higher apparent emissions value), while providing an advantage to users of higher density coatings. Therefore, an emission limit based on volume of coating solids used was deemed to be more equitable.

Volume solids data were reported by the industry on ICRs. To calculate the emission rate limit, the reported data were utilized; therefore, no conversion to volume solids was necessary. To arrive at the emission rate limit, the average volume solids reported by each facility was used to determine the average volume solids used by the industry. We used the conservative assumption that the entire volatile fraction of the coating was HAP to determine the HAP/solids volume to volume ratio. The density of glycol ethers was used to convert the volume of HAP to mass of HAP to achieve the desired units. The use of glycol ethers for this conversion was not an arbitrary decision; glycol ethers was chosen because it is a HAP that can be used in either water based or solvent based coatings and it also makes up a significant percentage of HAP used in the industry. The final step in the calculation of the emission rate limit involved multiplying the HAP/solids ratio by the MACT floor OCE.

The format of mass of pollutant per volume of coating solids was also used in the standards of performance (NSPS) for metal coil surface coating and several other surface coating NSPS. A format of mass of pollutant per volume of coating less water and exempt solvents has been used in many surface coating Control Technique Guidelines (CTG). For purposes of consistency with these other requirements, it is most advantageous for source owners and operators subject to different Federal rules to use similar formats in determining compliance with these rules. For the most part, sources in the surface coating categories are accustomed to the volume solids format in EPA regulatory materials, and they have not argued for a change to mass of solids. Consistency in reporting compliance with the various standards to which a source is subject will also simplify the enforcement of these NESHAP. We agree that consistency in format is also helpful to sources subject to more than one NESHAP. Most of the proposed surface coating NESHAP and those under development use the volume solids format.

3.5 COMPLIANCE DATES

3.5.1 OCE Six-Year Phase In

Comment: Commenter IV-D-6 states that his company is a member of the National Coil Coating Association and participated in development of the coil coating standard. The commenter, however, expresses surprise at the extremely high level of 98 percent overall control efficiency expected in the proposed standard and notes that of the commenter's three US-based paint lines, only one line meets the proposed standard. The commenter would like to see gradations of improvement expected over a period of time and recommends that the standard be set at 92 percent overall efficiency with improvement levels established every two years. The commenter offers, as an example, in 2001 the standard would be 92 percent, in 2003 the standard becomes 94 percent, in 2005 the efficiency increases to 96 percent and in 2007 the 98 percent level becomes the standard. The commenter believes that this graduated level allows manufacturers to work towards the eventual standard of 98 percent without having to do a complete reworking of the emissions equipment. The commenter submits that this recommendation is logical in that the air emissions for all coil coating paint lines will become much better over the next several years making for an improved environment without subjecting manufacturers to extreme financial hardship because they will be able to spread the necessary capital expense over a longer time frame.

<u>Response</u>: Beginning in the summer of 1999, we discussed with stakeholders the likelihood that the standard would be based on data from sources achieving better than 98 percent OCE. Existing sources will be allowed 3 years after the promulgation date to come into compliance, a point that the commenter may not have understood based on the compliance time frame he proposed. Therefore, the compliance date for these sources will occur in 2005. This means that existing sources will have had 6 years of lead time from 1999 to plan and carry out their HAP emission reduction programs and almost 5 years from the July 18, 2000 proposal date. This compliance timeframe is similar to the one the commenter indicated is desirable.

3.6 MONITORING

<u>3.6.1 Incinerator Monitoring</u>

<u>Comment 1</u>: Commenter IV-D-4 states that the use of thermal oxidizers for destruction of HAP emissions will require some form of monitoring to verify HAP destruction. The commenter submits that typical thermal oxidizer control and monitoring for other operations includes CO/O_2 and temperature; therefore, the controls and monitoring for the metal coil coating operations should be no exception. The commenter adds that speciated monitoring systems can be as much as one-third the cost of the thermal oxidizer, making monitoring of speciated HAP cost prohibitive. Regarding VOC monitoring, the commenter submits that the maintenance of these systems is extensive (albeit at a material system cost that is less than for a speciated monitoring system). Therefore, the commenter recommends that a simple system of CO/O_2/temperature serve as the standard (for example: basing the DAS on the size of the system; a small system using a data logger/strip chart recorder and a large system requiring a full 40CFR60 DAS).

<u>Response 1</u>: The speciated HAP monitoring and VOC monitoring cited by the commenter as being expensive and unnecessary are not required by this NESHAP. Neither is CO/O_2 monitoring. Consistent with the NSPS and NESHAP regulatory program, we are requiring only temperature monitoring for oxidizers to ensure continuous operation at conditions recorded during performance tests to demonstrate compliance with the standard.

<u>Comment 2</u>: Commenter IV-D-11 notes that in §63.5150(a)(3)(ii), a specification for temperature sensing devices is not included. The commenter recommends that a sentence similar to “The device must have an accuracy of ± 1 percent of the temperature being monitored in degrees Celsius, or ± degree Celsius, whichever is greater” should be included as in §63.5150(a)(3)(iii).

<u>Response 2:</u> The specifications for temperature sensing devices suggested by the commenter are included in §63.5150(a)(3)(iii) and are the specifications that apply to §63.5150(a)(3)(ii).

Comment 3: Three commenters (IV-D-8, IV-D-9, and IV-D-16) submit that it is inappropriate to use the catalyst bed outlet temperature as a continuous compliance operating parameter because the temperature rise across the bed is a function of the total VOC loading to the oxidizer. Commenters IV-D-8 and IV-D-16 point out that if the oxidizer operates at a lower VOC loading rate than the rate seen during the initial performance test, the minimum temperature established for the catalyst bed outlet might not be met. The commenters assert that operating below that minimum temperature may not represent improper operating conditions or excessive emissions, but may solely be a result of decreased VOC load to the incinerator. Commenter IV-D-8 notes that it is only the preamble discussion of monitoring requirements for catalytic incinerators (65 FR 44619) that states that the facility must establish operating parameters as the minimum gas temperatures both upstream and downstream of the catalyst bed; the appropriate section of the proposed Coil NESHAP regulation [§63.5160(d)(3)] states that the operating parameter for a catalytic oxidizer is limited to the minimum gas temperature at the inlet to the catalyst bed. Commenter IV-D-8 states that modifying the text of the preamble is necessary to make it consistent with this section of the proposed rule.

Commenters IV-D-8 and IV-D-16 refer to the discussion in the May 30, 1996 Federal Register (61 FR 27137) which covered the same topic for catalytic oxidizers used in the printing and publishing industrial sector. The commenters note that EPA concurred with nine commenters that a downstream temperature parameter established during performance testing under normal conditions might not be maintained during low load conditions, yet this would not be an indication of excess emissions. The commenters also note that EPA eliminated the downstream temperature monitoring compliance demonstration for the printing and publishing NESHAP.

Response 3: Our intent was to include in §63.5160(d)(3) that both the outlet temperature and the inlet temperature be used as the operating parameters for catalytic oxidizers, in order to calculate the temperature change across the catalyst bed. A temperature change across the catalyst bed demonstrates catalyst activity. The final rule has been corrected to agree with the proposal preamble discussion and to clarify the original intent. Also, an alternative to this monitoring has been added to the rule. In lieu of monitoring the inlet and outlet gas temperatures to calculate temperature change across the catalyst bed, facilities may meet a minimum gas temperature at the inlet to the catalyst bed established during the performance test and develop and implement an inspection and maintenance plan for the catalytic oxidizer. This plan must include annual sampling and analysis of catalyst activity, monthly inspection of the oxidizer system including the burner assembly and fuel supply lines and adjusting the equipment to assure proper air-to-fuel mixtures, and an annual internal and monthly external visual inspection of the catalyst bed to check for channeling, abrasion, and settling. Under this plan, if problems are found, corrective action must be taken according to the manufacturer’s recommendation and a new performance test must be conducted to determine destruction efficiency. This provision has been included in the final rule to provide an alternative to the catalytic oxidizer downstream temperature monitoring requirement.

Comment 4: Commenters IV-D-5 and IV-D-8 note that a source must establish as the operating parameters for thermal or catalytic oxidizers a minimum gas temperature in the combustion chamber or catalyst bed inlet; these minimum temperatures are then used as operating parameters to demonstrate continuous compliance. The commenters further note that the minimum temperatures are defined as a time-weighted average of the values recorded during the initial performance test. The commenters propose that a 50 °F tolerance below the time-weighted average temperature should be used to establish the minimum temperature. The commenters submit the facility would not show an excursion from the oxidizer temperature monitoring parameter unless a three-hour rolling average temperature was calculated at more than 50 °F below the minimum temperature established in the initial control device performance test. The commenters point out that this approach is specified in the coil coating NSPS [40 CFR 60.464(c)]. Commenter IV-D-8 adds that a 50 °F drop in combustion chamber temperature typically does not have a significant impact on the oxidizer destruction efficiency, as documented in the June 11, 1980 EPA memorandum "Thermal Incinerator Performance for NSPS" (Docket Item No. II-I-3). Both commenters also point out that the concept of a tolerance in the operating parameter compliance point is also included in the capture system monitoring requirements under §63.5150(a)(4)(ii). This paragraph states that the operating parameter value or <u>range</u> of values must represent the conditions indicative of proper operation of the capture system.

