EPA 453/R-97-003b

National Emission Standards for Hazardous Air Pollutants

(NESHAP) for the Aerospace Manufacturing and Rework Industry - Background Information for Promulgated Standards

July 1995

N E S H A P

National Emission Standards For Hazardous Air Pollutants (NESHAP) for the Aerospace Manufacturing and Rework Industry - Background Information for Promulgated Standards

Emission Standards Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

July 1995

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National Emission Standards for Hazardous Air Pollutants from the Aerospace Manufacturing and Rework Industry -- Background Information for Promulgated Standards

Prepared by:

_____ _____

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1. The final National Emission Standards for Hazardous Air Pollutants (NESHAP) will regulate emissions of hazardous air pollutants from cleaning operations; primer, topcoat, and chemical milling maskant application operations; depainting operations; and handling and storage of waste at aerospace manufacturing and rework facilities. Only those operations that are part of major sources under section 112(d) of the Clean Air Act as amended in 1990 will be regulated.

2. Copies of this document have been sent to following Federal Departments: Labor, Health and Human Services, Defense, Transportation, Agriculture, Commerce, Interior, and Energy; the National Science Foundation; and the Council on Environmental Quality; members of the State and Territorial Air Pollution Program Administrators; the Association of Local Air Pollution Control Officials; EPA Regional Administrators; and other interested parties.

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1.0 SUMMARY

On June 6, 1994, the U.S. Environmental Protection Agency (EPA) proposed national emission standards for hazardous air pollutant (HAP) emissions from major sources in the aerospace industry (59 FR 29216). These proposed standards implemented section 112(d) of the Clean Air Act as amended in 1990 (the Act). On November 22, 1994, the EPA announced in the Federal Register a request for supplemental information and comment regarding the level of control for chemical depainting operations, applicability to general aviation, VOC and HAP content of commercial exterior primers, the rolling material balance period for proposed Method 309, regulation of chemical milling maskants used with Type I etchants, use of HEPA filters to control inorganic HAP emissions from topcoat and primer application operations, and reduced recordkeeping requirements for a 2.1 lb/gal low organic HAP primer. Public comments on the proposal and these specific issues were requested in these two Federal Register notices. There were 80 comment letters (see Table 1-1) submitted by 61 different commenters, which consisted primarily of facility owners and operators, trade associations, and State and local air pollution control agencies. In addition, comments were received from coating and cleaning solvent manufacturers, a private environmental organization, and U.S. Government agencies. Summaries of the comments, and the EPA's responses, are presented in this document. This comment summary and the Agency's responses served as the basis for the revisions made to the

Table 1-1.

LIST OF COMMENTERS ON THE PROPOSED NESHAP FOR THE AEROSPACE INDUSTRY

Item Number in Docket A-92-20	Commenter, Affiliation, and Date
IV-D-1	John W. Walton, Tennessee AP Control Board, Dept. of Env. and Conserv., Nashville, TN. July 1, 1994.
IV-D-2	James L. Nolan, Director of Compliance, Puget Sound APCA, Seattle, WA. July 19, 1994.
IV-D-3	Tom Kane, Polley-Kane & Associates, Inc., Floresville, TX. July 21, 1994.
IV-D-4	Bruce I. Bertelson, Manufacturers of Emission Controls Assoc., Washington, DC. July 22, 1994.
IV-D-5	David L. White, President, Paint Remover Manufacturers Association, Vincennes, IN. August 2, 1994.
IV-D-6	Julian Medina, Mgr. of Env. Affairs, Chemtronics, Inc., El Cajon, CA. August 3, 1994.
IV-D-7	David A. Ickert, Air Tractor, Inc., Olney, TX. July 25, 1994.
IV-D-8	William M. Witzel, Tech. Manager, BASF Corporation, Holland, MI. August 3, 1994.
IV-D-9	Michael J. Wax, Deputy Director, Institute of Clean Air Companies, Washington, DC. August 5, 1994.
IV-D-10	Kip Keenan, Mgr. of Env. Resources Dept., Electronic Systems Group, Westinghouse Electric Corp., Baltimore, MD. August 5, 1994.
IV-D-11	Beverly Hartsock, Deputy Exec. Director, Texas Resource Conservation Commission, Austin, TX. August 4, 1994.
IV-D-12	William O'Sullivan, Administrator, Air Quality Regulation Program, NJ Dept. of EPE, Trenton, NJ. August 5, 1994.

TABLE 1-1. (Continued)

TABLE 1-1. (Continued)

IV-D-13	John Ellis, President, Kal-Aero, Inc., Battle Creek, MI. August 3, 1994.
IV-D-14	Roger Randolph, Acting Director, Division of Env. Quality, Missouri Dept. of Nat. Resources, Jefferson City, MO. August 5, 1994.
IV-D-15	Sheldon I Weinstein, President, AC Products, Inc., Placentia, CA. June 30, 1994.
IV-D-16	Richard Baumer, Air Force Materiel Command, Wright-Patterson AFB, Ohio. July 21, 1994.
IV-D-17	Mark Halvorsen, Technologies Sikorsky Aircraft, Stratford, CT. July 28, 1994.
IV-D-18	Cyrus A. Jaffari, President, Malek, Inc., San Diego, CA. June 23, 1994.
IV-D-19	Cyrus A. Jaffari, President, Caspian, Inc., San Diego, CA. July 19, 1994.
IV-D-20	Ashok Chaurushia and Charles Bajza, Northrop Corp., Hawthorne, CA.
IV-D-21	Tracy Garrett, Jr., on behalf of Steve Harrington, Southeastern Regional Mgr., Deft, Inc., Irvine, CA. July 8, 1994.
IV-D-22	Katy Wolf, Exec. Director, Institute for Research and Technical Assistance, Santa Monica, CA. August 22, 1994.
IV-D-23	Donald F. Theiler, Chairman, STAPPA Air Toxics Committee, STAPPA/ALAPCO, Washington, DC. August 24, 1994.
IV-D-24	Tracee L. Gamel, Geraghty & Miller, Inc., Austin, TX. August 23, 1994.
IV-D-25	Gwendolyn K. Feltis, Gardere & Wynne, L.L.P., Tulsa, OK, (on behalf of American Airlines). August 30, 1994.
IV-D-26	Roswell Dennison, Chairman, Env. Council, Gravure Assoc. of America, Rochester, NY. September 13, 1994.
IV-D-27	Joe Downing, Corporate Env. Specialist, Texas Instruments, Inc. September 13, 1994.

TABLE 1-1. (Continued)

IV-D-28	Michelle I. Ritter, Senior Atty., PPG Industries, Inc., Pittsburgh, PA. September 19, 1994.
IV-D-29	Glynn Rountree, Director of Env. Affairs, Safety & Health, Aerospace Industries Assoc., Washington, DC. September 14, 1994.
IV-D-30	R. E. Hammond, Director of Env. Management Division, National Aeronautics and Space Administration, Washington, DC. September 15, 1994.
IV-D-31	David M. Driesen, Project Atty., Air and Energy Program, Natural Resources Defense Council, Washington, DC. September 14, 1994.
IV-D-32	J. H. O'Brien, Staff Vice President, Env. Affairs, Lockheed Corp., Calabasas, CA. September 12, 1994.
IV-D-33	Robert D. Fletcher, Chief, Toxic Air Contaminant Control Branch, CA Env. Protection Agency, Sacramento, CA. September 14, 1994.
IV-D-34	P. Michael Peck, President, Dynamold Solvents, Inc., Fort Worth, TX. September 13, 1994.
IV-D-35	Elsie L. Munsell, Deputy Assistant Secretary of the Navy, Washington, DC. September 14, 1994.
IV-D-36	William A. Minter, Vice President, Environmental, Health and Safety, Sikorsky Aircraft Div., Stratford, CT. September 9, 1994.
IV-D-37	Richard K. Ketler, Senior Atty., Air Transport Assoc. of America, Washington, DC. September 15, 1994.
IV-D-38	Stephen P. Risotto, Exec. Director, Center for Emissions Control, Washington, DC. September 15, 1994.
IV-D-39	H. Allen Irish, Counsel, National Paint & Coatings Association, Washington, DC. September 13, 1994.

TABLE 1-1. (Continued)

IV-D-40	John A. Johnson, Vice President, The Boeing Company, Seattle, WA. September 15, 1994.
IV-D-41	Russell W. Kroll, Attorney, Doerner, Stuart, Saunders, Daniel, Anderson & Biolchini, Tulsa, OK, (on behalf of NORDAM). September 15, 1994.
IV-D-42	Mike Lake, Chief, Engineering Division, San Diego Air Poll. Control District, San Diego, CA. September 14, 1994.
IV-D-43	Pat Leyden, Deputy Exec. Officer, South Coast Air Quality Management District, Diamond Bar, CA. September 15, 1994.
IV-D-44	John A. Dege, Manager, Air Programs, DuPont SHE Excellence Center, Wilmington, DE. September 16, 1994.
IV-D-45	Robert A. Accarino, Director, Env., Health & Safety, BF Goodrich Company, Akron, OH. September 15, 1994.
IV-D-46	John Grainger, Dir. of Tech. Services, Turco Products, Inc., Elf Atochem North America. September 12, 1994.
IV-D-47	W. Caffey Norman, III, Patton Boggs, L.L.P., Halogenated Solvents Industry Alliance, Washington, DC. September 15, 1994.
IV-D-48	David P. Page, Gardere & Wynne, L.L.P., Tulsa, OK (on behalf of American Airlines and Textron Aerostructure). September 22, 1994.
IV-D-49	Raymond F. Pelletier, Director, Office of Env. Guidance, Dept. of Energy, Washington, DC. September 20, 1994.
IV-D-50	Russell W. Kroll, attorney, Doerner, Stuart, Saunders, Daniel, Anderson & Biolchini, Tulsa, OK, (on behalf of NORDAM). September 15, 1994.
IV-D-51	James T. Reed, Supervisor, Env., Health and Safety, Learjet, Inc. September 14, 1994.

TABLE 1-1. (Continued)

IV-D-52	Milton Feldstein, Air Poll. Control Officer, Bay Area Air Quality Management District, San Francisco, CA. September 15, 1994.
IV-D-53	Stephen P. Risotto, Exec. Director, Center for Emissions Control, Washington, DC. September 26, 1994.
IV-D-54	Mike Sheptak, Mgr., Engineering Departments, Verbatim Corporation, Sunnyvale, CA. September 13, 1994.
IV-D-55	Tim Owens, Manager, Corporate Env. Engineering, Morgan Adhesives Company, Stow, OH. September 15, 1994.
IV-D-56	Robert J. Schwinghamer, Deputy Dir. for Space Transp. Sys., and Alex A. McCool, Mgr. of Space Shuttle Proj. Office, National Aeronautics and Space Administration, Marshall Space Flight Center, AL. September 19, 1994.
IV-D-57	William E. Ruxton, Vice President, The National Tooling & Machining Association, Fort Washington, MD. September 15, 1994.
IV-D-58	Richard S. Zbur, Latham & Watkins, Los Angeles, CA (on behalf of The Regulatory Flexibility Group). November 10, 1994.
IV-D-59	David P. Page, Gardere & Wynne, L.L.P., Tulsa, OK (on behalf of American Airlines and Textron Aerostructure). June 30, 1994.
IV-D-74	John Grainger, Dir. of Tech. Services, Turco Products, Inc., Elf Atochem North America. December 15, 1994.
IV-D-75	Cyrus A. Jaffari, President, Caspian, Inc., San Diego, CA. December 8, 1994.
IV-D-76	David M. Driesen, Project Atty., Air and Energy Program, Natural Resources Defense Council, Washington, DC. January 5, 1995.
IV-D-77	Dale L. McKinnon, Technical Director, Manufacturers of Emission Controls Association, Washington, DC. January 4, 1995.

TABLE 1-1. (Continued)

IV-D-78	John Grainger, Dir. of Tech. Services, Turco Products, Inc., Elf Atochem North America. January 3, 1995.
IV-D-79	Kraig Kurucz, Group Lead, Air Quality Compliance, Environmental Protection Programs, Lockheed Missles & Space Company, Inc., Sunnyvale, CA. January 3, 1995.
IV-D-80	Glynn Rountree, Director of Env. Affairs, Safety & Health, Aerospace Industries Assoc., Washington, DC. January 4, 1995.
IV-D-81	Charles L. Robertson, Senior Environmental Engineer, Environmental Compliance, Bell Helicopter Textron, Inc., Fort Worth, TX. January 5, 1995.
IV-D-82	Tim Sturdavant, Environmental Engineer Specialist, Environmental Affairs Department, Rohr, Inc., Chula Vista, CA. January 3, 1995.
IV-D-83	Elsie L. Munsell, Deputy Assistant Secretary of the Navy, Washington, DC. January 5, 1995.
IV-D-84	W. Caffey Norman, III, Patton Boggs, L.L.P., Halogenated Solvents Industry Alliance, Washington, DC. January 6, 1995.
IV-D-85	Richard K. Ketler, Senior Atty., Air Transport Assoc. of America, Washington, DC. January 6, 1995.
IV-D-86	Stephen P. Risotto, Exec. Director, Center for Emissions Control, Washington, DC. January 6, 1995.
IV-D-87	Cameron Drake, Business Development Manager, CAE Electronics, Ltd., Quebec, Canada. January 5, 1995.
IV-D-88	John A. Johnson, Vice President, The Boeing Company, Seattle, WA. January 6, 1995.
IV-D-89	Mike Lake, Chief, Engineering Division, San Diego Air Poll. Control District, San Diego, CA. January 6, 1995.

TABLE 1-1. (Concluded)

IV-D-90	Gwendolyn K. Feltis, Gardere & Wynne, L.L.P., Tulsa, OK, (on behalf of American Airlines). January 6, 1995.
IV-D-91	Stephen P. Risotto, Exec. Director, Center for Emissions Control, Washington, DC. January 6, 1995.
IV-D-92	Mike Lake, Chief, Engineering Division, San Diego Air Poll. Control District, San Diego, CA. January 6, 1995.
IV-D-93	John J. Scialdone, Polymers Section, Materials Branch, National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, MD. January 6, 1995
IV-D-94	John A. Johnson, Vice President, The Boeing Company, Seattle, WA. January 13, 1995.

standards between proposal and promulgation. This document is volume II of "National Emission Standard for Hazardous Air Pollutants (NESHAP) for the Aerospace Industry - Background Information for Proposed Standards," June 1994 (later referred to as BID, Volume I) (docket item III-B-1). This report also includes a discussion of the changes made to the regulatory analysis for the proposed standards presented in BID, Volume I.

1.2 SUMMARY OF CHANGES SINCE PROPOSAL

Several changes of varying importance have been made to the standards since proposal. The majority of the changes were made in response to the public comments, but some were made by the EPA to improve clarity or consistency. Listed below is a summary of the major changes and clarifying revisions made in developing the final standards.

1.2.1 Applicability

The final rule now specifically states that aerospace vehicles that leave the Earth's atmosphere are not covered under this rule. The rule also clarifies that only items critical to the structural integrity or flight performance of the vehicle are regulated. Also, aircraft transparencies (windshields) and electronic parts and assemblies will not be covered. These types of vehicles and components were never intended to be included in the NESHAP. Finally, the applicability section states that material usage associated with research and development, quality control, and laboratory testing is not being regulated.

In addition, the final rule specifies that formulations containing HAP or VOC at concentrations less than 0.1 percent for carcinogens or 1.0 percent for noncarcinogens, as determined from manufacturer's representations, are not covered by the standards. The final rule also includes an exemption for low-volume coatings. Up to 50 gallons per separate formulation of coating may be used and the total facility usage of low-volume coatings must not exceed 200 gallons annually.

Since data are not presently available to serve as a basis for regulation of smaller sources, the final rule will not regulate non-major sources (no change from proposal).

1.2.2 Definitions

The EPA has revised the definition of "chemical milling maskant application operation" to clarify that only maskants used in Type II etchants will be regulated. Maskants used with Type I etchants and additional specialty coating maskants are being addressed in the control techniques guideline (CTG) for the aerospace industry.

Several commenters stated that more than one coat of primer may at times be applied. Therefore, the definitions of "primer" and "self-priming topcoat" have been revised to include the first layer of coating and any subsequent layers of identically formulated coating.

The definition of "specialty coating" now includes a specific list and definitions of the specialty coatings that are exempt under the final rule (Appendix B). The aerospace CTG under development will contain recommended VOC content limits for these coatings.

The EPA has deleted the 4 ft^2/vehicle specification in the "spot stripping" definition. The EPA believes that the definition is adequately descriptive without a size limitation. The EPA is also deleting this size specification from the depainting standard. The 4 ft^2/vehicle limit for "touch-up and repair operations" has also been deleted, due to the difficulty of determining the total area touched up on a specific vehicle.