<u>Response 4</u>: Operating parameters and deviations from them are discussed in 63.5150 (a) and (b). We believe these provisions allow sufficient flexibility and that an additional tolerance for temperature fluctuation is not necessary. The source owner or operator is allowed to select operating parameter limits based on site-specific operating conditions and is able to consider the need for temperature fluctuations in this selection. Such fluctuations that occur in individual temperature readings should average out over the 3-hour averaging period, and an additional tolerance is not warranted.

3.6.2 <u>Capture System Monitoring</u>

<u>Comment 1</u>: Commenter IV-D-9 recommends that the capture system monitoring plan be eliminated if permanent total enclosures (PTE) are present. The commenter submits that this would be one incentive for industry to make the expensive decision to design and install an enclosure that meets the definition of a PTE. The commenter feels that companies that choose not to install a PTE would have the disincentive of additional monitoring and recordkeeping to consider.

<u>Response 1</u>: Capture system monitoring is required to demonstrate continuous compliance. There are 5 criteria that must be met for an enclosure to be considered a PTE. These criteria include requirements for closed access doors, the minimum flow rate into the PTE, the location of equipment, the location of exhausts and the area of openings into the PTE. Capture system monitoring will assure that the PTE is maintained the same as it was during the initial compliance determination, e.g., that access doors are closed during routine operation of the coating application station and that the total area of openings into the PTE is not increased beyond 5 percent of the interior surface area. As is explained in the response to Comment 2 in this section, example criteria for setting operating parameter limits and monitoring capture systems will be included in implementation materials for the rule to assist facilities in developing monitoring plans.

<u>Comment 2</u>: Commenter IV-D-11 notes that there are no specifications for monitoring system accuracy, calibration frequency, etc. in §63.5150(a)(4) for capture systems. The commenter believes that such specifications should be added to be consistent with other requirements of this Subpart and that the specification to prepare and submit for approval a "monitoring plan" for capture system monitoring is entirely too vague. The commenter submits that the standard should spell out what monitoring should be done, how to set the operating parameters (including appropriate averaging time) and specify reporting for various capture system options as it does for control equipment options. The commenter asserts that arguments that capture system designs and operations are far too many and too complex to be able to be specific are unconvincing and avoid offering the affected facilities specifics on what the EPA would accept. The commenter suggests that air flows, static pressure monitoring, or even pressure differential are options and each must be evaluated by EPA as an acceptable means of monitoring before the final Rule is issued. The commenter adds that having this vague language will simply prompt many more "guidance memoranda" or "applicability decisions" by the EPA and states unnecessarily.

<u>Response 2</u>: At the time of proposal of this NESHAP, we had not developed criteria for the monitoring of capture systems and proposed some minimum criteria for facilities to follow to develop monitoring plans for their site-specific conditions. At a minimum, facilities must identify operating parameters that ensure the capture efficiency measured during the initial compliance test is maintained, demonstrate compliance with the standards, and are indicative of proper operation and maintenance of the capture system. The facility must also identify specific monitoring procedures that they will follow. After proposal of this NESHAP, we developed criteria to be used for setting operating parameter limits for monitoring capture systems and proposed them in other surface coating NESHAP (see, for an example, the proposal of Subpart NNNN National Emission Standards for Large Appliances Surface Coating Operations, 65 FR 81133). These criteria will be included in implementation materials we are developing for the final metal coil surface coating rule as an example that facilities may follow in developing their monitoring plans.

3.7 PERFORMANCE TESTS

3.7.1 <u>Cure Volatile HAPs</u>

<u>Comment</u>: Three commenters (IV-D-8, IV-D-13, and IV-D-16) note that §63.5160(b)(1) and Preamble Section V(A) (65 FR 44618) specify that the organic HAP contents of coatings should be determined by Method 311 or an alternative method approved by EPA. The commenters add that Method 311 indicates that a separate or modified test procedure should be used to measure the cure volatile HAP contribution to the total organic HAP emissions from a coating. It is the commenters' understanding that a cure volatile HAP method is currently being developed to be included as Appendix A to Method 311. They request that since there has been no consideration of cure volatile HAPs in this rule-making process, the preamble text and §63.5160(b)(1) should clearly state that measurement of cure volatile HAPs is not required for the Coil NESHAP compliance testing.

Similarly, Commenter IV-D-12 submits that, as indicated by the information provided by the can manufacturing industry on this subject in another MACT rulemaking, the generation of cure HAPs from major surface coatings operations do not create health risks of concern. Citing the lack of health risks, the lack of sufficient detailed knowledge about methods for effectively determining the emissions, as well as the certainty that such knowledge will not be forthcoming in sufficient time to help the development of the MACT floors and limitations for the surface coating MACT standards, this commenter suggests EPA should defer resolution of the issue until the residual risk stage.

Response: Section 63.5160(b)(1) of the NESHAP requires that organic HAP content of coating materials be determined from manufacturer's data or from EPA Method 311 with Method 311 being the determinant if results differ from manufacturer's data. The statement in the applicability section of Method 311 that a separate test procedure must be used to measure reaction products or cure volatiles is not intended to imply that such measurement is required by Method 311. It is only an acknowledgment that Method 311 does not measure them and if the relevant standard requires the measurement, a different test must be used. Measurement of reaction products and cure volatiles is not required by the coil coating NESHAP.

3.7.2 Minimum Exhaust HAP Concentration

Comment: Commenter IV-D-9 requests that the rule acknowledge the limits of current testing methods. The commenter states that Method 25A, a method often chosen to run oxidizer efficiencies because it is accurate below 50 ppm, has a lower accuracy limit of 20 ppm. The commenter submits that should be mentioned in the rule as a lower limit such that the control device must reach the required destruction efficiency or 20 ppm at the outlet, whichever limit is reached first. The commenter offers as an example, if the inlet loading to the destruction system (oven and oxidizer) were 800 ppm, 98 percent OCE would yield 16 ppm measured at the outlet and thus the 20 ppm level would be a sufficient demonstration of compliance.

Response: Method 25A can accurately measure down to 1 ppm. However, as is explained in response to Comment 3.4.2 regarding the overall control efficiency, an alternative limit of 20 ppmv outlet concentration on a dry basis has been added to the final rule.

3.7.3 Use of Formulation Data

Comment 1: Commenter IV-D-12 endorses the use of formulation data to determine and certify compliance with the coating HAP limits. The commenter notes that EPA has recognized for some time now that coatings manufacturers may effectively certify a coating as being VOC compliant on the basis of the coating's formulation data so long as the data have a consistent and quantitatively known relationship to EPA test methods, such as Method 24. The commenter states that the rationale behind this is that coatings are formulated with specific properties in mind and that quality assurance processes and basic performance tests readily demonstrate whether those performance characteristics have been achieved by any particular batch of the coating. The commenter also notes that EPA's Office of Enforcement and Compliance Assurance (OECA) has recognized this principle in writing and also stated that data demonstrating a consistent and quantitatively known relationship to EPA test methods could come from a variety of sources. In summary, the commenter states that as the above suggests, formulation data can also be effectively used to certify compliance with the limits specified in the coil coating MACT standard.

Response 1: Provisions allowing the use of formulation data as an option to determine the organic HAP weight fraction and the volume solids of each coating material applied are included in final rule at §63.5160(b) and (c), respectively. In the event of a discrepancy between formulation data and the relevant EPA test method (i.e., Method 24 or 311), the test method results would govern, consistent with our general regulatory approach for surface coating sources.

Comment 2: Four commenters (IV-D-5, IV-D-8, IV-D-13, and IV-D-16) note that although facilities can rely on the use of formulation data provided by coatings manufacturers, in the event of a conflict between formulation data and a method/ASTM test, the proposed rule states that the method/ASTM test will govern. The commenters assert that the facility should have the opportunity to demonstrate that the formulation data are correct and may govern. The commenters request EPA to add this language to the rule and explain this point in the preamble. Commenters IV-D-8, IV-D-13, and IV-D-16 note that such a change would be consistent with past MACT standards, including the final MACT standard for wood furniture manufacturing and the final MACT standard for printing and publishing.

Moreover, all of the commenters believe that a facility should not be liable for past violations if formulation data conflicts with the results of an EPA-ordered method/ASTM test. The commenters contend that if a coil coating facility were to be held independently responsible for the accuracy of manufacturer-supplied formulation data, there would be no benefit to allowing formulation data to be used; the facility would have to independently test the formulation data by using the method/ASTM tests to ensure it would have no enforcement exposure should the manufacturer's data prove invalid. The commenters assert the preamble and rule language should make clear that if there is a conflict between EPA-ordered method /ASTM test and formulation data, a facility would have no liability for noncompliance before the results of the method/ASTM test become available (allowing a reasonable time for the facility to adjust operations based on the new test results) unless the facility had reason to believe that the formulation data were inaccurate before the method/ASTM test and continued to rely upon that data. Commenter IV-D-8 suggests revised rule language to implement the above described changes.

Response 2: The final rule requires that the EPA test methods will prevail in a discrepancy between formulation data supplied by the coating supplier and test data, and the facility will be held responsible for deviations from the emission limits due to these inconsistencies. (The enforcement authority will determine if the deviation is a violation of the standard.) Facilities using formulation data for compliance demonstrations should only do so if they are comfortable that the formulation data supplied by the coating supplier are correct. For example, the Printing and Publishing NESHAP requires that formulation data may be relied upon if the coatings manufacturer used the appropriate test method, or if they used a CPDS provided to them by their raw material supplier. While the coil coating NESHAP does not make the same requirement for conditions under which formulation data may be used, it is expected and to the benefit of the facility that the facility pursue a high degree of certainty in the formulation data they accept for use in compliance demonstrations.

The proposed NESHAP did not specify that ASTM methods D-6093 and D-2697 for the determination of volume solids will govern over formulation data for volume solids. Facilities may rely upon either the ASTM methods or formulation data; one will not prevail over the other. The final rule has been revised to clarify this point (see response to Comment 3.7.4).

3.7.4 Determination of Volume Solids

Comment: Commenters IV-D-8 and IV-D-12 question the use of the two ASTM test methods for the determination of volume solids (ASTM D-2697 and D-6093). Commenter IV-D-8 states that traditionally coating suppliers have determined the volume solids content by relying on direct measurement of weight solids content and the combined density of the individual compounds that comprise the volatile matter content. Commenter IV-D-12 submits that as a practical matter, virtually all of the data on volume solids of coatings (which must be known in order to determine the gallons of solids) is based on theoretical formulation values and that the two referenced ASTM methods are not routinely run (if at all) by manufacturers of coil coatings. Commenter IV-D-8 requests clarification in the text under §63.5160(c) that the formulation data provided by the coating supplier can be based on calculation of the volume solids content and does not have to rely exclusively on measurements via ASTM D2697-86 or ASTM D6093-97.

Commenter IV-D-12 states that to address concerns over the use of the test methods, the commenter has undertaken a project to review data obtained by running this protocol and comparing it with theoretically determined values. The commenter states that initial data from the project should be available in the next thirty days (comment dated September 18, 2000) and will be shared with EPA and coating users.

Response: No additional data were received from Commenter IV-D-12 to support the commenter's position. In the absence of data showing the relationship of volume solids measured with the ASTM methods to theoretically determined values, we have concluded that either means of volume solids quantification is acceptable. Therefore, the provisions in §63.5160(c) of the rule have not been changed but have been clarified.

3.7.5 Establishment of Operating Parameter to be Monitored

Comment: Commenter IV-D-11 notes that §63.5160(d)(3) requires the time-weighted average of the temperatures recorded during the performance test to be calculated. The commenter adds that this paragraph also states that the minimum temperature recorded must be established as the operating limit that will demonstrate continuing compliance. The commenter seeks clarification as to whether this is the minimum instantaneous temperature or the minimum time-weighted average temperature.

<u>Response</u>: The time-weighted average of the temperatures recorded during the 3 separate runs of the performance test establishes the minimum temperature operating limit. Each successive 3-hour average temperature must not be lower than this minimum in order for the source to demonstrate continuous compliance.

3.7.6 <u>Waiver of Performance Test</u>

<u>Comment</u>: Commenter IV-D-9 notes that a waiver of performance testing is mentioned at §63.5160(a)(2) but no examples are supplied. The commenter recommends that at least one waiver be acknowledged in the rule, i.e., compliance testing may be waived if within two years prior to the required compliance date, an acceptable OCE demonstration can be shown.

<u>Response</u>: Waivers of performance testing on a case-by-case basis must be applied for and may be approved as specified by the General Provisions in §63.7(h). The final rule cross references this provision which clarifies the conditions under which a waiver may be granted.

3.7.7 <u>Alternative Test Methods</u>

<u>Comment 1</u>: Commenter IV-D-8 notes that preamble Section V(A) (65 FR 44619) lists the test methods for measuring the removal efficiency of a control device and goes on to state that alternatively, any other test method or data that have been validated according to applicable procedures in Method 301 of 40 CFR Part 63, Appendix A may be used upon obtaining EPA approval. The commenter submits, however, that §63.5160(d) does not include the language for gaining approval of an alternative test method and requests that the text be modified to allow for alternative test methods validated according to Method 301 and approved by EPA.

<u>Response 1</u>: Approval of alternative test methods can be requested as specified by the General Provisions in §63.7(f). Table 1 in the NESHAP entitled "Applicability of General Provisions to Subpart SSSS," indicates that all of §63.7 applies to the NESHAP. This cross-reference to §63.7(f) is adequate, and no additional language has been included in the final rule.

<u>Comment 2</u>: Commenters IV-D-5 and IV-D-9 request an alternative method involving a mass balance approach to determine oxidizer destruction efficiency to demonstrate compliance with the OCE and to test the control efficiency needed to demonstrate compliance with the emisson rate limit. Both commenters state that such an approach will reduce test costs; Commenter IV-D-9 notes that this will allow coaters a small return on their investment in coating rooms.

As described by Commenter IV-D-9, the mass of coating HAPs could be calculated before coating begins, using weights and known VOC content to serve as the denominator in the equation to calculate oxidizer efficiency. The numerator would be the mass of VOC as measured at the oxidizer outlet. The commenter submits that the VOC destruction efficiency would then serve as the assumed HAP destruction efficiency of the line. According to the commenter, this method will acknowledge the destruction of low boiling solvents which occurs in the ovens and is currently lacking in any of the methods referenced in the proposal.

Commenter IV-D-5 submits that in the initial compliance demonstration performed at one of its facilities, EPA Region IV accepted an alternate procedure whereby VOC emissions measured in the common exhaust stack were compared to as applied VOC to establish overall line VOC control efficiency. The commenter suggests that a similar approach could be adopted for establishing an overall line efficiency on an organic HAP basis. The commenter presents information regarding the configuration of control systems at two of the commenter's facilities and comparisons of HAP applied per the MSDS versus Method 311 as the basis for recommended amendments to proposed §63.5160(d). The commenter submits detailed recommended language to be added to §63.5160(d) providing for an overall line efficiency test (based on mass balance) for lines using oxidizers.

<u>Response 2</u>: The testing approach suggested by Commenter IV-D-5 would require the use of "Appendix A" to EPA Method 311. We are developing Appendix A as a means of quantifying cure HAP that are formed during the curing of a coating. Appendix A is still in draft form, and we have not proposed it for public comment. Therefore, its use cannot be required by the final rule. Further, the commenter's suggested use of the draft Appendix A is to measure stack emissions using Method 18 to speciate HAP and then use Appendix A of Method 311 to quantify the cure HAP concentrations. We believe that the commenter's suggestion is unworkable at this time since Appendix A has not been proposed for use in a rule, particularly in the manner suggested. Therefore, Commenter IV-D-5's suggestion is not incorporated in the final rule.

The approach suggested by Commenter IV-D-9 would compare emissions from the exhaust stack to calculated uncontrolled emissions to determine OCE. This is similar to one option allowed by the rule if the enclosure meets the Method 204 criteria for a permanent total enclosure (PTE); therefore, the rule needs no revision to accommodate this testing approach. If the enclosure is not a PTE, however, the rule requires that all emissions leaving the enclosure that do not pass through the control device must be quantified. The commenter's approach is deficient in not addressing this scenario. Therefore, it has not been incorporated into the rule.

Any source that wants to use an alternative test method may request a site-specific approval according to §63.7(f) of the General Provisions.

3.7.8 <u>Capture Efficiency</u>

<u>Comment</u>: Commenter IV-D-11 submits that the first sentence of §63.5160(e)(1) should be changed to read "For enclosures that meet the criteria...", because a permanent total enclosure that does not meet the requirements of Method 204 is not a PTE as defined in the Subpart, and a TTE can not be assumed to have 100 percent capture efficiency since a non-controlled fugitive emissions point will exist.

<u>Response</u>: EPA agrees that this clarification should be made in the final rule. Section 63.5160(e)(1) has been revised to read, "For PTE that meet the criteria of Method 204 for permanent total enclosures, capture efficiency will be assumed as 100 percent." Section 63.5160(e)(2) has been revised to read, "For enclosures that do not meet the criteria for permanent total enclosures, the capture efficiency must be determined according to the protocol specified in Method 204 A through F of 40 CFR Part 51."

3.8 COMPLIANCE DEMONSTRATION

3.8.1 <u>Averaging Period</u>

<u>Comment</u>: Five commenters (IV-D-8, IV-D-9, IV-D-12, IV-D-13, and IV-D-16) assert that the compliance averaging period for the equivalent emission rate should be a 12-month rolling average to account for the use of annual average data in the derivation of the equivalent emission rate and the significant variability in the types of coatings toll coaters typically apply over a one year period. Commenters IV-D-13 and IV-D-16 submit that the monthly rolling determination would provide EPA and regulatory authorities with compliance information on a regular monthly basis from which to assess compliance.