A definition for "cleaning operation" has been added to the rule. This definition adds clarity to the cleaning standard by grouping all of the cleaning operations together.

"Electrodeposition of paint" has also been added to the list of definitions. This paint application method has been accepted as an equivalent MACT level of control for coating emissions.

The definition for "depainting" has been revised to exclude hand and mechanical sanding, and any other processes that do not emit airborne particulates during depainting, from the depainting standard.

The EPA agrees with commenters that "mechanical sanding" is a depainting method that minimizes the release of HAP's. A

definition for "mechanical sanding" has been added to the rule.

A definition for "softener" has also been added. Several commenters stated that they use softeners in conjunction with dry media blasting as a depainting method. The final rule does not prohibit the use of non-HAP paint softeners.

The final rule also contains definitions for "aircraft transparency," "carbon adsorber," "carbon adsorber control efficiency," "confined space," "control system," "high efficiency particulate air (HEPA) filter," "inorganic hazardous air pollutant (HAP)," "natural draft opening," "nonregenerative carbon adsorber," "organic hazardous air pollutant (HAP)," "space vehicle," "temporary total enclosure," "total enclosure," "two-stage filter system," "waterwash system," and nomenclature for determining carbon adsorber efficiency. These definitions were added to the final rule to improve the clarity of the regulation.

1.2.3 Cleaning Operations

The EPA has revised the housekeeping measures in the cleaning standard to exempt non-HAP, non-VOC solvents from the standard. As one commenter pointed out, water could theoretically have been regulated by the proposed provision and this was not the EPA's intent. Additionally, cotton-tipped swabs have been exempted from the housekeeping measures because these application devices represent a source of minimal emissions.

The EPA has also revised Table 3, "Composition Requirements for Approved Cleaning Solvents," and added the term "photochemically reactive" to the composition requirements for hydrocarbon-based cleaning solvents. This action deletes acetone and any compounds which the Agency may deem non-photochemically reactive in the future. Also, a minimum flash point of 200°F has been adopted as a requirement for aqueous cleaners. The previous requirement, "aqueous solutions must be non-flammable and non-combustible," has been deleted. The EPA believes that this revision will make compliance with the standard much more straightforward.

In addition, the EPA has added a pollution prevention alternative to the emission limits specified in Table 3. A

facility may demonstrate that the volume of hand-wipe solvents used has been reduced by 60 percent using a baseline established by the permitting authority. The facility must demonstrate that this alternative compliance plan will achieve emissions reductions equivalent to the cleaning solvent composition requirements.

The section on hand-wipe cleaning has been revised to specify that spray gun cleaning performed in accordance with the work practice standards is not subject to the cleaning solvent composition and vapor pressure specifications in the rule. The EPA believes that this revision clarifies the standard by stating that spray gun cleaning will be regulated by work practices and not by cleaning solvent composition limitations.

The flush cleaning provision has also been revised. The EPA believes that when a facility uses an aqueous cleaning solvent for flush cleaning, the emissions will be minimal. Therefore, the EPA has exempted facilities that use aqueous cleaners for flush cleaning from the flush cleaning requirement.

1.2.4 Primer and Topcoat Application Operations

The EPA has listed the specialty coatings that are exempt from the Primer and Topcoat Application Operations standard in an appendix to the final rule. By listing the specialty coatings and accompanying definitions, the EPA believes that the public can clearly identify the coatings that are covered by the standard. While the specialty coatings have not been regulated in the NESHAP, they will have VOC content limits specified in the CTG.

Aerospace vehicles and components that are intended for or on permanent public display will also be exempt from the rule. The EPA believes that coating of these vehicles will represent a minimal source of emissions.

The EPA has also added waste handling and storage requirements for primers and topcoats. These requirements represent common sense initiatives with respect to emission reductions.

One commenter stated that technology developments for self-

priming topcoats may not follow the developments for topcoats in general. The EPA agrees and has listed self-priming topcoats as a distinct category in the standard, with the same organic HAP and VOC limits as specified for general topcoats.

The time period for facilities using averaging to achieve compliance with the VOC and HAP content limits has been changed from daily to monthly. This change in the averaging time period must be approved by permitting authority. In addition, the permitting authority will retain the right to limit the time period used for averaging and each averaging scheme must be approved in advance by the permitting agency as part of the facility's title V permit.

The EPA has also added a provision that allows facilities to operate application equipment according to their own specified operating instructions. The company must still use one of the acceptable application methods and may not operate the equipment when the application generates emissions that are greater than produced using the manufacturer's specification.

"Electrodeposition (dip) coating" and "cotton-tipped swab application" have been added as acceptable coating application methods. Electrodeposition achieves a transfer efficiency equivalent to or better than HVLP and use of cotton-tipped swabs produces minimal emissions.

The EPA has added "airbrush" to §63.745(e)(3)(i) as an acceptable method of application in limited access spaces. The EPA believes that the definition of "limited access space" sufficiently eliminates the potential for misuse of the application method.

The EPA also added "aerosol spray can application" to the list of situations that are exempt from the requirement to use specific application techniques due to the minimal emissions resulting from this process.

The EPA has listed three-stage or HEPA filters as the standard for topcoat and primer application operations at new sources when the coatings being applied contain chromium or cadmium. The EPA has also listed two-stage filters as a MACT

standard for existing source topcoat and primer application operations. The final rule also states that the coating application operation must be shut down and corrective action taken when a waterwash system used to control emissions from the application operation is not operated according to manufacturer's specifications.

The EPA has added "sealant detackifying" as an exemption to the inorganic HAP emissions provision, because the emissions from this source are minimal. In addition, facilities may gain an exemption from the inorganic emissions control requirements for specific parts if the parts are listed in the title V permit and approved by the permitting authority.

1.2.5 Depainting Operations

The EPA has exempted from the standard, aerospace vehicles and components that are on permanent public display and cannot be readily moved. The EPA recognizes that such vehicles cannot be readily positioned in an enclosed area for depainting.

In addition, the EPA has reorganized the standard into two sections: requirements pertaining to facilities using non-HAP processes for depainting aircraft and requirements for facilities that generate organic HAP emissions when the primary method of depainting is the use of HAP-containing chemical strippers.

The EPA has exempted hand and mechanical sanding from the inorganic HAP emissions control requirements in the final rule. These methods generate minimal airborne HAP emissions and installing controls on these operations would be cost-prohibitive.

During malfunctions of non-chemical based depainting equipment, the EPA will now allow a facility 15 days of substitute materials use <u>on an annual basis</u> as opposed to the 14 days <u>per malfunction</u> in the proposal. The EPA believes that many facilities will choose to use HAP-containing chemical strippers during malfunctions, necessitating the reduction in the number of days that substitute materials may be used. A facility may always use non-HAP depainting techniques or methods for an indefinite period of time during equipment malfunctions.

When non-chemical based depainting equipment is used, the EPA will allow a facility to operate the equipment according to manufacturer's specifications or to locally specified operating instructions. The EPA understands that some facilities have developed their own set of specifications due to the incompleteness of the specifications supplied by some equipment manufacturers. The EPA believes that such facilities have maximized the equipment's performance and likely minimized HAP emissions.

Several commenters stated that the reported control efficiencies for inorganic HAP emissions resulting from media blasting were based on manufacturer's claims and not test data. The EPA agrees and has deleted the 99 percent control efficiency requirement for dry particulate filters used with media blasting equipment. The EPA has implemented a set of work practices in lieu of a control efficiency standard. The EPA has also deleted Method 5 testing for dry particulate filters. The final rule specifies work practices when dry particulate filters or waterwash booths are used to control emissions from media blast depainting operations. Additionally, particulate filters and waterwash booths will be required only for media blasting (i.e., not for hand or mechanical sanding). Furthermore, the EPA is currently evaluating the effectiveness of different types of particulate filters and test methods to quantify the control efficiency of the filters. Once the EPA has determined an effective test method, the Agency will issue a supplemental proposal in the Federal Register and request comments on requiring affected sources to utilize particulate filters that are EPA-approved based on tests performed by the filter manufacturers.

The depainting spot stripping exemption has also been clarified. Only facilities that use non-HAP depainting methods may use the exemption. If a facility chooses to use HAP-containing chemical strippers as the primary depainting method, then the final rule requires that control devices be installed on the process. If controls are installed at a facility, then the

EPA believes that all HAP emissions should be controlled, including emissions from spot stripping. A commercial facility may use up to 26 gallons of HAP-containing stripper per aircraft depainted, calculated on an annual average basis. A military facility may use up to 50 gallons of HAP-containing stripper per aircraft depainted. When a facility exceeds these emission caps, the resulting emissions must be controlled.

The EPA has added the use of HAP-containing chemical strippers (with appropriate controls) as an acceptable depainting method. If a facility chooses to use chemical strippers that contain HAPs, the resulting emissions must be controlled at an overall efficiency of 81 percent for existing control systems and 95 percent or greater for control systems installed on or after the effective date of the NESHAP (promulgation date). In addition, the 95 percent control efficiency can be achieved as a combination of emissions capture and control equipment and reduced chemical stripper usage. Emissions reductions would be calculated using 1996 and 1997 chemical stripper usage as the baseline.

1.2.6 Chemical Milling Maskant Application Operations

The EPA has added waste handling and storage requirements for chemical milling maskants. These requirements represent common sense initiatives with respect to emission reductions.

The EPA has also exempted the application of maskant to touch-up marred and scratched surfaces from the standard. The EPA believes that touch-up of scratched and damaged surfaces represents a source of minimal emissions.

The time period for facilities using averaging to achieve compliance with the VOC and HAP content limits has been changed from daily to monthly. This change in the averaging time period must be approved by permitting authority. In addition, the permitting authority retains the right to limit the time period used for averaging and each averaging scheme must be approved in advance by the permitting agency as part of the facility's title V permit.

1.2.7 Handling and Storage of Waste

The EPA has deleted §63.748(b) which states, "store all waste that contains organic HAP in closed containers," since the docket does not contain sufficient data to implement this provision for non-RCRA waste. However, the general housekeeping provision applicable to handling and transfer of HAP-containing waste has been retained.

1.2.8 Test Methods and Procedures

The EPA has added an equation to the "vapor pressure determination" paragraph to assist facilities in determining the vapor pressure of hand-wipe cleaning solvents. The equation identifies all variables that are used in the vapor pressure determination.

The EPA has also revised equation 8, which is used to calculate the VOC content of topcoats and primers. An additional variable has been defined, (V_{xi}), and incorporated in the denominator, in order to account for exempt solvents contained in the coating. This revision corrects the definition of (G_i); the

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mass of VOC emitted per volume of coating i (pounds per gallon) less water and exempt solvents as applied.

Method 309 has been deleted from the final rule for determining the efficiency of carbon adsorbers. The final rule contains provisions that specify the requirements for determining the efficiency for regenerative and nonregenerative carbon adsorbers.

The EPA has deleted the use of Method 5 to determine the particulate filter control efficiency. The EPA is currently working to develop an effective testing methodology that correlates control efficiency with particulate size distribution.

1.2.9 Monitoring Requirements

The EPA has specified in the final rule that dry particulate filters are to be monitored using pressure drop as the monitored parameter. The pressure drop limits during proper operation should be specified by the filter manufacturer. The EPA has also deleted the requirement that pressure drop be monitored for

waterwash booths. Waterwash booths will be monitored using visual checks in combination with the water flow rate limits specified by the manufacturer of the booth.

The EPA has added continuous emission monitors (CEM), as an alternative procedure for determining the destruction efficiency of incinerators. Facilities may now use CEM's

to demonstrate incinerator efficiency by monitoring the effluent composition. As long as the composition remains constant, a facility will not be required to recalibrate the temperature sensors.

The final rule also contains monitoring requirements for carbon adsorbers. The requirements specify that the parameters used to determine the overall control efficiency of the carbon adsorber system should be monitored.

1.2.10 Recordkeeping and Reporting

The EPA has included a provision that requires a facility to inform the Agency of the facility's plan with respect to its use of coatings within 2 years of promulgation and no later than 12 months prior to the final compliance date.

As mentioned earlier, the EPA has deleted the provision requiring enclosure of all waste that contains HAP. Accordingly, the recordkeeping and reporting requirements corresponding to this provision have also been deleted.

The EPA has also revised the provisions pertaining to cleaning operations. A facility is no longer required to keep a log of the parts, assemblies, and subassemblies cleaned with non-compliant solvents. Instead, a facility must report the processes where these non-compliant hand-wipe cleaning solvents are used. Additionally, the facility is required to record the monthly volume of non-compliant cleaning solvent used instead of the daily requirement in the proposal. The EPA will also only require records and reports for cleaning solvents containing HAP or VOC.

As mentioned earlier, the EPA has changed the averaging period for uncontrolled primers, topcoats, and maskants, from daily averaging to monthly averaging. Therefore, the final rule

requires that the volume of coating used each month and the monthly volume-weighted averages be recorded instead of recording the daily volume usage and daily volume-weighted averages.

In addition, the EPA has added a provision for "low HAP content" primers. These primers contain less than 2.1 lb/gal of VOC or HAP and annual records of the total volume purchased must be recorded.

The EPA has exempted facilities from the reporting requirements if their total use of chemical strippers is 50 gallons or less per year.

1.2.11 Emissions Averaging

The final rule does not contain a comprehensive program for averaging across multiple source categories. The Agency is currently evaluating various averaging schemes and options and intends to solicit public comments on an averaging plan in a supplemental proposal to the NESHAP.

1.2.12 NESHAP Format

The EPA has removed the tabulated summary of the rule from the text and added it as an appendix to the final rule. The EPA believes that this revision will ensure that owners and operators read the rule text in order to determine the rule's applicability to their facility.

In addition, the EPA has included a list of the exempt specialty coatings and accompanying definitions as an appendix to the final rule.

2.0 GENERAL ISSUES RAISED IN THE PUBLIC COMMENTS

2.1 ISSUANCE OF THE CTG

Comment: Five commenters (IV-D-29, IV-D-32, IV-D-35, IV-D-39, IV-D-51) supported the development and issuance of a control techniques guideline (CTG) to define RACT for aerospace operations, as expressly required by the 1990 Clean Air Act Amendments. Three commenters (IV-D-29, IV-D-35, IV-D-51) noted that although the primary environmental benefit will be achieved through the Aerospace NESHAP, the development of the CTG still has the benefit of providing uniform guidance to State and local agencies. Commenter IV-D-51 stated that the issuance of a CTG will assist local regulatory agencies in administering the standard and will help provide a more level playing field within the industry. Commenter IV-D-29 stated that based upon discussions during the June 30, 1994 CTG meeting and the August 15, 1994 public hearing, it is their understanding that the EPA will release a draft CTG for public comment.

Commenter IV-D-35 noted that section 183(b)(3) of the Clean Air Act requires the EPA to issue an aerospace coatings CTG. Commenter IV-D-32 requested that the EPA fulfill its legal requirement to issue a separate CTG for certain low-usage coatings, such as adhesives, sealants, and specialty coatings.

Three commenters (IV-D-29, IV-D-35, IV-D-39) urged the EPA to recognize the importance to the industry of separately proposing the CTG and providing opportunity for public comment.

Commenter IV-D-39 pointed out that in the preamble, the EPA has indicated that rather than issue a separate draft CTG in this case, it is simultaneously soliciting public comment on draft best available control measures (BACM), which are proposed to be the same as the proposed MACT for coatings and solvents. The

commenter also noted that comments received on the proposed MACT rule are also to be considered in formulating a final BACM. While the commenter stated that they do not object, in general, to the concept of coordinating BACM and MACT, discussions concerning BACM have indicated that numerous additional specialty coating categories are proposed for regulation.

Two commenters (IV-D-80, IV-D-83) stated their opposition to the elimination of a formal public comment period by the issuance of a BACM and not a draft CTG.

Two commenters (IV-D-80, IV-D-83) stated that if regulation of specialty coatings is to be incorporated into the Aerospace NESHAP, then the EPA should separately propose such regulation in the Federal Register as an amendment to the Aerospace NESHAP and provide opportunity for public comment. Three commenters (IV-D-29, IV-D-35, IV-D-39) believe that specialty coatings are more appropriately addressed through the CTG after appropriate public comment.

Commenter IV-D-83 recommended that the EPA issue a draft CTG for public comment within the next few weeks. The commenter was willing to help fast track the CTG through the regulatory process and the comment period. They felt that a final version could be ready for issuance in March or April of 1995.