Commenter IV-D-8 states that EPA relied on the total annual volume of solids and coating applied, as reported in the ICR responses, to calculate the average volume solids content for each facility. The commenter adds that the representative coating used to define the pre-controlled HAP emission rate then was based on the arithmetic average of the annual average solids content data for each facility. The commenter submits that this calculation procedure does not account for variability in the coatings use on a month-by-month basis, e.g., some toll coaters have seasonal customers (e.g., swimming pool or garage door stock) that create a significant variation in the mix of coatings that are applied on a monthly basis. The commenter claims that the percentage of total production that the seasonal products represent can be five-to-ten times higher during the season in which their demand is high and asserts that if the seasonal products require a high-HAP or low-solids coating, the facility's monthly emission rate would increase significantly above the annual average used in EPA's methodolgy. The commenter adds that this variability could require a much higher add-on control device efficiency to comply with the equivalent emission rate limit on a monthly basis than the efficiency EPA calculated using the annual average data obtained from the ICR responses.

Commenters IV-D-8 and IV-D-16 request that if EPA retains the monthly compliance period, the emission rate should be set at a higher level to account for the monthly variability issue (see Section 3.4.3 of this document).

<u>Response</u>: As is explained in response to Comment 4 of Section 3.4.3 regarding the emission rate limit, the averaging period has been revised in the final rule to a 12-month rolling average.

3.8.2 Calculation of OCE

Comment 1: Commenter IV-D-8 notes that §63.5170(e)(1)(vii) sets forth Equation 6, which is used to calculate the facility-wide average volatile organic matter collection and recovery efficiency when demonstrating compliance through the use of a solvent recovery control device. The commenter proposes that the term M_j defined in §63.5110(b) be revised to eliminate the inclusion of water.

The commenter explains that this equation ratios the total amount of volatile material collected over the total amount of volatile material applied. The commenter notes however, that the total amount of volatile material applied includes any water added to the coatings as a reducer or diluent. The commenter believes that the inclusion of water is not appropriate because the mass of volatile material recovered by a condenser or carbon adsorption system would typically not include water that may have been in the coating formulation. The commenter submits that these systems typically have aqueous/organic phase separation in the recovery process, especially carbon adsorption systems that use steam to regenerate the carbon.

Response 1: We agree with the commenter that water should not be included in the mass balance to determine solvent recovery efficiency. In the final rule, the compliance demonstration is based on calculation of the solvent recovery system's volatile organic matter collection and recovery efficiency using Method 24 or manufacturer/supplier information to determine volatile organic matter mass fraction. Accordingly, the definition of the term M_j in Equation 6 of the final rule has been revised to eliminate the inclusion of water.

Comment 2: Commenter IV-D-5 notes that proposed §63.5170(f)(1)(v) specifies that a facility-wide average overall HAP control efficiency, R, be calculated using equation 9. The commenter suggests that for facilities with single coating lines, Equation 9 can be eliminated. The commenter states that the "E_K term in equation 10 would be "E" for facilities that demonstrate compliance by testing the oxidizer inlet and outlet for VOC, or "E_L" for facilities that wish to demonstrate efficiency on an overall line basis (see comment above concerning mass balance approach to determining oxidizer efficiency). The commenter recognizes that equation 9 is needed by facilities with multiple coating lines and control devices and suggests amended wording for §63.5170(f)(1)(v) as follows:

"(v) For facilities with multiple lines, capture systems, and oxidizers, calculate the facilitywide average overall organic HAP control efficiency, R, achieved using equation 9 of this section. Facilities with single lines controlled by one oxidizer may assume that the E_K term of equation 10 is equal to "E" or "E_L," depending on whether oxidizer efficiency or overall line efficiency is the selected method for demonstrating compliance."

Response 2: Equations 9 and 10 both have nested summations that reduce to simpler terms for facilities without multiple lines, capture systems and control devices. Therefore, it is not necessary to make the suggested revision.

3.8.3 Calculation of Emission Rate Limit

Comment 1: Three commenters (IV-D-5, IV-D-8, and IV-D-13) object to the capping of the OCE at 98 percent in the calculation of HAP emitted, unless there is continuous emission monitoring system data to support the efficiency. Commenters IV-D-8 and IV-D-13 believe that an arbitrary cap at 98 percent on the actual measured control efficiency is not appropriate, as long as the control device performance test was conducted in accordance with the test methods referenced in §63.5160. Commenter IV-D-5 suggests the addition of an equation to accomodate single lines using a mass balance approach to determine destruction efficiency (see Section 3.7.7 of this document). This commenter also suggests an amendment to proposed §63.5170(f)(1)(ix)(C) that would allow the use of the calculated efficiency greater than 98 percent if the oxidizer has operated within its established operating parameter value.

Response 1: We agree with the commenters that facilities should be allowed to receive credit for these emissions reductions when the control device has demonstrated higher destruction efficiencies during performance testing, and operating parameters for capture and destruction are within the established operating limits. The final rule has been amended to remove the 98 percent OCE cap for the calculation of HAP emitted under these circumstances.

Comment 2: Three commenters (IV-D-5, IV-D-8, and IV-D-13) object to the assumption stated in §63.5170(f)(1)(ix)(D) that the oxidizer control efficiency is 0 percent for any period of time that it has deviated from the minimum temperatures established as the operating parameter value. Commenters IV-D-8 and IV-D-13 submit that §63.5170(f)(1)(ix)(D) should be deleted because a minor temperature excursion that may occur in an oxidizer will not necessarily have a significant impact on its destruction efficiency, and would certainly not cause a complete loss of VOC and HAP destruction. All three commenters note that EPA's June 11, 1980 Memorandum on "Thermal Incinerator Performance for NSPS" (Docket Item No. II-I-3) documents that the relationship between destruction efficiency and temperature is such that a substantial drop in temperature would be necessary to have any significant impact on destruction efficiency.

Commenters IV-D-8 and IV-D-13 also note that excursions below the minimum operating temperature are already considered compliance deviations under §63.5170(f)(1)(xi) and submit that there is no need to further complicate the compliance demonstration by adjusting HAP emission rates during brief periods of temperature excursions. If the provision is not deleted from the rule, these commenters propose as an alternative that EPA could specify that a temperature excursion that extends beyond a six-hour period be considered a control device malfunction and would be addressed by the facility's SSM plan. The commenters submit that if the malfunction were not corrected within the time period set forth within the SSM plan, then a reduced destruction efficiency would be used in the calculation of monthly HAP emissions.

Commenter IV-D-5 notes that EPA recognized the variability of oxidizer operating temperatures, because 40 CFR 60, Subpart TT included the following language with respect to operating periods when the oxidizer temperature falls below the average temperature maintained during the initial compliance test: “Each owner or operator shall also record all periods during actual coating operations in excess of 3-hours when the average temperature in any incinerator used to control emissions from an affected facility remains more than 50 °F below the temperature at which compliance was demonstrated”. The commenter also notes that EPA recognizes there is a minimum accuracy level that thermocouples and recording devices can attain as evidenced in proposed §63.5150(a)(3)(iii) that specifies: “For an oxidizer other than a catalytic oxidizer, install, calibrate, operate, and maintain a temperature monitoring device equipped with a continuous recorder. The device must have an accuracy of ± 1% of the temperature being monitored in degrees Celsius...”

Commenter IV-D-5 submits that a mechanism is needed whereby a minimal operating period (such as the 3-hour period provided in 40 CFR 60, Subpart TT) is allowed to correct temporary operating temperature “dips”. The commenter recommends that proposed §63.5170(f)(1)(ix)(D) be amended as follows:

“(D) For periods in excess of 3-hours when the oxidizer has operated at a temperature 50 °F lower than the lowest operating temperature established during the performance test required by 63.5170, your control device efficiency is determined to be 85%. If the oxidizer operating temperature is corrected above the minimum established during the performance test required by 63.5170 within a 3-hour period, it will be deemed not to have operated outside its established operating parameter value.”

Response 2: If an oxidizer is operating below the minimum temperature established as the operating parameter value, this indicates a malfunction of the oxidizer or of the temperature monitoring equipment and also represents a deviation from the operating limit, as is noted by Commenters IV-D-8 and IV-D-13. However, as alluded to by the commenters, Section 63.6 (e) of the General Provisions to Part 63 requires the owner or operator of an affected source to “develop and implement a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the relevant standard. As required under §63.8(c)(1)(i), the plan shall identify all routine or otherwise predictable CMS malfunctions.” The purposes of the startup, shutdown, and malfunction plan are to ensure that you maintain the affected source and associated air pollution control equipment such that HAP emissions are minimized at least to the levels required by all relevant standards, to ensure that you are prepared to correct malfunctions as soon as practicable after their occurrence to minimize HAP emissions, and to reduce the reporting burden associated with periods of startup, shutdown, and malfunction.

During periods of startup, shutdown, and malfunction, §63.6(e)(3)(ii) requires you to follow the procedures specified in the startup, shutdown, and malfunction (SSM) plan. Section 63.5180(f) of the final rule requires you to submit a startup, shutdown, and malfunction report documenting that you followed the procedures in your plan , or if the plan was not followed, documenting what actions were taken. A separate startup, shutdown, and malfunction report is not required if you include the information in your semiannual compliance report. Hence, you can include an explanation of actions taken to minimize HAP emissions during any startup, shutdown or malfunction occurring during the semiannual reporting period.   The report is submitted to your EPA Regional Office and to your delegated State agency, who will determine if a deviation constitutes a violation of the metal coil coating NESHAP. Malfunctions which are addressed by following the SSM plan would likely not be considered a violation of the standard. Likewise, if a deviation from the emission limit occurs due to assuming zero efficiency during such a malfunction, it would not likely be considered a violation assuming there is no other reason for the deviation.

Comment 3: Commenter IV-D-5 notes that proposed §63.5170(f)(1)(vi) requires that the mass of each coating material applied on each coil coating station during the month be measured. The commenter does not track coating usage at each coating application station or measure the mass of coatings applied each month at any of its 3 facilities. The commenter does track gallons of coatings and thinners applied on a combined basis at each of its 3 facilities monthly. The commenter thus recommends that this section be amended by adding the following language:

"(vi) If demonstrating ...based on solids applied....You may also calculate the mass of coating material applied on a combined basis if your facility only has a single line controlled by one oxidizer record. For each month, you may measure and record the volume of each coating applied anywhere on the line, then use the density reported by the coating manufacturer to calculate the mass of applied coatings and thinners."

Response 3: The rule does not specify how the mass of coating material applied during the month should be determined; therefore, calculating the mass from the volume used and the density of the material would be a means of demonstrating compliance with the rule. Tracking the mass of coating material applied on the coating line rather than by application station also would be a means of demonstrating compliance with the rule as long as the capture efficiency is the same for each station on the coating line (the fact that different application stations on the same coating line can have different capture efficiencies is the reason usage is required to be tracked by application station). The equations contain nested summations, such that the mass of coating material will end up being summed for the line in a facility with one coating line with application stations with the same capture efficiencies controlled by a common oxidizer.

3.9 REPORTING AND RECORDKEEPING

3.9.1 Reporting Frequency

Comment: Commenter IV-D-9 states that his facility currently follows an annual reporting schedule of monthly emissions data. The commenter notes that for years, the coating usage data reported at the point of application have served as the estimate of emissions to demonstrate compliance requirements, but actual emissions reports are generated by adjusting usage data to the annual physical inventory. The commenter explains that the theory is the longer measurement period and the accuracy of physical inventory best describe the actual usage. The commenter submits that moving off of a calendar year basis will eliminate the annual adjustment to reflect inventory levels.

Response: As is explained in response to Comment 4 in Section 3.4.3 concerning the emission rate limit, the compliance period has been changed from monthly to annual. This longer averaging period should address the commenter's concern for needing to adjust actual usage data over a longer period than one month.

3.9.2 Report Due Date

Comment: Commenter IV-D-9 asserts that 30 days after the reporting period ends is not adequate time for reporting. The commenter notes that as a custom coating facility, it is common to apply more than 100 different coatings in one month, many of which are mixtures of other coatings. The commenter submits the rulemakers should acknowledge the burden placed on custom coaters with such a short reporting period and the frequency of the reporting. The commenter requests that the report deadline be three months after the fact.

Response: The 30-day reporting period is consistent with other surface coating NESHAP and should be an adequate period of time for this source category. However, if a particular source needs additional time, Section 63.10 of the General Provisions specifies procedures for requesting an alternative reporting schedule or a waiver of recordkeeping and reporting requirements. Recordkeeping or reporting requirements may be waived upon written application to the Administrator if, in the Administrator's judgement, the affected source is achieving the relevant standard(s), the source is operating under an extension of compliance, or the owner or operator has requested an extension of compliance and the Administrator is still considering that request. A waiver of any recordkeeping or reporting requirement may be conditioned on other recordkeeping or reporting requirements deemed necessary by the Administrator.

3.9.3 Reporting of Minor Excursions

Comment: Three commenters (IV-D-5, IV-D-8, and IV-D13) submit that the concept of an operating parameter excursion (as described in Section 3.3.1 of this document concerning the definition of deviation) should be added to the semiannual compliance reporting requirement under §63.5180(h), so that reporting of minor excursions is not required.

Response: As is explained in response to Comment 3.3.1, the definition of deviation clarifies that any failure to meet an emission limitation (including an operating limit or work practice standard) is a deviation. Operating parameters are monitored in lieu of continuous emission monitoring to ensure that the control system is functioning at the same control level measured during performance testing. A deviation of an operating parameter is an indication that the control system is not operating as efficiently as when compliance was demonstrated, and thus, could be out of compliance with the applicable emission limit. Hence, the information required by §63.5180(h) must be provided to the enforcement authority to determine whether a violation has occurred.

4.0 ADMINISTRATIVE REQUIREMENTS

4.1 EO 12866

<u>Comment</u>: Commenter IV-D-8 observes that under Executive Order 12866, EPA must determine whether the coil coating MACT standard is a "significant" regulatory action, and therefore subject to review by the Office of Management and Budget (OMB). The commenter adds that the Order defines "significant" as any regulatory action that may:

(1) Have an annual effect on the economy of $100 million or more, or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

The commenter submits that EPA concluded with no discussion that the coil coating MACT proposal was not a significant action because "none of the listed criteria apply to this action." 65 Fed. Reg. 44623. The commenter asserts that EPA is wrong because the proposal is inconsistent with other actions taken or planned by EPA and the Administration, and because the proposal raises novel legal and policy issues.

According to the commenter, EPA's proposal of the coil coating MACT floor and the ultimate MACT standard at 98 percent OCE, rather than the 95 percent OCE figure urged by the commenter, will cause a significant industry-wide increase in both NOx and carbon dioxide emissions. The commenter estimates that moving from 95 percent OCE to 98 percent OCE will cause approximately 230 tons per year additional NOx and 279,000 tons per year additional carbon dioxide to reduce HAP emissions by an incremental 590 tons per year. The commenter claims to have shown in comments on the proposed rulemaking and earlier letters to EPA that the more stringent MACT standard is not worth the tradeoff, because it is in direct conflict with express Clean Air Act provisions requiring the reduction of ozone precursors such as NOx [see, e.g., CAA §181-187 (CAA provisions requiring States with ozone non-attainment areas to reduce emission of ozone precursors to meet ozone National Ambient Air Quality Standards)]; and with the avowed policies of the Clinton-Gore Administration to reduce greenhouse gas emissons (e.g., EPA Administrator Carol Browner emphasized the Clinton-

Gore Administration's commitment to reduction of greenhouse emissions in a speech delivered on Earth Day 2000 and identified global warming as one of the country's greatest environmental challenges).

The commenter asserts, in the terms set forth in the Executive Order, EPA's 98 percent OCE standard creates a "serious inconsistency or otherwise interferes" with actions taken or planned by EPA, by other agencies, and by the President to reduce ozone concentrations across the country and to reduce greenhouse gas emissions. Additionally, the commenter alleges the 98 percent OCE standard, at a minimum, raises "novel legal or policy issues" regarding whether EPA has made the correct choice between HAP emissions and NOx and carbon dioxide emissions, particularly in light of the economic data submitted by the commenter demonstrating the extremely high incremental cost of the 98 percent OCE standard, as compared to the 95 percent OCE standard, and the risk assessment submitted by the commenter demonstrating a lack of any significant reduction in health risks accompanying the 98 percent OCE standard.

The commenter notes that EPA has submitted Clean Air Act regulations to OMB review under similar circumstances. The commenter cites as an example the portland cement MACT standard that was submitted for OMB review even though the projected annual costs were $37 million because of that standard's overlap with the Hazardous Waste Combustor MACT standard. (64 FR 31898, 31922, June 14, 1999.) The commenter cites another example where the EPA submitted the "generic MACT" standards to OMB review because it raised novel policy issues relating to how EPA would establish NESHAPs for small source categories by referring to previous MACT standards promulgated for similar sources in other categories. (64 FR 34854, 34864, June 29, 1999.)

Accordingly, the commenter asserts that EPA must submit the coil coating MACT standard to OMB review under the terms of the Executive Order.

Response: We do not agree that the coil coating NESHAP is a significant regulatory action subject to OMB review under EO 12866. It does not meet any of the criteria for such a classification, including the "novel legal or policy issues" criterion. As discussed in response to Comment 2.5.4, EPA's estimates for NO_x and CO_2 emission increases resulting from the standard are significantly lower than the commenter's estimates. The cost-effectiveness and risk assessment issues raised by the commenter are not relevant as explained in response to Comments 2.3.4 and 2.8. Therefore, the proposed and final NESHAP were not submitted to OMB for review.

4.2 THE SMALL BUSINESS REGULATORY ENFORCEMENT FAIRNESS ACT (SBREFA)

Comment: Commenter IV-D-8 observes that the Regulatory Flexibility Act (RFA), 5 U.S.C. §§601-612, as amended in 1996 by the Small Business Regulatory Enforcement Fairness Act (SBREFA), requires EPA to prepare and take public comment on an analysis of the impact on small businesses of any proposed rule. (Id. §603.) The commenter adds that EPA must also discuss alternatives that might minimize the adverse economic consequences of the rule. (Id.) The commenter notes that these requirements apply unless EPA certifies that the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. (See id. §605.) The commenter adds further that any such certification must be accompanied by a statement explaining the factual basis for the certification. (Id.)