Three commenters (IV-D-11, IV-D-14, IV-D-42) recommended that a CTG not be developed for low-usage coatings based on the minor emissions they contribute.

Commenter IV-D-42 stated that low-usage coatings, such as adhesives, sealants, and specialty coatings reportedly contribute less that 6 percent of the total HAP emissions.

Commenter IV-D-14 stated that it would be difficult to supply a guideline for control of low-usage coatings when the MACT floor analysis determination was "no control." The commenter believes that these low-usage coatings will most likely be contained in a MACT floor of no control.

Commenter IV-D-11 stated that whether or not a coating is low-usage should not be a basis for it having separate emission control procedures. The commenter concluded that, in addition to

the limited usage rates, many of these products have a very low HAP and VOC content and additional rules would provide only minimal emission reductions.

Response: In response to section 183(b)(3) of the Act, the EPA is preparing a CTG for the aerospace industry. Issuance of this document is expected to occur sometime after the promulgation of the NESHAP.

The VOC content limits in the CTG for primers, topcoats, and chemical milling maskants will be the same as those being promulgated in the final NESHAP. The CTG also addresses numerous low-usage specialty coatings. The EPA will provide VOC limits for each of the specialty coatings listed in the CTG.

2.2 FACILITY-WIDE EMISSIONS AVERAGING

Comment: Commenter IV-D-31 recommended that emissions averaging not be provided for in this rule. This commenter stated that this industry in the past has simply not met emission limitations when permitted to use averaging, and felt that the proposed limits can be met without averaging. The commenter stated that, if averaging is retained in the final rule, stricter emission limitations must apply to those categories in which averaging is allowed. The commenter believes that daily demonstrations of compliance are essential, as the EPA has proposed. The commenter also stated that, if emissions averaging is retained, the EPA should continue to limit it to averaging within a single type of material as proposed. They also felt that averaging across types of products would be illegal under the Act.

Commenter IV-D-52 stated that their agency has removed compliance options using emissions averaging from their aerospace rule and instead, require each individual topcoat and primer to meet specified VOC limits. The commenter stated that one of the primary reasons for eliminating the averaging provisions was to comply with the criteria specified in the EPA's Federal Emissions Trading Policy (FETP). They requested that the EPA clarify the applicability of the FETP and its relationship to the proposed NESHAP.

The commenter pointed out that the aerospace facilities within their jurisdiction already comply with the proposed VOC limits without averaging between coatings. The commenter, therefore, recommended that the EPA provide State and local agencies with the option of excluding the emissions averaging provisions upon delegation, with an up-front determination in the NESHAP that this option is clearly more stringent, and that no equivalency determination be required under Subpart E. The commenter indicated that this was done for the hazardous organic NESHAP (HON), and should be appropriate for this rule as well.

Eight commenters (IV-D-27, IV-D-29, IV-D-35, IV-D-37, IV-D-38, IV-D-47, IV-D-48, IV-D-51) urged the EPA to maintain an emissions averaging option within the Aerospace NESHAP. Commenter IV-D-27 stated that emissions averaging is a viable alternative even though additional recordkeeping requirements are needed. In general, the commenter does not view emissions averaging as the norm but does consider it a safety net where relatively low usage applications may require a coating that has a higher VOC/HAP content than is allowed in the rule. Commenter IV-D-35 believes that such an averaging option is necessary as a safety net approach, used to efficiently and effectively maintain compliance. The commenter also stated that an emissions averaging scheme should allow for a balancing of high and low-VOC and/or HAP materials to achieve the same net compliance requirement under a site-specific or plant-wide averaging scheme. Commenter IV-D-27 also stated that emissions averaging tends to encourage industry to test the new low VOC/HAP technologies in order to have the option of implementing emissions averaging in a critical situation. Two commenters (IV-D-27, IV-D-29) stated that it is critical that industry have the flexibility to choose the most cost effective methods of compliance and recommended that the EPA expand the averaging approach.

Commenter IV-D-39 stated that, while they support averaging as a strategy for reducing hazardous air pollutants, they fail to understand the rationale for denying a source the flexibility to average a controlled source with an uncontrolled source. The

commenter also stated that, assuming that averaging would be between emission points within the same source category, no reason suggests itself for denying a source the ability to average between these sources. The commenter pointed out that methodologies have been developed by the Agency that allow the source to calculate overall emissions appropriately (e.g., the draft wood furniture manufacturing NESHAP). The commenter recommended that the EPA reconsider the provision.

Commenter IV-D-35 stated that application of control to emissions from compliant or exempt substances, and application of a control device having overall control efficiency greater than 81 percent is voluntary overcontrol, which creates a potential credit. The commenter claimed that credits generated by any process or overcontrol initiative of regulated or unregulated materials should be available to balance or otherwise offset other required emission reductions. The commenter provided equations, supporting data, and a broad based emissions averaging scheme.

The commenter also stated that failure to provide a workable emissions averaging system, which accounts for verifiable credits over a reasonable averaging period, subject to enforceable permit conditions, is counter to commonly held environmental and business goals. The commenter, therefore, recommended the addition of §63.745(d)(3) to read as follows:

> "Apply emission controls to compliant processes, generating an overcontrol credit that can be applied to decrease the actual emission level from a similar source. Unless item-by-item correspondence is demonstrated between the constituents of the overcontrolled emission and of the emission against which it is to be credited, the credit available under this option must be negotiated between the emitting organization and the cognizant regulatory agency and its designated representative."

Commenter IV-D-35 claimed that the averaging time allowed by the rule is far too short and does not allow enough flexibility

for the user in determining compliance and in adjusting workloads and scheduled activities. The commenter stated that the daily average specified in the proposed rule is unsatisfactory for the following reasons: (1) partially used containers may be carried over from one day to the next; (2) individual jobs may require more than one day; (3) recordkeeping, processing, and reporting will be an expensive undertaking; and (4) periods of required extreme activity (e.g., Desert Storm) can be averaged out. The commenter believes a minimum 30-day period is necessary for DoD rework facilities and field operations. The commenter believes that without a workable emissions averaging scheme, a disproportionate amount of resources will be dedicated to reducing emissions from low volume coatings.

Commenter IV-D-29 also requested that the EPA consider allowing a 30 day averaging period and emissions trading for any regulated source under the Aerospace NESHAP. The commenter believes that the value of emissions averaging would be severely restricted if the industry were restricted to 24-hour averaging. The commenter stated that aerospace operations are very batch oriented, that it may take 2 years from start to finish to produce a large aircraft, that identical parts are not coated on a daily basis, and that most aircraft lines produce less than 10 aircraft per month. For these reasons, the commenter concluded that identical parts may be coated only a few times per month requiring the 30-day period for averaging.

Commenter IV-D-35 claimed that DoD facilities must have longer averaging times to provide for fluctuations in workload which can be driven by readiness and mobilization needs which are beyond the control of individual facilities. The commenter, therefore, recommended the following revisions:

Change §63.745(d)(2)(i) and §63.749(d)(1) to read as follows:

> "Use any combination of primers or topcoats such that the quarterly volume-weighted average organic HAP and VOC content of the combination or primers or topcoats complies with the specified content levels."

Change §63.745(d)(2)(ii) to read as follows:

"Compliance may be demonstrated by averaging emissions from both primers and topcoats together for those constituents for which item-by-item correspondence is demonstrated. Averaging of non-equivalent emissions requires written approval of the cognizant regulatory agency or its designated representative."

The commenter stated that the volatile organic constituents of most coatings used are generally similar. The commenter believes that the similarity of constituents provides significant opportunity for direct (one-for-one) exchange. According to the commenter, the presence of hazardous materials exhibiting dissimilar toxicological activity for a material having non-toxicological characteristics will and should require evaluation by the Administrator before an arbitrary judgment of interchangeability is made.

The commenter also stated that given the high cost of installing control devices, averaging of controlled and uncontrolled primer and/or topcoats should be allowed, provide the net weighted emissions does not exceed the average of the appropriate categores over the averaging period. The commenter, therefore, recommended that §63.745(d)(2)(iii) be deleted.

Two commenters (IV-D-38, IV-D-47) encouraged the EPA to include provisions that would provide for compliance with prescribed HAP emission limits by averaging emissions across various operations regulated under the rule. The commenters believe that an emissions averaging provision would provide a much more reasonable and fair approach to reducing HAP emissions than a ban on organic HAP emissions from depainting operations.

Four commenters (IV-D-35, IV-D-37, IV-D-48, IV-D-51) supported an emissions averaging scheme that allows emissions trading and averaging between NESHAPs. Specifically, three commenters (IV-D-35, IV-D-37, IV-D-51) conveyed their support for the emissions averaging proposal submitted by commenter IV-D-48.

Commenter IV-D-48 provided an emissions averaging proposal, which is very similar to the proposal adopted by the EPA for the HON on April 22, 1994. The key aspects of the proposal and

critical policy considerations presented by the commenter are as follows:

1. Limited banking of credits
2. Intercategory trading and credits for reductions of HAP not covered by a NESHAP category
3. The value of credits and their life expectancy
4. Interpollutant trading
5. Recordkeeping and reporting
6. The EPA should specifically allow credits for "no paint" of the aircraft exterior fuselage
7. The proposal compares favorably to the averaging rule adopted in the HON.

In order to better explain the proposal, the commenter provided regulatory language as an example of how an aerospace averaging rule could be written.

The commenter stated that the emissions averaging proposal provides support for the following important public policy considerations:

1. Broad-based emissions averaging provides the only means of advancing the Administrator's goal of advocating Pollution Prevention policies.
2. Emissions averaging provides the source with the flexibility to consider a multi-media approach to meeting the mandated emission standards.
3. Broad-based averaging allows the source to select the means to achieve the emissions reduction, thereby achieving the same environmental gains at significantly reduced costs.
4. Establishing MACT standards with a facility-wide averaging program could result in a MACT "floor" for future standards being tighter than would have been the case if the emission points outside of the already covered MACT categories would have stayed uncontrolled.
5. A broad averaging scheme may result in the discovery of emission points within facilities that otherwise might have been overlooked by EPA and State regulators.

According to the commenter, the only legal obstacle to the proposal is whether or not the EPA may define "source" under section 112(d) to include all HAP emission points at the same plant site so as to allow emissions averaging plant-wide and between and among all sources of HAP at the facility. In considering this issue, the commenter also discussed whether a broad-based definition of "source" is consistent with the requirement that all sources must comply with a MACT floor established pursuant to section 112(d). The commenter also evaluated whether section 112(d) requires that all emission points meet the technology-based standard established by the EPA under sections 112(d)(2) and (3), or is it sufficient that a source's overall emissions be equal to or less than total HAP emissions that would have been emitted had all emission points applied the MACT standard technology. Finally, the commenter presented an analysis of the policy and regulatory precedent that has already been established by Congress and the Agency for emissions averaging programs such as that set forth in the proposal.

Based on their evaluation, the commenter determined that the EPA has the legal authority to define "source" under section 112(d) in a manner that would allow facility-wide emissions averaging within, between, and among all sources of HAP emissions at a contiguous plant site that is under common ownership or control. Furthermore, the commenter stated that EPA's Office of General Counsel issued a legal opinion dated May 14, 1991, which specifically addressed the issue of the Agency's authority to broadly define "source" under section 112(d) and concluded that the Agency could in fact define "source" broadly enough to allow emissions averaging under section 112(d). In addition, the commenter noted that recent actions taken by the EPA to propose and promulgate rules under sections 112(g) and 112(i)(5) and the HON NESHAP rule is further evidence of the Agency's recognition of its legal authority to broadly define "source" such that emissions averaging is allowed under section 112(d) of the Act.

Commenter IV-D-51 also conveyed their support for the use of

computer modeling, which would be used as a tool to demonstrate compliance, in the proposal submitted by commenter IV-D-48. The commenter believes that the use of emissions averaging and computer modeling will provide direct benefit to the EPA. They suggested that the generation of fenceline data by facilities utilizing computer models will be beneficial to the EPA in the assessment of "residual risk," which must be accomplished by the EPA for future rule development.

Commenter IV-D-35 also submitted an equation to be used in conjunction with the proposal submitted by commenter IV-D-48. The equation contained equivalency factors that address concerns by the Natural Resources Defense Counsel (NRDC), which stated that not all pollutants are equal. The factors adjust for the differences in pollutants and apply to the trading of emission credits. Additionally, the commenter suggested that the proposal submitted by commenter IV-D-48 should be revised by changing the length of time a credit is available and discounting the credit depending on the attainment status of a region.

Response: The final rule does not allow averaging across source categories; therefore, topcoats can only be averaged with topcoats, primers with primers, etc. The final rule does, however, allow facilities to use monthly averaging periods instead of daily averaging. The facilities which choose to use averaging as a means of demonstrating compliance must submit the averaging scheme to the permitting authority as part of their title V permit. In addition, the permitting authority can limit the time period that may be used for averaging to less than 30 days. In no case may the averaging period be longer than 30 days.

The EPA is currently investigating a number of options with respect to implementing a broad-based averaging scheme as a compliance option for the Aerospace NESHAP. The EPA must determine the compatability of an averaging scheme with other local, State, and Federal regulations and the enforcability of such a plan in addition to determining the best way to implement a plan that produces quantifiable emissions reductions and

guarantees the public's safety. The EPA will issue a supplemental proposal to the NESHAP that will solicit public comments on a plan that the Agency deems to be enforcable, quantifiable, and guarantees emissions reductions and the public's safety.

3.0 APPLICABILITY ISSUES

3.1 CLARIFICATION OF APPLICABILITY

Comment: Commenter IV-D-29 believed that the proposed rule as drafted could be read to cover non-aerospace activities conducted at an aerospace facility. The commenter stated that since the EPA has not gathered information on such activities, these non-aerospace activities must be excluded from coverage. The commenter pointed out that, even if these sources are excluded, the rule will still apply to all aerospace activities, no matter how small, conducted at a non-aerospace "major source." According to the commenter, both the Clean Air Act and the California regulations, on which EPA's "MACT floor" analysis is heavily based, require the rule to exclude these activities.

Commenter IV-D-35 pointed out that in the preamble to the proposed rule, the EPA stated that the NESHAP will apply to "each aerospace manufacturing and rework facility that is a major source, ..." (59 FR 29221). Two commenters (IV-D-39, IV-D-35) noted that "aerospace facility" is defined in the preamble as "a facility that produces in any amount an aerospace vehicle or component, or a facility that reworks (or repairs) these vehicles or components." Commenter IV-D-35 also noted that the preamble goes on to state that "aerospace operations at any major source that conducts both aerospace and non-aerospace work would be subject to the proposed standards, regardless of the relative proportion of aerospace and non-aerospace work at the facility." The commenters suggested that the entire applicability section discussion leaves the reader confused as to the EPA's intent with respect to non-major aerospace facilities.

Four commenters (IV-D-27, IV-D-29, IV-D-30, IV-D-35) stated that many sources that would constitute "aerospace facilities" under the proposed definition manufacture or rework both aerospace components and non-aerospace components in the same plant or production area. The non-aerospace components could include parts for ships, boats, cars, trucks, etc. According to three of the commenters (IV-D-27, IV-D-29, IV-D-35), these activities have not been studied by the EPA and present wholly different regulatory problems from those aerospace activities that have been studied, and, therefore, should not be covered by the Aerospace NESHAP. The commenters pointed out that under a literal reading of the proposed rule, painting, depainting, etc., connected with these non-aerospace activities could also be covered by the Aerospace NESHAP because they take place at a facility engaged "in part" in the manufacture or rework of aerospace vehicles or components. The commenters further stated that since coverage of non-aerospace activities would exceed the scope of the EPA's statutory authority, and the EPA has not gathered information on such activities or analyzed the wisdom of controlling them, they must be excluded from coverage.

Commenter IV-D-49 expressed concern that the scope and applicability of the regulation is too broadly defined, covering not only those facilities whose primary mission is to manufacture or rework aerospace, but also contractors and subcontractors who perform work on components of aerospace vehicles. The commenter noted that there are potentially thousands of small businesses that provide components to the aerospace industry and each may be subject to the rule if they are major sources of HAP. The commenter illustrated this with reference to a manufacturer of fasteners who sells a product to a wholesaler or distributor, who then in turn sells these products to an aerospace manufacturer for a component in an aerospace vehicle. The commenter asked whether the manufacturer of the fasteners would be subject to the rule, even though the manufacturer may not be aware that their fasteners are being used in the aerospace industry.