The commenter believes that EPA incorrectly determined that the coil coating standard would not significantly impact a substantial number of small entities. The commenter notes that EPA determined that there would be no significant impact despite the fact that almost 40 percent of the sources within the category qualify as small businesses. The commenter claims that EPA's estimate that only 8.5 percent of the total industry compliance costs of the rule would be borne by these small businesses is incorrect because that estimate is based upon an assumption that certain facilities could meet the equivalent emission rate limit through modest improvements in their add-on control systems or reformulation to low-HAP coatings. The commenter states that this is a flawed assumption, because the current proposal lacks sufficient flexibility for toll coaters to rely on the equivalent emission rate limit. (See Section 3.4.3 of this document).

The commenter has included a specific example of small business impact in which Chromagraphic Processing Company, a small business as defined by EPA, has evaluated its compliance options under the proposed rule. In its letter to the docket, Chromagraphic notes that EPA assumed it would meet the 0.24 lbs HAP/gal solids alternative by installing permanent total enclosures for 100 percent capture and operating its catalytic oxidizers at 95 percent destruction efficiency. The commenter notes however that Chromagraphic demonstrates, by using actual facility data and real world cost estimates, that this is not the case; the plant will have to re-work its ovens, install permanent total enclosures, and install new thermal oxidizers to comply with the proposed emission standards. The commenter submits that, using EPA's capital cost methodology, which is likely understating actual costs, Chromagraphic estimates that its initial capital costs will be either $739,116 to meet the 0.24 lbs HAP/gal solids alternative, or $1,158,703 to meet the 98 percent OCE standard, and that annualized facility costs will be either $448,035 or $425,460, depending on the compliance option chosen. The commenter states that this is over three times higher than EPA's estimate for Chromagraphic's facility. The commenter is convinced that this is a common story amongst many companies in the coil coating industry, and that impacts to the small business sector have been erroneously understated.

Response: The RFA, as amended by SBREFA of 1996, requires Federal regulatory agencies to determine whether a proposed or final regulation will have a significant impact on a substantial number of small entities. According to *EPA Interim Guidance for Implementing the Small Business Regulatory Enforcement Fairness Act and Related Provisions of the Regulatory Flexibility Act* (EPA, 1997f), current Agency policy is to implement the RFA as written; that is, "regulatory flexibility analyses as specified by the RFA will *not* be required if the Agency certifies that the rule will not have significant economic impact on a substantial number of small entities." However, it remains Agency policy that, even when the Agency makes a certification of "no significant impact," program offices should assess the impact of every rule on small entities and minimize any impact to the extent feasible, regardless of the size of the impact or the number of small entities affected.

It should be noted that almost 40 percent of the companies operating metal coil coating facilities are small businesses. These companies operate 21 of the 89 facilities, which account for only 27 percent of the facilities within the source category. In evaluating the impact of the proposed regulation on the facilities owned by small companies, we evaluated the measures each facility would have to take, based on information in the MACT database on permit status and the emission rate and overall control efficiency currently being achieved, to come into compliance with one of the proposed emission limits. Our evaluation of the baseline status of each of the facilities revealed that 8 have permitted as synthetic minors and 3 comply with the facility OCE of 98 percent. The synthetic minor facilities have permitted out of the requirements of the proposed NESHAP and will incur no compliance costs. Similarly, the facilities that already have emission control systems that will comply with the emission limits will incur only the costs of monitoring, reporting and recordkeeping. Therefore, 11 of the 21 facilities owned by small companies will not incur capital costs of upgrading or installing emission control systems to comply with the emission limits of the coil coating standard.

Of the remaining 10 facilities owned by small companies, we determined that one facility could meet the OCE limit by upgrading capture efficiency (installing permanent total enclosures) and 2 facilities could meet the emission rate limit by installing permanent total enclosures. Seven facilities submitted insufficient information regarding emission rates and emission control system efficiencies to evaluate potential compliance status and measures required to comply with the emission limits. Compliance costs were allocated to these facilities on the ratio of compliance costs incurred per ton of HAP emissions for facilities in the MACT database with sufficient HAP emissions information.

In accordance with SBREFA and Agency guidance, a screening analysis was conducted for the MACT floor and its projected costs to determine if the rule imposed a significant impact on a substantial number of small entities. Although small businesses represented almost 40 percent of the sources within the category, the estimated costs for small businesses represented only 8.5 percent of total industry compliance costs. The Agency has addressed the commenter's costing issue by revising some cost assumptions as discussed in response to Comment 2 of Section 2.3.2. The EIA for the final rule reflects these revised costs. Also, as discussed in responses to Comments 3.4.2, 3.4.3, and 3.4.4, the final rule limits have been revised to provide more flexibility for compliance, which would help small businesses and toll coaters.

For the purposes of assessing the potential impact of this rule on small businesses, the Agency calculated the share of annual compliance cost relative to baseline sales for each company. This approach is consistent with recommended criteria from EPA's Guidance on Implementing SBREFA and RFA for evaluating the economic impact of a rule on small entities. Based on revised compliance cost estimates, the Agency has conducted a similar SBREFA screening analysis. The revised analysis shows that the annual compliance costs for small businesses average 0.2 percent of their sales because the vast majority of small companies have CSRs below 0.5 percent. These results do not support a claim of significant impact on a substantial number of small businesses. The revised analysis also includes impacts that better conform with the commenter's stated impact for Chromagraphic Processing Company, i.e., $448,035 or $425,460 in costs relative to $10.3 million in sales results in cost-to-sales ratio of 4.3 to 4.1 percent. However, Chromographic Processing Company is not expected to experience the costs presented by the commenter because the emission rate limit (which Chromagraphic anticipates choosing as the option for compliance with the standard) has been revised to a level that is more achievable for Chromagraphic, according to the information presented in their comment letter. Therefore, they should not experience additional significant control costs beyond what they already expend.

Regarding the commenter's assertion that the current proposal lacks sufficient flexibility for toll coaters to rely on the equivalent emission rate limit, based on data submitted by commenters (including Chromagraphic Processing Company) demonstrating the variability in monthly emission rates, the emission rate limit and compliant coating option have been revised in the final rule. A description of the changes is in the response to Comment 4 regarding the emission rate limit in Section 3.4.3 of this document.

APPENDIX A

COIL COATING - ROTARY CONCENTRATOR COST SPREADSHEETS

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COIL COATING - ROTARY CONCENTRATOR

MODEL 1

CAPITAL COST FACTOR SHEET

Flow rate 19,797 acfm

	Typical values	Values you choose except cell N11	Cost in your year $
Direct Costs			
Purchased equipment costs (A)			
Rotary Concentrator		229,392	244,917
Instrumentation	0.1	0.1	24,492
Sales taxes	0.03	0.03	7,348
Freight	0.05	0.05	12,246
Purchased equipment cost, PEC = B			289,003
Direct installation costs			
Foundation and supports	0.12	0.12	34,680
Handling and erection	0.4	0.4	115,601
Electrical	0.01	0.01	2,890
Piping	0.3	0.3	86,701
Insulation	0.01	0.01	2,890
Painting	0.01	0.01	2,890
Direct installation costs			245,652
Site preparation (as needed), $			
Buildings (as needed), $			
Total direct costs, DC			534,655
Indirect Costs (installation)			
Engineering	0.1	0	0
Construction and field expenses	0.1	0	0
Contractor fees	0.1	0	0
Start-up	0.01	0.01	2,890
Performance test	0.01	0.01	2,890
Contingencies	0.03	0.03	8,670
Total indirect costs, IC			14,450
Total Capital Investment = (DC +IC); your year $			$549,105

ANNUAL COST ITEM SHEET

Direct Annual Cost, DC		Typical Value	You Choose	Cost
Operating labor				
Operator, hrs/shift		1/2	0.5	4,606
Supervisor, % of operator		15	15	691
Operating Materials				
Carbon			2	935
Waste Disposal, $/ton			76.92	18
Maintenance				
Labor, hrs/shift		1/2	0.5	4,734
Material, % of maintenance labor		100	100	4,734
Gas, $/mm btu		3.5	0	
				0
Oxidizer				
Electricity, $/kWh		0.06	0.0461	
Fans	Delta P, in. H2O	12		8,902
Total DC				24,621
Indirect Annual Costs, IC				
Overhead, % of labor and materials		60	60	8,860
Administrative charges, % of TCI		2	2	10,982
Property tax, % of TCI		1	1	5,491
Insurance, % of TCI		1	1	5,491
Capital recovery, % interest		7	7	60,289
Total IC				91,113
Total Annual Cost, DC + IC, your year $				$115,734

DATA YOU ENTER

Shifts per day	3		
Days per week	7		
Weeks per year	25.417		
Solvent use, fraction of throughput (0.001 to 0.1)	0.0262	(blowdown fraction)	
Chemical usage, lb per gal	0.01502		(if chemical is used)
Equipment lifetime, yrs	15	(15 is typical)	
Labor cost, $/hr	17.26	($15.64 for 1991)	
Maintenance labor cost, $/hr	17.74	($17.21 for 1991)	
Chemical Engineering Cost Index for your year	386.5	(1991, 3rd quarter =	362)
Hrs/yr = 4270.056		(See Chemical	
Year of your costs	1997	Engineering	
		Magazine for other	
		year values)	
	1.06768	CE cost index ratio	
			0.07

COIL COATING - ROTARY CONCENTRATOR

MODEL 2

CAPITAL COST FACTOR SHEET

		Typical values	Values you choose except cell N11	Cost in your year $
Flow rate	18,031 acfm			
Direct Costs				
Purchased equipment costs (A)				
Rotary Concentrator			216,880	231,559
Instrumentation		0.1	0.1	23,156
Sales taxes		0.03	0.03	6,947
Freight		0.05	0.05	11,578
Purchased equipment cost, PEC = B				273,239
Direct installation costs				
Foundation and supports		0.12	0.12	32,789
Handling and erection		0.4	0.4	109,296
Electrical		0.01	0.01	2,732
Piping		0.3	0.3	81,972
Insulation		0.01	0.01	2,732
Painting		0.01	0.01	2,732
Direct installation costs				232,253
Site preparation (as needed), $				
Buildings (as needed), $				
Total direct costs, DC				505,492
Indirect Costs (installation)				
Engineering		0.1	0	0
Construction and field expenses		0.1	0	0
Contractor fees		0.1	0	0
Start-up		0.01	0.01	2,732
Performance test		0.01	0.01	2,732
Contingencies		0.03	0.03	8,197
Total indirect costs, IC				13,662
Total Capital Investment = (DC +IC); your year $				$519,154

ANNUAL COST ITEM SHEET

Direct Annual Cost, DC		Typical Value	You Choose	Cost
Operating labor				
Operator, hrs/shift		1/2	0.5	5,718
Supervisor, % of operator		15	15	858
Operating Materials				
Carbon			2	852
Waste Disposal, $/ton			76.92	16
Maintenance				
Labor, hrs/shift		1/2	0.5	5,877
Material, % of maintenance labor		100	100	5,877
Gas, $/mm btu		3.5	0	
				0
Oxidizer				
Electricity, $/kWh		0.06	0.0461	
Fans	Delta P, in. H2O	12		10,063
Total DC				29,261
Indirect Annual Costs, IC				
Overhead, % of labor and materials		60	60	10,997
Administrative charges, % of TCI		2	2	10,383
Property tax, % of TCI		1	1	5,192
Insurance, % of TCI		1	1	5,192
Capital recovery, % interest		7	7	57,000
Total IC				88,764
Total Annual Cost, DC + IC, your year $				$118,025

DATA YOU ENTER

Shifts per day		3	
Days per week		7	
Weeks per year		31.55	
Solvent use, fraction of throughput (0.001 to 0.1)		0.0262	(blowdown fraction)
Chemical usage, lb per gal		0.01502	(if chemical is used)
Equipment lifetime, yrs		15	(15 is typical)
Labor cost, $/hr		17.26	($15.64 for 1991)
Maintenance labor cost, $/hr		17.74	($17.21 for 1991)
Chemical Engineering Cost Index for your year		386.5	(1991, 3rd quarter = 362)
Hrs/yr =	5300.4		(See Chemical
Year of your costs		1997	Engineering Magazine for other year values)
		1.06768	CE cost index ratio
			0.07

COIL COATING - ROTARY CONCENTRATOR

MODEL 3

CAPITAL COST FACTOR SHEET

	Typical values	Values you choose except cell N11	Cost in your year $
Flow rate 31,182 acfm			
Direct Costs			
Purchased equipment costs (A)			
Rotary Concentrator		301,271	321,661
Instrumentation	0.1	0.1	32,166
Sales taxes	0.03	0.03	9,650
Freight	0.05	0.05	16,083
Purchased equipment cost, PEC = B			379,560
Direct installation costs			
Foundation and supports	0.12	0.12	45,547
Handling and erection	0.4	0.4	151,824
Electrical	0.01	0.01	3,796
Piping	0.3	0.3	113,868
Insulation	0.01	0.01	3,796
Painting	0.01	0.01	3,796
Direct installation costs			322,626
Site preparation (as needed), $			
Buildings (as needed), $			
Total direct costs, DC			702,187
Indirect Costs (installation)			
Engineering	0.1	0	0
Construction and field expenses	0.1	0	0
Contractor fees	0.1	0	0
Start-up	0.01	0.01	3,796
Performance test	0.01	0.01	3,796
Contingencies	0.03	0.03	11,387
Total indirect costs, IC			18,978
Total Capital Investment = (DC +IC); your year $			721,165

ANNUAL COST ITEM SHEET

Direct Annual Cost, DC		Typical Value	You Choose	Cost
Operating labor				
Operator, hrs/shift		1/2	0.5	8,306
Supervisor, % of operator		15	15	1,246
Operating Materials				
Carbon			2	1,473
Waste Disposal, $/ton			76.92	28
Maintenance				
Labor, hrs/shift		1/2	0.5	8,537
Material, % of maintenance labor		100	100	8,537
Gas, $/mm btu		3.5	0	
				0
Oxidizer				
Electricity, $/kWh		0.06	0.0461	
Fans	Delta P, in. H2O	12		25,283
Total DC				53,412
Indirect Annual Costs, IC				
Overhead, % of labor and materials		60	60	15,976
Administrative charges, % of TCI		2	2	14,423
Property tax, % of TCI		1	1	7,212
Insurance, % of TCI		1	1	7,212
Capital recovery, % interest		7	7	79,180
Total IC				124,003

Total Annual Cost, DC + IC, your year $ $177,41 5

DATA YOU ENTER

Shifts per day	3	
Days per week	7	
Weeks per year	45.834	
Solvent use, fraction of throughput (0.001 to 0.1)	0.0262	(blowdown fraction)
Chemical usage, lb per gal	0.01502	(if chemical is used)
Equipment lifetime, yrs	15	(15 is typical)
Labor cost, $/hr	17.26	($15.64 for 1991)
Maintenance labor cost, $/hr	17.74	($17.21 for 1991)
Chemical Engineering Cost Index for your year	386.5	(1991, 3rd quarter = 362)
Hrs/yr = 7700.112		(See Chemical
Year of your costs	1997	Engineering Magazine for other year values)

1.06768 CE cost index ratio

0.07

APPENDIX B

REVISED TABLES FROM THE METAL COIL SURFACE COATING NESHAP PROPOSAL BACKGROUND INFORMATION DOCUMENT (EPA-453/P-00-001, April 25, 2000)

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Table 6-1 (Revised 4/10/01) Summary of Metal Coil Surface Coating Model and Nationwide Energy Impacts

Model	Number of plants [a]	Model incremental energy usage, kWh/y	Nationwide incremental energy usage, kWh/y	Model incremental natural gas usage, scf/y	Nationwide incremental natural gas usage, scf/y
Baseline					
Model 2, thermal, one oven	1	103,876	103,876	105,497,216	105,497,216
Upgrade of Baseline Unit					
Model 1, catalytic, one oven	1	0	0	5,533,787	5,533,787
Model 2, thermal, one oven	1	550	550	0	0
Model 3, catalytic, one oven	1	0	0	11,579,276	11,579,276
Replacement of Baseline Unit with Concentrator					
Model 1, thermal, one oven	1	18,086	18,086	0	0
Model 2, thermal, one oven	2	25,319	50,638	0	0
Model 3, thermal, one oven	2	45,879	91,758	0	0
Replacement of Baseline Unit Without Concentrator					
Model 1, thermal, one oven	1	20,686	20,686	0	0
Model 1, catalytic, one oven	2	47,708	95,415	-1,872,073	-3,744,145
Model 2, thermal, one oven	2	20,924	41,848	0	0
Model 2, thermal, two ovens	1	41,848	41,848	0	0
Model 2, catalytic, one oven	2	48,001	96,002	-924,046	-1,848,092
Model 3, thermal, one oven	1	43,882	43,882	0	0
Model 3, catalytic, one oven	1	100,154	100,154	1,790,167	1,790,167
Model 4, thermal, two ovens	1	121,686	121,686	0	0
Model 5, condenser	4	3,233,107	12,932,428	0	0
Operation of Coating Room					
Small	51	672	34,272	0	0
Medium	5	735	3,675	0	0
Large	6	756	4,536	0	0
Nationwide Total for Model Plants			13,801,340		118,808,209
Nationwide Total for All Plants [b]			19,473,691		167,638,382

Table 6-1 Footnotes

[a] Number of model plants assigned to the 64 facilities in the MACT database with sufficient information to calculate the facility OCE and HAP emission rate to estimate the incremental energy requirement of achieving the MACT floor compliance options.

[b] Nationwide totals for all plants in metal coil surface coating industry are based on the ratio of HAP emissions reported by plants that are represented by model plants to the HAP emissions reported by all plants in the MACT database. The ratio is 1.411.