Three commenters (IV-D-30, IV-D-35, IV-D-49) suggested that

a more reasonable reading of the proposed rule would be that the stringent NESHAP requirements do not apply to non-major aerospace activities if they occur on an installation that is a major source for other than aerospace emissions. Commenter IV-D-30 pointed out that the aerospace rule may be significantly more stringent than the standards related to the predominant work performed at the facility and a requirement to meet stringent standards for a small amount of their total business could discourage vendors and subcontractors from competing for aerospace work. Commenter IV-D-35 stated that they would incur significant costs if the EPA subjects non-major aerospace activities to the proposed rule. The commenter pointed out that they conduct operations that involve aircraft at hundreds of locations throughout the country and that their activities often involve some form of aerospace work that would be covered in the NESHAP. According to the commenter, extending the proposed rule to these low HAP-emitting activities would be tremendously expensive with minimal benefit to the environment, as these activities involve low volumes of work.

Commenter IV-D-39 interpreted the proposed standards to mean that an aerospace facility that manufactures both aerospace and non-aerospace components would be subject to the NESHAP provisions, including coating limits. The commenter believes that this provision should be amended, at least insofar as coatings applications are concerned, since the coatings used in the aerospace industry are highly specialized and quite specific to their different uses. The commenter stated that VOC and HAP limitations on coating categories (topcoat and primer) established by the proposed rule are aerospace-specific and cannot be applied to non-aerospace coating applications that may be conducted at a major source performing aerospace manufacturing or rework operations (e.g., electronics manufacturing). According to the commenter, if the EPA did not intend this result by this provision, clarifying language is needed.

Two commenters (IV-D-27, IV-D-29) were concerned that the universe of activities and sources subject to the requirements of

the Aerospace NESHAP is not precisely defined. The commenters believe that without precision and clarity as to which sources and activities are, and are not, covered by the rule, neither potentially affected facilities nor the EPA itself will be able to determine whether or not specific activities are subject to regulation.

Response: Section 112(d)(1) of the 1990 Clean Air Act Amendments requires the Administrator to "promulgate regulations establishing emission standards for each category or subcategory of major sources and area sources of hazardous air pollutants listed for regulation ..." A major source is one that emits or has the potential to emit, considering controls, 9.1 Mg/yr (10 tpy) or more of any single HAP or 22.7 Mg/yr (25 tpy) or more of any combination of HAP. In developing these regulations, the EPA interprets these HAP emission thresholds to apply to the total emissions from all activities carried out at a facility.

The Agency is aware that, at many facilities, emitting operations in more than one processing or product category (emission source category) are carried out. Clearly, then, any major source has the potential to be made up of any number of smaller (non-major) sources. If the major source definition applied only to the total of operations within a single source category, HAP emissions at many major source facilities could go unregulated. This situation would be unacceptable to the Agency.

The approach taken in this rule, and in other NESHAP regulations, is to determine the total potential HAP emissions for a contiguous plant site under common control, and make the major source determination on this basis. Then, the activities within the plant site are matched to any covered operations in the NESHAP rules. The provisions of a particular NESHAP are then applicable to the specific operations within the source category covered by the NESHAP.

The EPA believes that a manufacturer is aware of the ultimate application of the parts it produces. Under the Aerospace NESHAP, any cleaning, application of primer, topcoat, or chemical milling maskant, or depainting associated with

aerospace vehicles or components must satisfy the requirements of this rule. Other, non-aerospace activities need not satisfy these requirements. However, a facility is not restricted from extending the practices to other operations where it elects to do so. For example, it might simplify purchasing, recordkeeping, employee training, etc. if the same hand-wipe cleaning solvents and housekeeping measures are used for several or all operations within a facility. Similarly, certain primers, topcoats, or chemical milling maskants may find multiple applications across different source categories.

The Agency did not receive any substantive information on the nature, number, and locations of non-major aerospace facilities in response to its request for comment in the proposal preamble. Since data are not presently available to serve as a basis for regulation of these smaller sources, the EPA has decided to not extend the requirements of the final rule to non-major sources.

Comment: Commenter IV-D-5 stated that if the statement is correct that the proposed rule "refers to all facilities that manufacture aerospace vehicles or components and all facilities that rework (including repair) these aerospace vehicles or components," the proposed rule is seriously flawed in that the number of facilities is grossly underestimated. The commenter also claimed that the EPA does not have accurate information on the number of aerospace facilities if it intends to include the entire aerospace industry.

Response: The EPA's comment in the proposal preamble was not intended to indicate that the Agency's estimate of facilities represented all facilities involved in aerospace work. At 59 FR29217 (column 2), it was stated that, "for the purposes of the proposed rule, aerospace industries refers to all facilities that manufacture ...and ...that rework ...aerospace vehicles or components." Thus, the commenter appears to have been confused by the distinction between the portion of the industry that was analyzed and the regulatory coverage of the proposed rule.

Comment: Commenter IV-D-10 requested that the regulation be clarified as to whether field operations are to be covered. For example, if a subcontractor performs work at an Air Force base, is the subcontractor or the Air Force responsible to see that the requirements of the regulation are fulfilled?

Response: The final rule clearly states that the owner or operator of an affected source or operation is responsible for meeting the requirements of the rule. This would apply even for the case of a contractor who performs work within the confines of an affected plant site. In individual cases, however, the enforcing authority would be free to exercise discretion in determining the responsible party. In other words, either or both parties could be subject to enforcement action if violations of this NESHAP were discovered.

Comment: Three commenters (IV-D-27, IV-D-29, IV-D-35) recommended similar alternative definitions of "affected source," one of which reads as follows:

> "Affected Sources. The affected sources to which the provisions of this subpart apply are specified in §63.741 (c)(1) through (6). The activities subject to this subpart are limited to the manufacture or rework of aerospace vehicles or components as defined in this subpart. Section 63.741 (c)(1) through (6) are not applicable to non-aerospace activities."

Response: Since this change clarifies the intent of the rule, the final rule has been revised to incorporate the substance of this new language.

Comment: Commenter IV-D-30 stated that in numerous discussions with the EPA, it has been presumed that manufacturing and rework operations related to space activities would be covered under the Aerospace NESHAP. The commenter believes that the standard industrial code (SIC) code listing is not specific with regard to space activities, particularly in the area of rework. The commenter suggested that the rule specifically state that ground support equipment, tooling, and other non-flight hardware are not intended to be regulated under the Aerospace

NESHAP. The commenter further stated that it is their understanding that satellites and similar vehicles are intended to be exempt under this rule. The commenter suggested that the EPA clarify the applicability of this regulation to space operations.

Response: The SIC codes referred to at proposal were provided to give a general idea of the industrial categories affected. The rule, however, has not been structured to apply to any sectors on the basis of SIC codes.

The applicability of the rule has been modified based on comments. The final rule applies to facilities that manufacture or rework aerospace vehicles and components (§63.741(a)). The definition of "aerospace vehicle or component" now refers to "integral equipment" which includes tooling and other types of non-flight hardware (see Section 4.2).

The final rule does not apply to operations involving space vehicles (§63.741(f)). The exclusion is intended to specifically include all of the systems and components directly associated with the Space Shuttle, including the Shuttle vehicle itself. A definition for "space vehicle" has been added to the rule (Section 4.22).

Comment: Commenter IV-D-28 believes that the extension of the aerospace MACT standard to operations outside the SIC codes for aerospace industries will result in the imposition of inappropriate requirements on too broad a segment of the manufacturing sector. The commenter pointed out that this is particularly true for facilities involved in the manufacture, rework, reconditioning, or repair of aircraft transparencies.

Response: As mentioned above, the applicability of the final rule is not structured in terms of SIC codes, but in terms of specific HAP-emitting activities performed in manufacturing aerospace vehicles and components.

This commenter (who manufactures, reconditions, and repairs glass transparencies (windshields) for aircraft) pointed out that, given the stringent requirements of the glass cleaning solvents that they not affect the lamination of interlayer

material to glass, there are no alternatives presently available for the solvents being used. The EPA considered these comments, and has added an exemption for glass substrates to the cleaning solvent requirements in §63.744(e)(10).

Comment: Two commenters (IV-D-29, IV-D-32) stated that it is their understanding that the EPA intends to control electronic manufacturing and rework by other developing NESHAP. The commenters, therefore, suggested that the EPA make this clear in the rule and exclude such activities from Aerospace NESHAP coverage. They indicated that, under a literal reading of the proposed rule, much electronic production would be subject to this NESHAP. One of the commenters stated that electronic components destined for aerospace vehicle use often receive a "conformal" coating, a thick coating designed for protection. In addition, the individual components or electronic subassemblies are subject to cleaning operations. The commenter requested that the EPA clarify that the manufacturing and rework of such electronic parts, assemblies, boxes, wiring, harnesses, and connectors are not subject to the Aerospace NESHAP; however, if topcoated or cleaned as assemblies after initial installation in the aerospace vehicle or component, these latter operations would be subject to the Aerospace NESHAP.

Response: The EPA agrees that the manufacture and rework of electronic parts and assemblies constitutes a separate source category and that this equipment should not be covered by this NESHAP unless it is an installed part of the aerospace vehicle or component. The proposed rule, in §63.744(e)(4), exempted the cleaning of electronics and assemblies containing electronics.

Final §63.741(f) indicates that the NESHAP does not regulate "electronic parts and assemblies (except for cleaning and topcoating of completed assemblies)." By this new provision, all of the operations on electronic parts and partially assembled components will be exempt. The NESHAP regulates the cleaning and topcoating of completed electronic assemblies when those assemblies are permanently installed in the aircraft or when those assemblies receive the same cleaning and topcoating

operations as other parts of the aircraft.

Comment: Commenter IV-D-35 stated that the Aerospace NESHAP is the appropriate regulation to address composite parts or components, but that it is impractical for the industry to comply with separate standards where composite parts and metal parts are joined into integral structures and processed as a single unit. The commenter, therefore, recommended that the following be added to the Process Descriptions and Control Technologies section of the proposal preamble:

> "Composite parts or components which become part of the aerospace vehicle or component, as well as the portion of composite lay-up tooling that comes in contact with the part or component being manufactured, are intended to be covered by the Aerospace NESHAP and not to be covered by other standards such as the Plastic Parts rule."

Commenter IV-D-29 mentioned a reference in the proposal preamble to non-coating operations that are not included in the rule because of their environmental insignificance. These include chemical milling, metal finishing, metal electrodeposition, composite processing, and wastewater operations. While the commenter agrees with the EPA that chemical milling, metal finishing, and wastewater operations should be excluded, the commenter believes that certain aspects of composite processing and paint electrodeposition (which are actually related to "coating") should be included in this Aerospace NESHAP.

With regard to the process of "electrodeposition," the commenter stated that the EPA indicates in the proposal preamble that this term applies to metal plating, when in fact the term has a broader meaning. According to the commenter, electrodeposition of paint is a fully developed technology in non-aerospace industries and it is well known to have very high transfer efficiencies (>95 percent). The commenter, therefore, suggested that electrodeposition, as it relates to paint, be added to the list of application techniques that may be used. The commenter, however, supported exclusion of electrodeposition

as it relates to metal plating from the Aerospace NESHAP.

Response: The EPA agrees that composite parts or components (hardened resins containing reinforcing materials) should be subject to the cleaning and coating standards of this NESHAP when the composites are to be assembled as an integral part of an aerospace vehicle of component. These requirements would also extend to "integral equipment" that may include or consist of composite materials, in accordance with the revised definition of "aerospace vehicle or component" (see Section 4.2).

The EPA also agrees that electrodeposition dip coating of paint (as opposed to plating with metal) is a valid, highly efficient application technology. The final rule, in §63.745(f)(1)(vi), includes electrodeposition (dip) coating as one of the acceptable application techniques for primers and topcoats.

Comment: Commenter IV-D-49 requested clarification from the EPA regarding whether weapons systems are considered aerospace components and therefore subject to the proposed rule.

Response: The EPA considers weapons systems that attach to, or install in, any aerospace vehicle designed to operate within the earth's atmosphere to be aerospace components and thus subject to the requirements of the final rule. Of course, the low coating usage, specialty coating, and other exemptions provided in the rule will apply to these systems in the same way they apply to aerospace vehicles and components generally.

Comment: Commenter IV-D-27 recommended clarification to §63.741(a) to ensure the Aerospace NESHAP is only applicable to major sources as defined in Title III of the CAA of 1990. The commenter recommended that the phrase "either in part or in whole" in §63.741(a) be deleted to eliminate potential confusion regarding applicability. The commenter believes that the Title III definition of a major source should be sufficient to determine when NESHAP requirements apply. For these reasons, the commenter recommended that §63.741(a) be revised to read as follows:

(a) This subpart applies to facilities that are engaged in the manufacture or rework of commercial, civil, or military aerospace vehicles or components and that are major sources as defined in §63.2.

3.2 COVERAGE OF NON-MAJOR SOURCES

Comment: Numerous commenters (IV-D-3, IV-D-7, IV-D-11, IV-D-12, IV-D-23, IV-D-29, IV-D-30, IV-D-33, IV-D-35, IV-D-38, IV-D-42, IV-D-43, IV-D-45, IV-D-47, IV-D-49, IV-D-50, IV-D-57) stated that they are opposed to the application of the proposed NESHAP to non-major sources. Seven commenters (IV-D-7, IV-D-11, IV-D-14, IV-D-35, IV-D-38, IV-D-47, IV-D-57) stated that if the requirements of the proposed rule were imposed, the economic effect on non-major sources would be detrimental to the survival of some businesses or at least extremely burdensome.

Two commenters (IV-D-29, IV-D-35) noted that since the EPA has discretion under the Clean Air Act on whether and how to regulate non-major sources under section 112, any extension of regulation to such sources would have to be based on a deliberate and considered decision that such an extension represents wise policy. According to commenter IV-D-29, no grounds for such a decision are set out in the proposal. On the contrary, the overall structure of the proposed rule and the preamble discussion make clear that the very small emission reductions to be expected from such an extension would be far outweighed by the costs of testing, recordkeeping, and reporting that would be imposed both on regulatory agencies and on affected sources by the rule. The commenter proposed that even without regulation by the EPA, emission reductions at many such sources can be expected as a result of State action, voluntary emission reduction measures, or imposition of new contract requirements reflecting Aerospace NESHAP requirements on small sources that are subcontractors to regulated sources.

Commenter IV-D-29 stated that since no MACT floor has been established for non-major sources, and since the EPA has not even attempted to conduct a "beyond the floor" analysis that would justify regulating them, they cannot legally be covered by the

Aerospace NESHAP. The commenter also pointed out that the four California rules, heavily relied on by the EPA to establish the MACT floor, contain a de minimis exclusion to avoid regulating small sources that may undertake some aerospace work at their primarily non-aerospace facility.

Commenter IV-D-11 believes that one significant economic effect of requiring non-major sources to comply with the proposed rule would be to drive their customers to do business with subcontractors that have facilities outside the territorial boundaries of the U.S. Commenter IV-D-57 stated that it is unrealistic to hold a very small firm to a MACT standard that may be the result of a million-dollar investment at a large OEM plant. According to this commenter, there are significant differences among small and large firms in their ability to raise capital, in addition to a great disparity in the ability of small companies to train workers and implement new technologies.

Commenter IV-D-7 stated that application of this proposal to non-major sources would be redundant and over regulatory since their firm is already closely monitored by the State control agency. Commenter IV-D-50 pointed out that some of their area source facilities are already subject to regulation under State laws with respect to their coating and solvent cleaning operations. Commenter IV-D-57 stated that small firms are already subject to existing regulations for cleaning operations and waste handling and storage, as well as general requirements for clean air, stormwater, and so on.

Commenter IV-D-57 was concerned that computing potential emissions on a 24 hour/day, 365 day/year basis could result in grossly unrealistic emissions data for many small firms. This commenter also pointed out that most of these smaller firms work a total of 40 to 50 hours per week and are precluded from working a second or third shift by constraints of skilled labor availability or by lack of sufficient customer demand.

Three commenters (IV-D-23, IV-D-42, IV-D-43) recommended that State and local agencies retain the authority to regulate

non-major sources.

Commenter IV-D-3 stated that many small companies are already regulated under existing EPA-delegated emission permits and that regulations fall much harder on small companies. The commenter claimed that the regulation is extensive and burdensome, far out of proportion to the small amount of emissions generated.

Commenter IV-D-12 stated that locating area sources in this source category could be very difficult, since most of them will be in non-aerospace SIC codes. The commenter, therefore, recommended that regulation of area sources be considered for inclusion in the Urban Area Source National Strategy that is required under section 112(k) of the Act.

Commenter IV-D-11 stated that consideration should be given to the fact that non-major sources do not individually contribute the same quantity of emissions as major sources and to the negative economic effect on these sources. The commenter suggested, therefore, that area source controls should be defined as a separate, generally achievable control technology as Congress intended. Two commenters (IV-D-23, IV-D-45) stated that due to the extensive reporting and recordkeeping requirements of the proposal, area sources should not be included in this MACT standard. The commenter suggested, however, that the EPA consider establishing a separate source category and adopting a MACT standard to address smaller facilities that do limited amounts of aerospace work.

Commenter IV-D-45 noted that most of their facilities are non-major sources that typically perform a wide variety of tasks related to the cleaning, coating, and removal of coatings necessary to the aerospace subsystems they produce, and therefore they would be subject to the same reporting protocols, albeit for smaller quantities, as large facilities. The commenter further stated that the reporting requirements of this rule, which are a tremendous burden to large facilities, would be crippling to small facilities. The commenter believes sufficient reductions

at non-major HAP source facilities will be seen from alternate materials specified by the customers; i.e., the major aerospace sources, and from application of the control technologies specified in the control technology guidance in nonattainment areas.

Commenter IV-D-30 does not believe that the rule should apply to operations that are not considered major sources of HAP since emissions reductions would, presumably, be minimal. Commenter IV-D-35 believes that the application of the aerospace NESHAP to non-major sources would severely impact many small operations without producing significant environmental benefits. Commenter IV-D-50 pointed out that the majority of their facilities are well below the threshold major source trigger limits. The commenter claimed that any benefit of imposing the proposed requirements to reduce HAP or VOC emissions would be minimal.

Commenter IV-D-49 recommended that the proposed rule apply only to aerospace operations that cause significant emissions. The commenter stated that significant emissions could be defined as amounts which cause the source to be a major source by itself or perhaps at some lesser quantity as determined by the EPA. The commenter concluded that a de minimis emission level regarding applicability is needed to prevent the use of costly MACT on relatively insignificant emission units. Commenter IV-D-35 also recommended a de minimis level of activity exemption, pointing out that non-major aerospace sources will not be completely unregulated or unaffected by the proposed NESHAP. The commenter stated that many are already subject to State regulations for controlling HAP emissions, and have pollution prevention initiatives underway. The commenter noted that the impact on the Department of Defense (DoD) would be particularly significant. The commenter, therefore, recommended that the EPA not regulate non-major aerospace sources at this time. The commenter recommended that the EPA separately and methodically evaluate the costs and benefits of subjecting non-major aerospace sources, especially those associated with the military, to the proposed

NESHAP.

Commenter IV-D-14 stated that at a minimum all non-major sources should submit an operation and maintenance plan, from which the general provisions for all facilities can be determined. The commenter believes that something similar to leak checking, etc. can be applied to all facilities. According to the commenter, additional requirements or controls under this NESHAP should be required for the larger non-major sources.

Response: The EPA requested comment in the proposal preamble on whether non-major sources should be subject to all of some of the requirements of this NESHAP. This request was made in order to expand the Agency's data base on the likely impacts on smaller operations.

Following review of these comments as well as the existing data base, the Agency had decided that, due to the small amount of data and information available to assess the effects of applying full MACT requirements to small sources, non-major sources will not be included for regulation under the final rule. The EPA will continue to investigate whether separate, less stringent standards should be applied to these sources as a separate source category. State and local regulatory authorities still have the discretion to control HAP emissions from these sources in their jurisdictions under their own air toxics programs.

Comment: Commenter IV-D-33 stated that area sources could be a significant source of HAP; however, if area sources are included in the Aerospace NESHAP, they should be exempt from title V permitting. The commenter offered to work with the EPA to identify aerospace area sources and develop standards where appropriate.

Response: The EPA appreciates this offer of cooperation.

Comment: Commenter IV-D-38 noted that the proposed rule would prohibit methylene chloride in depainting operations based on the availability of media blasting techniques for military aircraft and the use of non-HAP chemical strippers and polishing

techniques in large commercial aircraft. The commenter pointed out that the record for the rulemaking, however, contains little or no information on the application of these techniques to general aviation typically maintained at small to medium size rework facilities, which likely would not qualify as major sources. According to the commenter, the lack of supporting data on the application of alternative depainting techniques for general aviation is of concern because of the suggestion in the Federal Register that the Agency is considering extension of some of the standard's requirements to area sources. The commenter does not believe that the Agency has collected sufficient data to support imposing the depainting provisions on area sources.

The commenter estimated that some 2,000 airplanes operated by regional (commuter) airlines, and several thousand private aircraft, are maintained with HAP strippers. These aircraft present a unique challenge for non-HAP stripping techniques because a majority are thin-skinned and most are painted. The commenter maintained that existing blasting technologies and reduced painting are not likely to be maintenance options.

The commenter remarked that commuter and private aircraft also are unique in that they are maintained at small rework facilities with limited ability to purchase alternative technologies or to devote significant research and development efforts to testing non-HAP techniques. The commenter noted that the Paint Remover Manufacturers Association (PRMA) has estimated that facilities maintaining general aviation may total as many as 3,000, and that 40 to 50 percent of these perform depainting. The commenter concluded that any extension of the depainting provisions to these facilities would have a substantial economic impact.

The commenter was also concerned about the potential impact the current depainting proposal could have on larger area sources using HAP strippers. The commenter is aware of several facilities maintaining general aviation that currently fall slightly below the 10 ton per year threshold for their depainting operation. The commenter believes that the standard, as

currently proposed, could limit the ability of these facilities to expand their depainting operations.

The commenter's concern about larger area sources was heightened by an uncertainty about the EPA's definition of a source's "potential to emit." The commenter encouraged the Agency to evaluate the potential that area sources may be caught under the Aerospace NESHAP because of an "arbitrary" interpretation of their potential to emit HAP.

Commenter IV-D-13 stated that compliance with the depainting requirements would most likely result in significant increases in other environmental pollution due to several factors:

- General aviation facilities currently complying with the EPA, Federal, and local air and water pollution requirements would be removed from the marketplace due to the inability to remove paint from these aircraft because of manufacturer and FAA requirements.
- A significant, currently-controlled portion of the general aviation industry's aircraft would be removed from EPA visibility.
- General aviation aircraft would continue to be refurbished by a greater number of smaller operations that do not fall under the restrictions of this proposal nor have the financial or enforcement means to comply with even the current EPA suggested requirements.

The commenter requested that the general aviation industry be specifically excluded from the rulemaking efforts. The commenter concluded that no overall reduction in HAP would occur as it relates to general aviation aircraft and, in fact, an overall negative impact on the EPA's goal for improving air and water quality will occur.

Commenter IV-D-47 did not support application of the depainting provisions to smaller, area sources because the commenter believes those provisions contain many defects. The commenter suggested that the exorbitant costs of media blasting, and the problems with the effectiveness of both media blasting

and non-HAP strippers would only be exacerbated for smaller entities that have more specialized operations and less financial flexibility. According to the commenter, even if the spot stripping exemption were expanded, these entities would likely find it very difficult to comply with the proposed depainting requirements, as well as some of the other fairly burdensome requirements for control technologies and recordkeeping. The commenter also claimed that it would be unwise to impose the burden of compliance on area sources in the absence of any evidence that the quantity and nature of uncontrolled HAP emissions from these smaller sources have any real adverse impact on health or the environment.

Commenter IV-D-52 stated that, in their AQMD, a number of facilities with relatively low HAP emissions are engaged in aerospace component manufacturing and that some of them are subcontractors that work directly for the OEM or rework facilities, or indirectly through first line subcontractors. The commenter claimed that, because these sources generally have no well-defined maximum capacity, and because they lack federally enforceable HAP limits, they could be considered major sources based on their potential to emit (PTE).

The commenter indicated that some of the smaller facilities in their AQMD that engage in aerospace component manufacturing or rework will avoid NESHAP applicability by receiving Synthetic Area Source permits. The commenter believes that is an appropriate mechanism for facilities with HAP emissions that approach the major source thresholds; however, another mechanism is needed for the more numerous facilities that have very low HAP emissions. The commenter pointed out that several other recently proposed NESHAP have specifically defined applicability in terms of actual annual materials throughput. According to the commenter, if this type of approach is impractical for this rule, a more general "prohibitory rule" may be adequate. The commenter recommended that the EPA provide a simple and straightforward mechanism to limit PTE to keep this (and other major source rules) from applying to sources with relatively low HAP

emissions.

Commenter IV-D-22 expressed concern that many of the large aerospace firms that clearly fall into the definition of a major source will offload many of their operations to smaller aerospace subcontractors that are not defined as major sources. According to the commenter, if the prime contractors offload to many subcontractors, no individual subcontractor will be reclassified as a major source and the sources will be uncontrolled. The commenter stated that offloading work is a current problem and that it is likely to be exacerbated by the proposed rule due to cutbacks in the defense industry. The commenter was also concerned that workers in the subcontractor firms will be exposed to higher levels of hazardous chemicals and that emissions of HAP and VOC from these firms will increase substantially. The commenter recommended that the regulation apply to all sources since all aerospace subcontractors perform the same type of operations as major sources. The commenter noted that subcontractors, in general, believe that they must do exactly as the primes require or they will lose business and, in light of defense cutbacks, this attitude will probably become even more the norm in the future.

Commenter IV-D-31 stated that they believe that, because this is an industry with substantial amounts of subcontracting and one that is undergoing great changes, area sources should be regulated. Otherwise, according to the commenter, the rules will provide an incentive to use subcontracting as a means of escaping emissions control.

Commenter IV-D-48 recommended that, since the standards are primarily work practices, the Agency should include area sources in the rule.

Response: The EPA agrees with the first commenter concerning the application of the depainting requirements to smaller general aviation rework facilities. For this reason, such facilities will not be covered under the final rule.

The issue of the use of methylene chloride in depainting operations is addressed in Section 7.3.

The concept of "potential to emit" (PTE) is integral to the definition of "major source" in section 112(a)(1) of the Act. For this reason, application of PTE in the determination of major source status should not lead to misattribution of status for any source.

While the issue of offloading work in order to avoid regulatory coverage is of some concern, the Agency is not convinced that a significant number of facilities would be willing or able to reduce their own production levels (much less their production capacity) for this purpose.

3.3 REGULATORY EXEMPTIONS

Comment: Commenter IV-D-29 stated that there are many small-scale or relatively small-scale activities in the industry that are inappropriate for MACT control. The commenter stated that some expansion of the list of excluded activities is needed to fully reflect the range of small-scale activities that the industry does not now control and cannot practicably control. The commenter suggested that the EPA provide new or expanded exclusions for uses involving specialty coatings, adhesives, adhesive bonding primers, or sealants; and for certain chemical milling, metal finishing, wastewater operations, and certain aspects of composite processing, metal electrodeposition, and other non-coating operations (that will be covered by future NESHAP). The commenter suggested that all research and development (R&D), quality control and production testing, and laboratory testing activities be exempt from all requirements of the rule, noting that these activities are already excluded from the proposed cleaning operations requirements.

The commenter believes it is unreasonable to constrain development work by mandating the use of controlled coatings and application techniques. Furthermore, the commenter stated, it is economically burdensome and unreasonable to mandate emission controls for such small-scale and rapidly varying activities. According to the commenter, imposing the rule's regulatory requirements on these activities will adversely impact research efforts while providing no measurable benefit to protection of

public health and the environment.

A second commenter (IV-D-49) stated that a similar exemption is appropriate for R&D activities related to primer and topcoat applications, as well as chemical milling and masking operations. This commenter also maintained that it is difficult to economically justify mandated emission controls for such small-scale activities.

Two commenters (IV-D-29, IV-D-35) stated that, in excluding an activity from the rule, the EPA must make clear that its decision rests on an informed determination that MACT regulation is not required. As a result, modifications in such activities will not trigger section 112(g) application. The commenters offered the following regulatory language in order to make clear the section 112(g) status of the exempted operations:

> "§63.741(f) This Subpart does not contain control requirements for uses of specialty coatings, adhesives, adhesives, adhesive bonding primers, or sealants at aerospace facilities. Nor does it regulate research and development, quality control and production testing, and laboratory testing activities, chemical milling, metal finishing, electrodeposition (except for electrodeposition of paints), composite processing (except for cleaning and coating of composite parts or components that become part of an aerospace vehicle or component as well as composite tooling that comes in contact with such composite parts or components prior to cure), electronics assembly (except for cleaning and topcoating of completed assemblies), and wastewater operations at aerospace facilities. Additional specific exemptions from regulatory coverage are set forth in §63.741(e), .744(e), .745(a)(1), (c)(3), (e)(3), (f)(5), and .746(a)(1), (b)(3), (c). During the establishment of this subpart EPA affirmatively decided not to establish control requirements for these exemptions from specific requirements. Accordingly, changes in these uses and operations and in exempted activities do not trigger regulation under §112(g)."

Response: The EPA agrees that such a rule clarification would be beneficial, and has added to the final rule similar language to that suggested by the commenters.

3.4 SOURCE PERMITTING

Comment: Two commenters (IV-D-29, IV-D-35) stated that proposed §63.741(d) unnecessarily duplicates the Clean Air Act title V provisions requiring a major source to obtain a permit. The commenters claimed that since the industry is already required to obtain permits by statute, there is no need to include such a provision within the Aerospace NESHAP.

Response: The title V operating permit programs developed by the States must be approved by the Administrator on an individual basis. At this time, very few programs have been fully approved. Therefore, the Agency finds it necessary to require that an operating permit be submitted under this NESHAP in accordance with existing part 70 and State requirements. At the discretion of the permitting authority, existing permits prepared under a title V program or other programs may be wholly or partially used to satisfy the permit provisions of the final rule.

4.0 DEFINITIONS

Several commenters suggested changes to the definitions of terms provided in proposed §63.742. These suggested additions and deletions are indicated by underlining and text strikeouts, respectively.

4.1 AEROSPACE FACILITY

Comment: Commenter IV-D-27 recommended the following revision to the definition of aerospace facility:

> "**Aerospace facility** means any facility with a primary SIC code of 3720, 3721, 3724, 3728, 3761, 3764, 3769, or 4851 and that produces, reworks, or repairs ~~in any amount any~~ commercial, civil, or military aerospace vehicles or components."

The commenter believes that the reference to "in any amount" is problematic for several reasons. First, many aerospace facilities manufacture or rework both aerospace and non-aerospace components in the same plant or production area. The commenter stated that these activities have not been studied by the EPA and present different regulatory problems from those aerospace activities that have been studied and, therefore, should not be covered by the Aerospace NESHAP. This commenter and one other (IV-D-45) pointed out that aerospace work may comprise only a minor part of a facility's total operations, and felt that such "de minimis" aerospace operations should be excluded from the scope of this NESHAP.

The commenter also pointed out that if a facility becomes subject to another source category NESHAP, the requirements may be conflicting for the same operation. Implementation of the NESHAP may be quite costly with significant administrative

requirements, and companies whose main economic activities (>50 percent) fall under a different SIC code should not be subject to these requirements.

Response: As discussed in Section 3.1, the EPA does not wish to structure this NESHAP specifically in terms of SIC codes, due to the incomplete match between these codes and the affected aerospace operations. Non-aerospace operations will not be covered by this NESHAP, even when they occur in the same major source facility as covered operations. Therefore, the suggested changes have not been incorporated into this definition.

4.2 AEROSPACE VEHICLE OR COMPONENT

Comment: Commenter IV-D-27 recommended the following revised definition for "aerospace vehicle or component":

> "**Aerospace vehicle or component** means any fabricated part, processed part, assembly of parts, or completed unit, with the exception of electronic components, of any aircraft including but not limited to airplanes, helicopters, missiles, rockets, and space vehicles."

The commenter suggested that this phrase be added to the definition because, according to the commenter, electrical components or assemblies may at times become part of a larger assembly such as a missile or avionic system. Material volumes in these activities are typically extremely low and, therefore, not significant contributors to overall emissions, and these types of components or assemblies are scheduled for control under a separate NESHAP where, collectively, their emissions could make a significant contribution to air emissions.

Commenter IV-D-10 felt that the EPA should clarify the definition of a "component" for the applicability of the NESHAP. The commenter stated that this definition and the reference discussion suggest, but do not state, that the manufacturers of electronic controls, communications, and radar equipment may not be intended to be covered by this NESHAP. The commenter pointed out that manufacturers of electronic equipment refer to miniature electronic parts as "components." Therefore, the commenter suggested that the regulation should distinguish at what point in

the manufacturing process an electronic assembly becomes an aerospace component for coverage in the rule. The commenter concluded by noting that, if it is not the intent of this rule to cover the manufacture of electronic equipment for the aerospace industry, then the definition of an aerospace component should be revised to reflect this.