Table 7-2. (Revised 1/31/01) Summary of Coating Room Costs

Model	Small (8,000 ft^3)	Medium (13,000 ft^3)	Large (18,000 ft^3)
Floor area, ft^2	800	875	900
Cost/ft^2, $	15	18	20
Cost, $	12,000	15,313	18,000
Swing doors (2), $	5,000	5,000	5,000
Windows (4), $	800	800	800
Sum, $	17,800	21,113	23,800
Auxiliaries (at 80 %), $	14,240	16,890	19,040
Purchased equipment cost (PEC), $	32,040	38,003	42,840
Total capital investment (TCI, 1.6 x PEC), $	51,264	60,804	68,544
Maintenance (6$/$ft^2$ y), $/y	4,800	5,250	5,400
Maintenance supervision (15 % of maintenance), $/y	720	788	810
Materials (50 % of maintenance labor), $/y	2,400	2,625	2,700
Electricity (lighting, 14 kWh/ft^2 y and $.06/kWh), $/y	672	735	756
Direct costs, $/y	8,592	9,398	9,666
Labor/materials overhead (60 % of labor and materials), $/y	4,752	5,198	5,346
Other indirect costs (4 % of TCI), $/y	2,051	2,432	2,742
Capital recovery (7 % interest rate, 15-year life), $/y	5,629	6,676	7,526
Indirect costs, $/y	12,431	14,306	15,614
Total annual costs, TAC, $/y	21,023	23,703	25,280

Note: Costs for enclosure, doors, and windows based on cost factors presented in Reference 1.

Table 7-4 (Revised 1/31/01) Summary of Oxidizer Replacement Costs for Coil Coating Solvent-Borne Model Plants

Model	Total capital investment, $	Total annual cost, $/y	O&M cost, $/y	Capital cost above baseline, $	Annual cost above baseline, $/y	O&M cost above baseline, $/y
Baseline						
Model 1, one oven	413,398	475,304	404,517			
Model 1, two ovens	694,948	540,647	418,825			
Model 1, catalytic, one oven	470,739	186,033	93,604			
Model 1, catalytic, two ovens	639,291	244,746	108,194			
Model 2, one oven	392,270	480,238	410,480			
Model 2, two ovens	659,626	549,613	428,807			
Model 2, catalytic, one oven	418,477	173,788	87,509			
Model 2, catalytic, two ovens	568,693	235,197	105,837			
Model 3, one oven	429,259	925,110	844,830			
Model 3, two ovens	721,824	1,011,539	871,457			
Model 3, catalytic, one oven	511,449	239,192	133,215			
Model 3, catalytic, two ovens	695,037	319,641	159,842			
Model 4, 1 oven	467,079	1,259,097	1,173,153			
Model 4, 2 ovens	785,421	1,349,388	1,199,780			

Assumptions: Baseline units are thermal oxidizers operating at 1,350 ^oF or catalytic oxidizers operating at 1,000 ^oF.
Efficiency is 95 percent (thermal) or 94 percent (catalytic). Heat recovery is 50 % and retrofit factor is 1.2.

Model	Total capital investment, $	Total annual cost, $/y	O&M cost, $/y	Capital cost above baseline, $	Annual cost above baseline, $/y	O&M cost above baseline, $/y
Replacement of Baseline Unit						
Model 1, one oven	546,331	515,846	417,875	132,932	40,542	13,358
Model 1, two ovens	925,270	615,624	444,759	230,322	74,977	25,934
Model 1, catalytic, one oven	624,315	228,593	101,708	153,576	42,560	8,103
Model 1, catalytic, two ovens	851,245	319,079	128,591	211,954	74,333	20,397
Model 2, one oven	519,655	524,640	426,775	127,385	44,402	16,296
Model 2, two ovens	880,092	632,023	460,143	220,466	82,410	31,336
Model 2, catalytic, one oven	555,704	221,975	102,036	137,227	48,187	14,527
Model 2, catalytic, two ovens	757,695	318,545	135,404	189,003	83,348	29,567
Model 3, one oven	566,740	983,299	869,314	137,481	58,189	24,484
Model 3, two ovens	959,836	1,119,749	917,792	238,012	108,210	46,335
Model 3, catalytic, one oven	678,305	315,995	167,648	166,857	76,803	34,433
Model 3, catalytic, two ovens	924,860	444,393	216,126	229,823	124,753	56,284
Model 4, one oven	614,215	1,319,750	1,198,654	147,137	60,653	25,502
Model 4, two ovens	1,040,240	1,461,134	1,247,132	254,820	111,745	47,352

Assumptions: Units operate at 1,600 ^oF (thermal) or 1,200 ^oF (catalytic), have 60 % heat recovery and have a retrofit factor if 1.4. Efficiency is 98 percent for all oxidizers, which requires 1.5 x operating labor cost and double the maintenance of existing units.
Baseline and Replacement Assumptions: Costs exclude ductwork, dampers, fan, moter, and stack.
All costs are in 1997 $.

Table 7-6 (Revised 2/1/01) Summary of Metal Coil Surface Coating Model and Nationwide Compliance Costs [a]

Model	Number of plants [b]	Model total capital investment [c], $	Nationwide total capital investment, $	Model total annual cost [c], $/yr	Nationwide total annual cost, $/yr
Baseline					
Model 2, thermal, one oven [d, e]	1	406,324	406,324	481,781	481,781
Upgrade of Baseline Unit					
Model 1, catalytic, one oven	1	79,257	79,257	53,786	53,786
Model 2, thermal, one oven	1	66,136	66,136	34,005	34,005
Model 3, catalytic, one oven	1	86,111	86,111	92,637	92,637
Replacement of Baseline Unit					
Model 1, thermal, one oven	1	132,932	132,932	40,542	40,542
Model 1, catalytic, one oven	2	153,576	307,152	42,560	85,120
Model 2, thermal, one oven	2	127,385	254,770	44,402	88,804
Model 2, thermal, two ovens	1	220,466	220,466	82,410	82,410
Model 2, catalytic, one oven	2	137,227	274,454	48,187	96,374
Model 3, thermal, one oven	1	137,481	137,481	58,189	58,189
Model 3, catalytic, one oven	1	166,857	166,857	76,803	76,803
Model 4, thermal, two ovens	1	294,274	294,274	121,306	121,306
Model 5, condenser [e]	4	1,007,912	4,031,648	359,741	1,438,964
Installation of Coating Room (PTE)					
Small	51	51,264	2,614,464	21,023	1,072,173
Medium	5	60,804	304,020	23,703	118,515
Large	6	68,544	411,264	25,289	151,680
Additional Ventilation Needed for PTE [f]					
Model 1, 1 thermal oxidizer	1	549,105	549,105	12,609	12,609
Model 2, 1 thermal oxidizer	2	519,154	1,038,308	45,575	91,150
Model 3, 1 thermal oxidizer	2	721,165	1,442,330	167,385	334,770
Total Cost for Model Plants			12,817,353		4,671,952
MRR costs [g]					1,019,039
Nationwide Total Cost for All Plants [h]			18,085,285		7,611,163

Table 7-6 Footnotes

[a] All costs are in 1997 $.

[b] Number of model plants assigned to the 64 facilities in the MACT database with sufficient information to calculate the facility OCE and HAP emission rate to estimate the compliance cost of achieving the MACT floor compliance options.

[c] From coating room costs in Table 7-2 and control device costs in Tables 7-3 through 7-5. Note that the upgrade and replacement costs represent incremental costs above the costs of the baseline unit.

[d] One facility reporting the use of waterborne coatings requires a 90 percent HAP emission reduction to meet the emission rate limit and consequently was assigned a 95-percent efficient emission control system consisting of a 95-percent efficient thermal oxidizer and a coating room.

[e] Model plant costs represent the costs of a new emission control system, including ductwork, butterfly dampers, fans, motors, and stacks.

[f] For facility needing extra ventilation to maintain safe environment in PTE, represents the costs of the exhaust fan, heating of makeup air, rotary concentrator and associated ductwork, and the reduction in oxidizer operating cost resulting from reduction of air flow to oxidizer from rotary concentrator.

[g] For all 89 facilities in MACT database, includes initial one-time costs (acquiring and installing MRR systems, initial control system performance tests, developing startup, shutdown, malfunction plan, initial notifications, performance test report) annualized over 15 years at 7 percent interest and annual costs (compliance determinations, compliance reports and recordkeeping).

[h] Nationwide totals for all plants in metal coil surface coating industry are based on factoring the total costs for model plants by the ratio of HAP emissions reported by plants that are represented by model plants to the HAP emissions reported by all plants in the MACT database (the ratio is 1.411) and adding MRR costs to the nationwide total annual costs.

TECHNICAL REPORT DATA

(Please read Instructions on reverse before completing)

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EPA-453/R-02-009		

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15. SUPPLEMENTARY NOTES

16. ABSTRACT

The EPA proposed standards for the metal coil surface coating source category on July 18, 2000 (60 FR 44616). We received a total of 17 letters containing comments on the proposed rule. Commenters included individual companies with coil coating operations, industry trade associations, State regulatory agencies, and an association of air pollution control vendors. The purpose of this document is to present the EPA's responses to the comments on the proposed rulemaking.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Environmental Protection Administrative Practices and Procedures Intergovernmental Relations Reporting and Recordkeeping Requirements	Air Pollution Control Hazardous Air Pollutants Metal Surface Coil Coating NESHAP	
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