Commenter IV-D-30 recommended expanding the definition of "aerospace vehicle or component" to read as follows:

> "**Aerospace vehicle or component** means any fabricated part, assembly of parts, or completed unit of any aircraft including but not limited to airplanes, helicopters, missiles, rockets, and space vehicles. Integral equipment such as models, mockups, prototypes, molds, jigs, tooling, hardware jackets, and test coupons are considered aerospace components."

Commenter IV-D-29 stated that the proposed definition is too broad, covering every component of an aerospace vehicle including components such as microwave ovens and telephones for airliner cabins, that have nothing intrinsically "aerospace" about them and have not been studied by the EPA in preparing this rule.

Response: As discussed in Section 3.1, this NESHAP is not intended to cover uninstalled electronic components. The final rule specifically states in §63.741(f) that electronic parts and assemblies are not covered by the NESHAP. In addition, the EPA has added the revision suggested by commenter IV-D-30. This revision clarifies the intent of the EPA to include integral equipment such as models, mockups, etc. in the definition of aerospace vehicle or component.

4.3 CHEMICAL MILLING MASKANT

Comment: Commenter IV-D-29 stated that the term "chemical milling maskant" should be revised as follows to provide for consistent usage of the term "chemical milling" throughout the rule:

> "**Chemical milling maskant** means a coating that is applied directly to aluminum components to protect surface areas when ~~chemically~~ chemical milling the component with a Type

II etchant. This does not include bonding maskants, line sealers, and critical use and seal coat maskants."

Response: The EPA accepts this revision because it adds clarification to the definition. The EPA issued a request for information under section 114 of the Act to several facilities on June 7, 1995. The letter requested information on the types and volumes of maskants used and the composition of the etchants used with the maskants. Based on the information received from the section 114 information requests, the EPA may issue a supplemental proposal to include additional maskant categories in the NESHAP. Maskants not covered by the NESHAP will be addressed in the Aerospace CTG.

4.4 CHEMICAL MILLING MASKANT APPLICATION OPERATION

Comment: Commenter IV-D-29 stated that "Type II etchants" technically refers to a class of aluminum etching solutions and that these etchants are not used to apply chemical milling maskants. The commenter suggested a change to the proposed definition of "chemical milling maskant application operation" they felt would correct this error, and would broaden coverage from dip or spray applications, to brush or roll applications, and to applications of other chemical milling maskants. The commenter recommended the following revised definition:

"**Chemical milling maskant application operation** means the ~~use of spray equipment or a dip tank in which Type II etchants are used to apply a chemical milling maskant~~ application of chemical milling maskant for use in Type II chemical milling etchants."

Response: The EPA accepts this revision as a clarification of the definition.

4.5 CLEANING SOLVENT

Comment: Commenter IV-D-29 stated that a change in the definition of "cleaning solvent" is needed to exclude from regulatory coverage such materials as water that do not contain HAP. According to the commenter, no section 112 purpose is served by including such materials in the regulation. The commenter claimed that the EPA has no legal authority to control

non-HAP containing materials in this standard. Therefore, the definition of cleaning solvent must be changed to regulate only HAP-containing material.

In addition, the commenter proposed to exclude from the definition liquid materials reported to contain HAP in concentrations at or below the OSHA threshold concentration set forth at 29 CFR §1910.1200(g). According to the commenter, a liquid material containing trace HAP concentrations does not have the potential to emit HAP in sufficient quantities to result in significant exposure and, therefore, poses trivial risk to public health and the environment.

According to the commenter, the definition of cleaning solvent should be changed as follows to make the definition consistent with language in §63.744 and throughout the subpart:

"**Cleaning solvent** means ~~any~~ a liquid material containing any HAP reported as exceeding the OSHA de minimis threshold concentration as defined by 29 CFR §1910.1200(g) and used for hand-wipe, spray gun, or ~~coating line~~ flush cleaning."

Two commenters (IV-D-27, IV-D-35) recommended the following revision to make the definition consistent with §63.744 and the rest of subpart GG:

"**Cleaning solvent** means ~~any~~ a liquid material used for hand-wipe, spray gun, or ~~coating line~~ flush cleaning."

Response: The EPA does not wish to include reference to HAP content in the general definition for "cleaning solvent." The final rule specifies in §63.741(f) that coatings and cleaning solvents containing HAP or VOC at a concentration less than 0.1% for carcinogens or 1.0% for noncarcinogens, as determined from manufacturer's representations, are not covered. This broad exemption excludes water and many other cleaning solutions from the standard. The cleaning solvent composition requirements are specified in §63.744(b).

The EPA agrees with the change from "coating line" to "flush" cleaning in order to increase consistency. Therefore, the change suggested by the latter commenters has been incorporated.

4.6 COATING

Comment: Commenter IV-D-29 stated that "coating" refers to the material that produces a film on a surface (and not the film itself). The commenter believes that the following change will make the definition consistent with the language in the proposal preamble:

> "**Coating** means a ~~protective or decorative film applied to the surface of an aerospace component or vehicle~~ material that is applied to the surface of an aerospace component or vehicle to form a decorative or functional solid film."

Response: In this regulation, the term "coating" is used to refer to coating materials in both their liquid and subsequently solid state. Topcoats, primers, and chemical milling maskants are defined as coatings in the context of the bulk liquid materials being applied which are still capable of emitting VOC and organic HAP. The term "depainting," on the other hand, refers to removal of a coating that is in the form of a solid dry film. Depainting emissions would consist of inorganic HAP particulate coating material when dry media blast processes are used. Therefore, while the commenter's point is valid, the EPA also believes that the reference to coating as a film should be retained. Therefore, the final definition incorporates both concepts as follows:

> "**Coating** means a material that is applied to the surface of an aerospace vehicle or component to form a decorative or functional solid film, or the solid film itself."

4.7 COATING UNIT

Comment: Commenter IV-D-29 suggested a change in the "flush cleaning" definition in §63.742 (see Section 4.14) and in proposed §63.744(d) (see Section 5.4) that would eliminate the need for a "coating unit" definition and, therefore, recommended deleting the definition of "coating unit."

Commenter IV-D-30 stated that it is not clear which operations involve a "coating unit." The commenter believes that the definition should define the beginning and ending points for operations that involve coating units.

Response: The EPA believes that the proposed requirement in §63.744(d) for a closed container, collection system, or equivalent control to be used in conjunction with flush cleaning should be retained in the final rule. However, the definition for "flush cleaning" has been revised (Section 4.14).

The term "coating unit" is a standard term used in the EPA's and in States' coating regulations. In §63.744(d), it is intended to designate all equipment (except spray guns) that may be flush cleaned of coating materials prior to the application of a different coating.

4.8 CONTROL DEVICE

Comment: Three commenters (IV-D-27, IV-D-29, IV-D-35) pointed out that in order to maintain consistency with other regulations, capture systems, such as exhaust hoods, should not be covered by the definition of "control device." The commenters believe that the definition as proposed by the EPA may also add unnecessary confusion to the meaning of "control efficiency." Based on the proposed definition of control device, the commenters claimed that "control efficiency" could be interpreted as either "overall control efficiency" or "removal/destruction efficiency." (An example of this confusion is in §63.746(d)(2) of the proposed rule.) The commenters believe that the definition should be revised as follows:

> "**Control device** means an enclosed ~~combustion~~ destruction device ~~or~~ and/or recovery system ~~and, for the purposes of this subpart, includes the capture system used to vent the emissions from the source to the combustion device or recovery system~~ used to destroy or recover a regulated air pollutant generated by a source."

Commenter IV-D-35 also stated that clarification is needed to confirm that the term "control device" is limited to VOC and organic HAP control equipment.

Response: The EPA agrees that the use of the term "control device" to include the capture system is inconsistent with its use in other regulations, and could create confusion with regard to the control efficiency requirements. Therefore, the term has

been redefined as follows:

"**Control device** means destruction and/or recovery equipment used to destroy or recover HAP or VOC emissions generated by a regulated operation."

The term "control system" has also been added to §63.742 as follows:

"**Control system** means a combination of pollutant capture system(s) and control device(s) used to reduce discharge to the atmosphere of HAP or VOC emissions generated by a regulated operation."

4.9 DEPAINTING

Comment: Two commenters (IV-D-29, IV-D-35) believe that changes to the definition of "depainting" are needed to confirm that coverage is limited to permanent coatings and to exclude temporary protective coatings, as the word "any" implies "all" coatings. According to the commenters, since these requirements should not apply to components (parts and subassemblies) prior to final assembly of the entire "vehicle," clarification is also needed to specify applicability to "completed" aerospace vehicles. Commenter IV-D-35 recommended the following change:

"**Depainting** means the removal of ~~any~~ a permanent coating from the outer surface of ~~an~~ a completed aerospace ~~component or~~ vehicle whether by chemical or non-chemical means."

Response: The EPA agrees that the depainting provisions should not apply to removal of temporary coatings. However, the term "completed" would make the definition too restrictive, and has not been added. A provision to exclude hand and mechanical sanding operations from the definition has also been added (see Section 4.32.7). These operations have a much lower potential for creating significant inorganic HAP emissions due to their lower energy. Therefore, the final definition reads as follows:

"**Depainting** means the removal of a permanent coating from the outer surface of an aerospace vehicle or component, whether by chemical or non-chemical means. For non-chemical means, this definition excludes hand and mechanical sanding, and any other non-chemical removal processes that do not

involve blast media or other mechanisms that would result in airborne particle movement at high velocity."

4.10 DEPAINTING OPERATION

Comment: The same two commenters (IV-D-29, IV-D-35) stated that the definition for "depainting operation" also needs to be limited to permanent coatings and completed aerospace vehicles. The commenters also stated that since washing (generally rinsing with water) does not generate any additional HAP emissions, the last sentence should be deleted from the definition. Thus, the suggested definition is:

> "**Depainting operation** means the use of a chemical agent, media blasting, or any other technique to remove permanent coatings from the outer surface of completed aerospace components or vehicles. ~~The depainting operation includes washing of the aerospace component or vehicle to remove residual stripper and coating residue."~~

Response: As stated in the previous response, the EPA agrees that this operation should be defined in terms of removal of permanent coatings, and feels that use of the term "completed" would make the definition unnecessarily restrictive. Also, the Agency believes that the complete operation includes the washing of residual materials from the vehicle or component, even if the rinsing medium is non-HAP and does not generate any "additional" HAP emissions. Therefore, the definition in the final rule reads:

> "**Depainting operation** means the use of a chemical agent, media blasting, or any other technique to remove permanent coatings from the outer surface of an aerospace vehicle or component. The depainting operation includes washing of the aerospace vehicle or component to remove residual stripper, media, or coating residue."

4.11 ELECTROSTATIC SPRAY

Comment: Commenter IV-D-29 stated that when applying an electrostatic coating, the coating is electrically charged and the substrate is grounded. Since, technically, the substrate is not charged, the proposed definition should be changed as

follows:

"**Electrostatic spray** means a method of applying a spray coating in which ~~opposite electrical charges are applied to the substrate and the coating~~ an electrical charge is applied to the coating and the substrate is grounded. The coating is attracted to the substrate by the electrostatic potential between them."

Response: The EPA accepts this revision because it makes a technical correction to the definition.

4.12 EQUIVALENT ORGANIC HAP AND VOC CONTENT LEVEL

Comment: Commenter IV-D-29 stated that "equivalent organic HAP or VOC" combines two distinct definitions, one for equivalent organic HAP content level and the other for equivalent VOC content level. The commenter recommended that these definitions be joined by the word "or" as shown below:

"**Equivalent organic HAP ~~and~~ or VOC content level** means ~~the calculated organic HAP (or VOC) content of coatings or chemical milling maskants that when multiplied by the usage of the coatings or maskants yields~~ the amount of organic HAP or VOC ~~actually~~ emitted ~~to the atmosphere~~ by the use of the coating or maskants taking into account the organic HAP (or VOC) content of coatings or maskants, unused material, controlled emissions, and wastes. The equivalent organic HAP ~~and~~ or VOC content level is calculated when averaging within a coating category or among chemical milling maskants."

The commenter also felt that appropriate revisions should be made in the calculations.

Response: The EPA agrees that the word "or" is more appropriate in the defined term and the definition itself. The other changes suggested by the commenter have not been incorporated.

4.13 EXEMPT SOLVENT

Comment: Two commenters (IV-D-27, IV-D-29) stated that rather than listing the solvents under the definition of "exempt solvent," reference to the 40 CFR §51.100 list of exempt solvents

will ensure a consistent list of exempt solvents in the event that the 40 CFR §51.100 list is updated. The commenters recommended that the definition be revised to read as follows:

> "**Exempt solvent** means specified organic compounds that have been determined by the EPA to have negligible photochemical reactivity and are listed in 40 CFR 51.100." [List of exempt solvents deleted.]

Commenter IV-D-27 was also concerned that it appears that the EPA is promoting the use of ozone depleting compounds (ODC), which are to be eliminated under title VI of the CAA, and perfluoronated compounds (PFC's), which are suspected of contributing to global warming.

Response: The EPA agrees that specific exempt solvents need not be listed in the definition, and has incorporated the change suggested by the commenters.

4.14 FLUSH CLEANING

Comment: Commenter IV-D-29 stated that the definition of "flush cleaning" should be expanded to include coating equipment (other than spray guns), as implied in proposed §63.744(d), and to clarify that those cleaning operations that may include some hand-wipe cleaning activities are excluded from the definition. The commenter submitted this revised version:

> "**Flush cleaning** means the ~~cleaning of~~ removal of contaminants such as dirt, grease, oil and coatings, from an aerospace vehicle or component or coating equipment by passing solvent over, into, or through the ~~vehicle or component~~ item being cleaned. The solvent may simply be poured into the ~~vehicle or component~~ item being cleaned and then drained, or be assisted by air or hydraulic pressure, or by pumping. Those cleaning operations where wiping, scrubbing, mopping, or other hand or direct mechanical action are used are not included."

Response: The EPA believes that adding "removal of contaminants such as dirt, grease, oil, and coatings" will make this definition consistent with the "hand-wipe cleaning operation" definition. The EPA accepts the addition of "coating

equipment" as another item that may be subject to flush cleaning. The EPA has substituted "item being cleaned" for "vehicle or component" to add clarification to the definition. The commenter's revision which lists the hand cleaning operations has also been incorporated in the definition. The phrase "or direct mechanical action" is not being retained in the revision since the scope and range of this term is not clear. Thus, the definition in the final rule reads as follows:

> "**Flush cleaning** means the removal of contaminants such as dirt, grease, oil, and coatings from an aerospace vehicle or component or coating equipment by passing solvent over, into, or through the item being cleaned. The solvent may simply be poured into the item being cleaned and then drained, or be assisted by air or hydraulic pressure, or by pumping. Hand-wipe cleaning operations where wiping, scrubbing, mopping, or other hand action are used are not included."

4.15 HAND-WIPE CLEANING OPERATION

Comment: Commenter IV-D-29 believes that technical clarification is needed in the definition of "hand-wipe cleaning operation" to indicate that solvent is not always applied to the material; it is sometimes applied to the substrate and then scrubbed, rubbed, or agitated by some means. The commenter recommended the following revision:

> "**Hand-wipe cleaning operation** means the removal of contaminants such as dirt, grease, and oil from aerospace components or vehicles by ~~physically rubbing it with a material such as a rag, paper, or cotton swab that has been moistened with~~ application of a cleaning solvent and mechanical agitation and/or rubbing."

Response: The EPA believes that the proposed definition covers the case where a cleaning solvent is applied directly to the substrate being cleaned, since the porous cleaning material would still become "moistened with a cleaning solvent" prior to the cleaning action taking place.

4.16 HAZARDOUS AIR POLLUTANT (HAP)

Comment: Commenter IV-D-42 noted that the proposed rule defines HAP as those air pollutants listed under section 112(b) of the Clean Air Act. The commenter stated that the section 112(b) list is subject to revision and, as currently written, the proposed aerospace rule's standards will automatically apply to materials containing HAPs that are listed after the aerospace rule's date of adoption. The commenter claimed that the NESHAP standards would then be applied to such materials without consideration--as required in the MACT development process--of feasibility, emission reduction cost, non-air quality health and environmental impacts, and energy impacts. Therefore, the commenter recommended that the HAP definition only include HAP currently listed under section 112(b); the rule can be amended at a later date if necessary.

Commenter IV-D-29 recommended that the definition of HAP be revised as follows:

> "**Hazardous Air Pollutant (HAP)** means any air pollutant listed ~~under~~ in section 112(b) of the Clean Air Act Amendments of 1990."

Response: The term "hazardous air pollutant" is defined in the General Provisions, §63.2, as "any air pollutant listed in or pursuant to section 112(b) of the Act." The "Act," in turn, is defined in §63.2 as "the Clean Air Act (42 U.S.C. 7401 *et seq.*, as amended by Pub. L. 101-549, 104 Stat. 2399)." Since these definitions are already contained in part 63, the EPA has avoided duplication by deleting the proposed definition for "HAP" from this rule.

4.17 HIGH VOLUME LOW PRESSURE (HVLP) SPRAY EQUIPMENT

Comment: Three commenters (IV-D-29, IV-D-35, IV-D-52) recommended that the fluid delivery pressure cutoff of 100 psig or less be dropped from the definition of "HVLP spray equipment." Two of the commenters (IV-D-29, IV-D-35) stated that the fluid delivery pressure requirement is irrelevant to the meaning of HVLP spray equipment as currently used by State and local agencies.

Commenter IV-D-52 recommended that the definition read as:

"Equipment used to apply coatings by means of a gun which is designed to be operated and which is operated between 0.1 and 10 psig air atomizing pressure measured dynamically at the center of the air cap and at the air horns."

Response: The EPA has determined that sufficient reasons have not been given to dictate a revision to the definition.

4.18 NON-CHEMICAL BASED DEPAINTING EQUIPMENT

Comment: Two commenters (IV-D-29, IV-D-35) recommended revisions to the proposed definition of "non-chemical based depainting equipment."

Commenter IV-D-35 recommended that this definition be revised to read as follows:

> "**Non-chemical based depainting equipment** means any depainting equipment or technique, including media blasting equipment, that does not rely on a liquid chemical stripper to depaint an aerospace vehicle or component."

The commenter stated that this definition provides the technically proper distinction between the liquid chemical strippers and the solid chemical strippers (e.g., CO_2, SiO_2, acrylic, polyester, etc.).

Commenter IV-D-29 stated that technical clarification is needed in this definition to show that media blasting equipment is only one example of this kind of equipment. The commenter's recommended definition clarifies that the use of chemical paint softeners in conjunction with the non-chemical based depainting equipment, as is common practice, is permissible and does not constitute use of a "chemical stripper." (The commenter also provided a definition for "softener;" see Section 4.32.10.) The commenter recommended the following revisions:

> "**Non-chemical based depainting equipment** means any depainting equipment or technique, including, but not limited to, media blasting equipment, that ~~does not rely on a chemical stripper~~ can depaint an aerospace vehicle or component in the absence of a chemical stripper. Non-chemical based depainting equipment can be used in conjunction with a chemical paint softener."

Response: The EPA accepts the revision offered by commenter IV-D-29 because it adds more clarity to the definition. The EPA will allow sources to use a chemical paint softener in conjunction with non-chemical depainting techniques as long as the softeners are HAP-free. The final sentence, "Non-chemical based depainting equipment can be used in conjunction with a chemical paint softener," has not been included in the definition; however, this provision has been added to the depainting standard, §63.746(a). The EPA has adopted the following revised definition:

> "**Non-chemical based depainting equipment** means any depainting equipment or technique, including, but not limited to, media blasting equipment, that can depaint an aerospace vehicle or component in the absence of a chemical stripper. This definition does not include mechanical sanding or hand sanding." (See Section 4.32.7.)

4.19 PRIMER

Comment: Commenter IV-D-29 recommended that the definition of "primer" be changed to recognize that one primer is occasionally applied over another primer, so that "primer" may not refer to the first layer exclusively. The commenter's revised definition indicates that certain inorganic coatings, such as conversion coatings, anodizing, and plating, are not covered. Finally, the commenter pointed out that the proposed rule's reference to specialty coatings that "are defined as" infers there is a specific list of all specialty coatings. The commenter offered the following revision to address these concerns:

> "**Primer** means the first layers of coating applied to the surface of an aerospace vehicle or component. Primers are typically used for corrosion prevention, protection from the environment, functional fluid resistance, and adhesion of subsequent coatings. Inorganic coatings and coatings that ~~are defined as~~ meet the definition of specialty coatings are not included under this definition."

Commenter IV-D-35 recommended that the third sentence in the

primer definition be changed to read as follows:

"Inorganic coatings and coatings that are defined as specialty coatings are not included under this definition."

The commenter pointed out that inorganic coatings are not covered under this regulation. The commenter also noted that the current EPA definition for primer also describes conversion coatings, which are exempt.

Response: The EPA accepts the first commenter's premise that more than one layer of primer may be used. In order to maintain the EPA's intention, the EPA has revised the definition to state "Primer means the first layer and any subsequent layers of identically formulated coating applied..." The EPA does not believe that the inclusion of "inorganic coatings" is necessary since the definition of coating does not specify whether organics or inorganics are included. The definition adopted in the final rule reads as follows:

"**Primer** means the first layer and any subsequent layers of identically formulated coating applied to the surface of an aerospace vehicle or component. Primers are typically used for corrosion prevention, protection from the environment, functional fluid resistance, and adhesion of subsequent coatings. Coatings that are defined as specialty coatings are not included under this definition."

In addition to this definition change, the EPA has expanded the definition of "specialty coating" to provide a listing of the specialty coatings exempt from the final rule requirements (see Section 4.23). Therefore, the phrase "are defined as" is pertinent.

4.20 RADOME

Comment: Two commenters (IV-D-29, IV-D-35) stated that radar antennae are a subcategory of electronic transmitters and receivers that have radomes. The commenters, therefore, recommended the following revision to the definition of "radome":

"**Radome** means the non-metallic protective housing for ~~radar antenna~~ electromagnetic transmitters and receivers (e.g., radar, electronic countermeasures, etc.)."

Response: The EPA accepts this revision because it is more inclusive and technically accurate.

4.21 SELF-PRIMING TOPCOAT

Comment: Commenter IV-D-35 recommended that the definition for "self-priming topcoat" be revised to read as follows:

> "**Self-priming topcoat** means a coating that contains corrosion inhibitors and is applied to an aerospace vehicle or component for purposes of corrosion protection, environmental protection, and functional fluid resistance ~~and that is not subsequently topcoated~~."

The commenter stated that the proposed definition excluded self-priming topcoats that are applied in two coats (i.e., the first coat is subsequently "topcoated" with the same material), self-priming topcoats that are reworked, self-priming topcoats that are overcoated during subsequent maintenance repaint operations, and self-priming topcoats that are not applied directly to the item (i.e., they are applied over an existing coating).

Response: The proposed rule provided a definition for "self-priming topcoat" that conveys the EPA's intention that self-priming topcoats should not be subsequently coated. The commenter's point is noted by the EPA and the definition has been revised to allow more than one layer of coating for identical formulations. The statement in the proposed definition "for purposes of corrosion protection" indicates that this coating will inhibit corrosion. The commenter's recommended phrase "contains corrosion inhibitors" was not retained in the revision since the phrase could be interpreted to mean that this formulation must contain specific components which inhibit corrosion, whereas deleting this term does not restrict this type of formulation. The EPA has adopted the following revision:

> "**Self-priming topcoat** means a topcoat that is applied directly to an uncoated aerospace vehicle or component for purposes of corrosion prevention, environmental protection, and functional fluid resistance. More than one layer of identical coating formulation may be applied to the vehicle

or component. The coating is not subsequently topcoated with any other product formulation."

4.22 SPACE VEHICLE

Comment: One commenter (IV-D-100) suggested the following definition for "space vehicle":

"**Space Vehicle** means a man-made device, either manned or unmanned, designed for operation beyond earth's atmosphere. Also included is auxiliary equipment associated with test, transport, and storage, which through contamination can compromise the space vehicle performance."

The commenter stated that some of the hardware, tooling, and test fixtures associated with space vehicles need to be coated with the same coatings used on the space vehicle.

Response: The EPA's proposed definition did not include reference to the auxiliary space hardware; therefore, the VOC and HAP limits in the rule would have applied to the coating of this equipment. The EPA accepts the arguments advanced by the industry, and has revised this definition in accordance with the suggestion of the commenter.

4.23 SPECIALTY COATING

Comment: Commenter IV-D-39 stated that the EPA has, in setting limits for topcoats and primers, defined those coatings, in part, in terms of their not being specialty coatings. According to the commenter, at this time there is no established list of specialty coatings. The commenter stated that specialty coatings are coatings which (even if they otherwise would meet the definition of topcoat or primer) have additional performance criteria beyond those of topcoats or primers for specific applications. The commenter also stated that the performance criteria may include, but are not limited to, temperature or fire resistance, substrate compatibility, antireflection, temporary protection or marking, sealing, adhesively joining substrates, rain erosion resistance, electric or radiation effect, or enhanced corrosion protection. According to the commenter, since the proposed definitions of topcoat and primer appear to refer to a list not now in existence, appropriate clarification is needed

in the language of the definitions.

Three other commenters (IV-D-2, IV-D-23, IV-D-30) recommended that the specialty coatings not considered primers or topcoats be specifically listed in the specialty coating definition, because this definition as proposed is not specific enough.

Commenter IV-D-31 stated that the proposed definition of specialty coatings is not restrictive enough. The commenter noted that the EPA proposed to define a specialty coating as one that "had additional performance criteria beyond those of primers and topcoats for specific applications." Since almost every application has different performance criteria, any performance criteria may be considered "additional." The commenter also maintained that, since there is no baseline of generally applicable performance criteria established, the definition of specialty coating is potentially all-inclusive. According to the commenter, if industry cannot offer a sufficiently restrictive definition of specialty coating (or a list) and prove that no emission reductions are achievable from a limited list of processes, the EPA should simply not create a special category for them. The commenter claimed that some categories of coatings that the industry has sought to include within the specialty coatings umbrella are widely used coatings with potentially significant emissions.

Commenter IV-D-52 noted that the proposed definition for specialty coatings is potentially rather broad and could likely be interpreted in different ways. The commenter suggested that one way to address this problem would be to more precisely identify the various types of specialty coatings that are exempt. The commenter acknowledged that the preamble to the proposed rule pointed out that there are a large number of different specialty coatings in use in this industry, many in relatively small quantities. The commenter stated that, in their district, the Aerospace Assembly and Component Coating Operations Rule addresses specialty coatings by containing specific VOC standards or exemptions for the more common specialty coatings and, in

addition, a general low-usage coating exemption. The commenter stated that the general exemption applies to aerospace coatings with separate formulations that are used in volumes of less than 20 gallons per year provided that the total use of such low-use coatings do not exceed 200 gallons per year (the exemption is also dependent on the facility meeting recordkeeping and notification requirements).

The commenter recommended that, if broad specialty coating definitions are used, facilities should be required to petition the implementing agency to establish the exemption status of individual coatings. The commenter also recommended that a facility be required to demonstrate that a particular coating must meet increased performance criteria and cannot meet the coating standards.

Response: The EPA has recognized since the beginning of this rule development the necessity of excluding from coverage certain specialized categories of coatings that are critical to the performance of aerospace vehicles and have no acceptable low VOC/HAP replacements. The Agency, with industry's cooperation, compiled a list of several specialty coating categories, but decided at proposal to not incorporate the list because of the difficulty of accurately defining these coatings and due to the concern that some categories would be inadvertently left out.

However, in considering these comments, the EPA has concluded that an approach similar to that taken by commenter IV-D-52 (a local control agency) would provide more specific direction to facilities for which the use of specialty coatings is a significant part of their operations. For this reason, the definition of "specialty coating" has been expanded to include a listing of the most common specialty coatings as indicated in the information received from both OEM and rework facilities. Due to the length of the listing, the definition specifies that the listing is attached as an appendix to the rule.

A low-usage exemption similar to that suggested by commenter IV-D-52 has been added as §63.741(g). This exemption applies to primers, topcoats, and chemical milling maskants, and allows up

to 50 gallons per year of each separate formulation, with a combined annual limit of 200 gallons. Coatings otherwise exempted in the rule are not to be included in these limits.

4.24 SPOT STRIPPING

Comment: Two commenters (IV-D-29, IV-D-35) recommended the elimination of the phrase "where it is not technically feasible to use a non-chemical depainting technique" from the definition of "spot stripping." The commenters stated that technical feasibility is a vague concept that must be assessed on a case-by-case basis. According to the commenters, the technical feasibility of a depainting method is dependent on at least three factors: (1) the method cannot impede other maintenance activities; e.g., crack detection; (2) the method cannot have intrinsic physical limitations; e.g., reach into a sharp contour; and (3) the method must have been approved by the original equipment manufacturer (OEM) or weapon system manager for the aerospace vehicle.

Commenter IV-D-29 recommended that "spot stripping" be defined as follows:

> "**Spot stripping** means the depainting of an ~~area where it is not technically feasible to use a non-chemical depainting technique~~ aerospace component which is not normally removed from the completed aerospace vehicle before depainting or the stripping of an aerospace vehicle or component subject to a limit of 26 gallons for commercial aircraft and 50 gallons for military aircraft times the number of vehicles produced per year."

The commenter stated that their revision allows OEM's and military facilities the opportunity to occasionally depaint entire aircraft to correct production flaws. According to the commenter, the revised definition would limit the amount of stripper that could be used for this purpose, consistent with the stripper exemptions contained in proposed §63.746(c).

Commenter IV-D-35 recommended that "spot stripping" be defined to mean the depainting of an area on an aerospace vehicle subject to a limit of 26 gallons of chemical stripper for

commercial aircraft and 50 gallons for military aircraft based on the number of vehicles produced or serviced per year.

Commenter IV-D-2 recommended that the decision on technical feasibility be left to the permitting agency and any authorization for the use of HAP-containing chemical strippers for spot stripping be contained in the title V (part 70) permit. This commenter recommended that "spot stripping" be defined as follows:

> "**Spot stripping** means the depainting of an area identified in a part 70 permit, where the permitting authority has determined that it is not technically feasible to use a non-chemical depainting technique."

Response: The spot stripping exemption was provided so that companies would be allowed the use of chemical strippers where the substrate or a physical limitation necessitated chemical stripper use. Specifically, this exemption was provided for companies that use non-chemical depainting methods (i.e., dry media blasting). The exemption was not intended to allow unrestrained chemical stripper use of 26 gallons for commercial aircraft and 50 gallons for military aircraft. The EPA believes that if the phrase "where it is not technically feasible to use a non-chemical depainting technique" is not retained in the definition, facilities may abuse the intent of the exemption. As such, the commenter's revision which adds "which is not normally removed" has not been included because this revision would further dilute EPA's intention. Additionally, the gallons of exempt stripper have not been included in the definition, but will remain in the standard. The commenters' recommendation that the exemption be based on the "number of vehicles serviced or produced per year" also has not been incorporated into the final definition, since the number of vehicles serviced or produced might have no correlation to the number of vehicles depainted.

4.25 SPRAY GUN

Comment: Commenter IV-D-29 believes that the following definition for "spray gun" is more generally applicable than the EPA's proposed definition:

"**Spray gun** means a device that ~~uses air pressure or air flow to~~ atomizes a coating or other material and projects ~~the atomized coating~~ particulates or other material onto a substrate."

Response: The EPA accepts this revision because it simplifies and clarifies the definition.

4.26 STRIPPER

Comment: Commenter IV-D-29 stated that stripper is also used to remove coatings other than primers and topcoats. In addition, while stripping does remove the coating's residue, the commenter believes that it is not necessary to include this in the definition. The commenter also noted that the addition of the word "permanent" in reference to coatings excludes from the definition materials used to remove temporary protective coatings, which are outside the scope of this definition. The commenter recommended the following revision:

"**Stripper** means a liquid that is applied to an aerospace component or vehicle to remove ~~primer, topcoat, or coating residue~~ permanent coatings such as primers and topcoats."

Commenter IV-D-35 recommended that the definition for "stripper" be revised to read as follows:

"**Stripper** means a liquid that is applied to an aerospace component or vehicle to remove a layer or layers of primer, topcoat, or self-priming topcoat residue. Stripper does not include hand wipe cleaners."

The commenter stated that the proposed definition would include hand-wipe cleaners which remove coating residue and soap/water which removes incidental quantities of coating residue.

Response: The EPA agrees with the first commenter and has included the following revised definition in the final rule:

"**Stripper** means a liquid that is applied to an aerospace vehicle or component to remove permanent coatings such as primers and topcoats."

4.27 SURFACE PREPARATION

Comment: Commenter IV-D-29 stated that the activation of a

surface is not necessarily "immediately" followed by the application of a coating, and recommended the following revision to the proposed definition of "surface preparation":

> "**Surface preparation** means the removal of contaminants from the surface of an aerospace component or vehicle, or the activation or reactivation of the surface ~~immediately~~ prior to the application of a coating."

Response: Since the term "immediately" is restrictive and difficult to define, it has been deleted from the final definition. To indicate that this activity is meant to prepare for a coating operation, the phrase "in preparation for" has been included in the definition. In addition, the phrase "or reactivation" has been added. Thus, the EPA's final definition reads as follows:

> "**Surface preparation** means the removal of contaminants from the surface of an aerospace vehicle or component, or the activation or reactivation of the surface in preparation for the application of a coating."

4.28 TOPCOAT

Comment: Commenter IV-D-29 stated that a technical clarification is needed in the definition of "topcoat." Specifically, the commenter maintained that "are defined as" infers that there is a specific list of all specialty coatings. The commenter, therefore, recommended the following revisions:

> "**Topcoat** means a coating that is applied over a primer on an aerospace vehicle or component for appearance, identification camouflage, or protection, or any self-priming topcoat. Coatings that ~~are defined as~~ meet the definition of specialty coatings are not included under this definition."

Response: This change is unnecessary since a specific list and definitions for specialty coatings have been added to the final rule (see Section 4.23).

4.29 TOUCH-UP AND REPAIR OPERATION

Comment: Commenters IV-D-27, IV-D-29, and IV-D-37 suggested that the proposed definition of "touch-up and repair operation"

should be revised. The commenters noted that the proposed definition would limit permissible touch-up and repair painting operations to a total area not to exceed 4 square feet per aerospace vehicle. The commenters concur with AIA that determining accurately the total area of small touch-up operations performed during the assembly of an aerospace vehicle is not feasible. Moreover, the commenters claimed that the same considerations apply equally, if not more so, with respect to aircraft maintenance activities in which components of an aircraft must be spread throughout a large and decentralized maintenance facility for simultaneous rework and repair. The commenters claimed that, because in-service daily-use commercial aircraft sustain damage far in excess of that encountered during initial assembly and flight testing, the 4 square foot limitation for touch-up and repair painting is unduly restrictive for maintenance facilities, particularly with regard to large passenger aircraft, such as Boeing 747's and DC-10's. The commenters recommended that the 4 square foot limitation be eliminated from the definition of "touch-up and repair operation," stating that the terms of the definition itself will effectively limit the extent to which such exempted painting operations may be employed.

Commenter IV-D-39 stated that, while they support the proposed exemptions from the primer and topcoat operations standards, the definition of touch-up should be revised to read as follows "(1) Touch-up, <u>including, for example, repair</u> of scratched surfaces or damaged paint..." According to the commenter, since "touch-up" applications may be appropriate for areas that would not be described as "scratched" or "damaged" (e.g., for improved aesthetics), this definition is overly restrictive. The commenter believes that, rather than attempting to cover every conceivable type of touch-up, it is better to make the types of applications illustrative rather than restrictive, leaving it to the regulator and the source to determine what constitutes touch-up in actual operation.

Comments were also received (IV-E-2) that some painting

operations may be performed in nonstandard locations (such as in flight areas), and these "out-of-sequence" coating operations should be exempted form the requirement to use certain application methods.

Response: The EPA agrees that the total area of touch-up on a given vehicle could be difficult to estimate and verify. Therefore, a revised definition which eliminates the 4 ft^2/vehicle cutoff is included in the final rule. The EPA believes that its description of what constitutes touch-up is sufficiently general to cover any situation. Out-of-sequence coating has also been included in the definition to exempt this type of operation from the requirement to use certain specific application techniques. The final definition reads as follows:

> "**Touch-up and repair operation** means that portion of the coating operation that is the incidental application of coating used to cover minor imperfections in the coating finish or to achieve complete coverage. This definition includes out-of-sequence coating."

4.30 TYPE II ETCHANT

Comment: Commenter IV-D-6 stated that the proposed definition for "Type II etchant" is imprecise and overly broad. The commenter explained that Type II etchants have a very specific composition of chemical constituents. The commenter's company uses an etchant that contains amines, but at a concentration well below what is considered a Type II etchant in the aerospace industry. The commenter recommended that a Type II chemical milling etchant be more precisely defined as an etchant with a specific range of amine, sulfide, caustic, and aluminum concentrations.

Response: The EPA believes that the definition published in the proposed rule conveys EPA's intention to specify that Type II etchants are strong sodium hydroxide solutions containing amines. Type I etchants, on the other hand, do not contain amines. The EPA will maintain the current definition in order to clarify its intent with respect to the regulation of chemical milling maskants.

4.31 VOLATILE ORGANIC COMPOUND (VOC)

Comment: Commenter IV-D-29 stated that the definition of VOC should be changed to be consistent with other EPA and State rules and to clarify the applicability of "organic compound." The commenter also stated that, in the absence of these changes, every time the EPA revises its general definition in 40 CFR §51.100, this definition would have to go through separate rulemaking to accommodate the changes. The commenter believes that it would be preferable to simply refer to the general EPA definition to avoid time-consuming additional rulemaking. Therefore, the commenter recommended that the definition of VOC read as follows:

"**Volatile organic compound (VOC)** means any compound defined as VOC in 40 CFR Part 51.100."

Response: This comment is similar to the comment in Section 4.13. Therefore, the EPA has revised the definition in accordance with the comment.

4.32 RECOMMENDATIONS FOR INCLUSION IN THE RULE

4.32.1 Cleaning Operation

Comment: Commenter IV-D-29 believes that the regulation is confusing without some definition that would group cleaning operations together, and proposed the following:

"**Cleaning operation** means collectively spray gun, hand-wipe, and flush cleaning operations."

Response: The EPA agrees with the commenter and has added this definition to §63.742.

4.32.2 Compliant Material

Comment: Commenter IV-D-27 felt that a definition for "compliant material" should be added in order to make coating manufacturers responsible for assuring that coatings comply with VOC and/or HAP limits. This would eliminate the need for aerospace companies to perform duplicative tests individually. The following definition was suggested:

"**Compliant material** means a material certified by the coating manufacturer to be compliant with the applicable VOC

and/or HAP content requirements of this regulation."

Response: Under this NESHAP regulation, only the owner or operator of a facility containing an affected aerospace operation can be directly regulated. Therefore, enforcement against coating manufacturers due to the use of non-compliant coatings by aerospace firms would not be practicable. The EPA believes that the market pressures imposed by purchasers of aerospace coatings will be sufficient to persuade coating suppliers to provide adequate assurances concerning their product formulations. Thus, the end result sought by the commenter should be realized without the need for imposing regulatory requirements on the producers of these coatings.

4.32.3 Confined Space

Comment: Commenter IV-D-29 recommended using "confined space" instead of "limited access space" to support the exclusion under solvent cleaning. The commenter supplied the following definition of "confined space":

> "**Confined space** means a space that: (1) is large enough and so configured that an employee can bodily enter and perform assigned work; (2) has limited or restricted means for entry or exit (for example, fuel tanks, fuel vessels, and other spaces that may have limited means of entry); and (3) is not designed for continuous employee occupancy."

Response: The EPA finds that the suggested definition clarifies the exempt cleaning operations in §63.744(e)(6), and is more appropriate for this purpose than use of the term "limited access space" as proposed (which applies principally to coating operations). Therefore, this provision incorporates the term "confined spaces" and the suggested definition is added to §63.742.

The term "limited access space" is being retained in order to define the situation exempted [in §63.745(f)(3)(i)] from the primer/topcoat application equipment requirements.

4.32.4 Electrodeposition of Paint

Comment: Commenter IV-D-29 recommended that the following definition for "electrodeposition of paint" be added to make this

technique possible as an acceptable method of application in §63.745(f)(1):

"**Electrodeposition of paint** means the application of a coating using a water-based electrochemical bath process. The component being coated is immersed into a bath of the coating. An electric potential is applied between the component being coated and an oppositely charged electrode hanging in the bath. The electric potential causes the ionized coating to be electrically attracted, migrated, and deposited on the component being coated."

Response: This application technique provides a MACT level of control through its high application efficiency. Therefore, it has been added to §63.745(f)(1) and is defined in §63.742 of the final rule.

4.32.5 Inorganic HAP

Comment: Commenter IV-D-29 stated that the addition of a definition as follows for "inorganic HAP" is necessary to clarify that the inorganic HAP referred to in this subpart include HAP listed in section 112(b) of the Clean Air Act Amendments of 1990 that are not organic:

"**Inorganic HAP** means a compound which is listed in section 112(b) of the Clean Air Act Amendments of 1990 and which is not organic."

Commenter IV-D-30 recommended adding the following definition for "inorganic HAP":

"**Inorganic Hazardous Air Pollutan**t means a compound that is listed in the Clean Air Act §112(b) and which is not organic."

Response: As discussed in Section 4.16, the term "HAP" has been defined in the General Provisions and does not need to be defined again in this NESHAP. Therefore, the EPA has added a definition for "inorganic HAP" as follows:

"**Inorganic hazardous air pollutant (HAP)** means any HAP which is not organic."

4.32.6 Maintenance Painting

Comment: Commenter IV-D-35 recommended that the following

definition for "maintenance painting" be added to the rule:

> "**Maintenance painting** means painting operations after non-destructive inspection (NDI), corrosion rework, composite replacement, metal panel replacement, aerospace vehicle modification, panel access, or other maintenance activities to insure aircraft structural integrity."

The commenter proposed that the above definition is necessary since maintenance painting should be exempt from the rule.

Response: It was not the EPA's intent in these standards to exempt routine painting operations performed in reworking (maintaining and repairing) aerospace vehicles or components. Therefore, this definition has not been added to the final rule.

4.32.7 Mechanical Sanding

Comment: Commenter IV-D-35 recommended that the following definition be added to the rule:

> "**Mechanical sanding** means aerospace vehicle surface conditioning to include the use of directional and random orbital tools and aluminum oxide or nylon abrasive pads for the purpose of corrosion rework, substrate repair, prepaint surface preparation, and other maintenance activities."

The commenter proposed that maintenance sanding should be exempt from the rule, thus making the above definition necessary.

Commenter IV-D-29 also stated that a definition of "mechanical sanding" should be included to allow the exclusion of mechanical sanding as defined from the depainting control requirements. The commenter recommended that the following definition be added:

> "**Mechanical sanding** means aerospace vehicle or component surface conditioning and includes the use of directional and random orbital abrasive tools and aluminum oxide or nylon abrasive pads."

Response: The EPA has added a definition of this term to the rule and is exempting mechanical sanding from the depainting control requirements. The EPA believes that sanding has less potential to emit air emissions than chemical or blast forms of depainting. Therefore, the final rule includes the following

definition:

"**Mechanical sanding** means aerospace vehicle or component surface conditioning which uses directional and random orbital abrasive tools and aluminum oxide or nylon abrasive pads for the purpose of corrosion rework, substrate repair, prepaint surface preparation, and other maintenance activities."

The definition for "depainting operation" has also been revised (Section 4.10) to exclude hand and mechanical sanding.

4.32.8 Organic HAP

Comment: Commenter IV-D-29 stated that the addition of a definition for "organic HAP" is necessary to clarify that the organic HAP referred to in this subpart include organic HAP listed in section 112(b) of the Clean Air Act Amendments of 1990:

"**Organic HAP** means an organic compound which is listed in section 112(b) of the Clean Air Act Amendments of 1990."

Commenter IV-D-30 recommended adding the following definition for "organic HAP":

"**Organic Hazardous Air Pollutant** means organic compound that is listed in the Clean Air Act §112(b) and acts as a solvent."

Response: The term "HAP" has been defined in the General Provisions (see Section 4.16). The EPA has added a definition for "organic HAP" as follows:

"**Organic hazardous air pollutant (HAP)** means any HAP which is organic."

4.32.9 Ozone Depleting Compound

Comment: Commenter IV-D-30 recommended adding a definition for "ozone depleting compounds" to specify those specific materials found in section 602(a) of the Clean Air Act.

Response: The commenter did not provide any rationale for including this definition, so this change to the rule has not been made.

4.32.10 Softener

Comment: Commenter IV-D-29 stated that paint softeners are weak or slowly acting chemical strippers used in conjunction with

some non-chemical based depainting techniques to assist in the removal of primers and topcoats. The commenter believes that softeners should be treated like strippers for Aerospace NESHAP purposes. The commenter claimed that their use supplements non-chemical based depainting equipment and, therefore, should not negate the "non-chemical based" status of this equipment. The commenter stated that softeners may contain VOC and need not contain HAP. The commenter also felt that the no-HAP condition should be tied to the MSDS reporting concentrations (0.1 percent for carcinogens and 1 percent for non-carcinogens) to avoid imposing on the user the burden of determining the absence of HAP below this level. The commenter, therefore, recommended that the following definition be added:

> "**Softener** means a liquid that is applied to an aerospace component or vehicle to degrade coatings such as primer and topcoat specifically as a preparatory step to subsequent depainting by non-chemical based depainting equipment. Softeners may contain VOCs but shall not contain any HAP reported as exceeding the OSHA de minimis threshold concentration as defined by 29 CFR §1910.1200(g)."

Commenter IV-D-35 expressed similar arguments and recommended that the following definition for "softener" be added to the rule:

> "**Softener** means a liquid that is applied to an aerospace component or vehicle to degrade coatings such as primer and topcoat specifically as a preparatory step to subsequent depainting by non-chemical based depainting equipment. Softeners may contain VOCs but may not contain HAP if listed in the appropriate MSDS."

Response: The EPA agrees that the use of softeners is necessary to some non-chemical depainting techniques and their use should be allowed under the final rule. Therefore, the following definition for "softener" has been added to the rule:

> "**Softener** means a liquid that is applied to an aerospace vehicle or component to degrade coatings such as primers and topcoats specifically as a preparatory step to subsequent

depainting by non-chemical based depainting equipment. Softeners may contain VOC but shall not contain any HAP as determined from MSDS's or manufacturer supplied information."

5.0 CLEANING OPERATIONS

5.1 HOUSEKEEPING MEASURES

Comment: Commenter IV-F-1 pointed out that "solvent-laden" as used in the proposed rule (§63.744(a)(1)), could be interpreted to mean that a cleaning rag must actually be laden with solvent at the time of completion of the operation as opposed to having the solvent laden at some point during the cleaning procedure. The commenter requested a definition or clarification of "solvent-laden."

Response: If "solvent-laden" were defined as containing solvent, then commenters might ask for clarification on concentration, vapor pressure, wetness, etc. The EPA chooses not to include a clarification or definition of the term solvent-laden. The term reflects the EPA's intent that cloth, paper, or other materials that contain solvent and are not currently being used in a cleaning operation should be stored in a closed container to prevent evaporation and release of VOCs, HAPs, and ODCs.

Comment: Two commenters (IV-D-27, IV-D-29) noted that proposed §63.744(a) requires aqueous cleaners to comply with housekeeping measures. The commenters stated that subjecting aqueous cleaners containing no organic HAP to these housekeeping requirements would add no significant environmental benefit and would place an unnecessary burden on industry.

Commenter IV-D-30 pointed out that the proposed standard identifies all cleaning materials as "cleaning solvents." The commenter believes that this will require soapy water to be considered the same as organic cleaners. The commenter stated that certain housekeeping measures are necessary for many organic

cleaners, but it does not follow that the same measures should be required for many aqueous materials. The commenter recommended that the EPA require stringent measures only for organic cleaning materials.

Commenter IV-D-29 recommended that §63.744(a) be revised as follows:

"§63.744(a) Housekeeping measures. Each owner or operator of a new or existing cleaning operation subject to this subpart shall comply with the requirement in paragraphs (a)(1) through (a)(3) of this section unless the solvent used is classified as an aqueous cleaning solvent type under Table 3."

Commenter IV-D-27 recommended rewording §63.744(a) as follows:

"§63.744 Standards: Cleaning operation.

(a) Housekeeping measures. Each owner or operator of a new or existing cleaning operation subject to this subpart shall comply with the requirements in paragraphs (a)(1) through (a)(3) of this section unless the solvent used is classified as an aqueous cleaning solvent that contains no organic HAP as identified in Table 3."

The commenter also believes that this exemption should be added as number 12 in the "Exempt Cleaning Operations" (§63.744).

Response: The EPA accepts the commenters' recommendations and agrees that the emissions from non-HAP, non-VOC cleaning solvents should not be subject to the housekeeping measures. Therefore, the EPA has exempted aqueous cleaning solvents and cleaning solvents that contain no HAP or VOC from the housekeeping requirements.

Comment: Commenter IV-D-37 noted that proposed §63.744(a)(1) would require solvent-laden cloth, paper, or other material used in cleaning aerospace vehicles or components to be placed in bags or other closed containers immediately after use. The commenter objected to this requirement and considered it to be unnecessarily costly, impractical, and ineffective. The commenter claimed that by the time rag cleaning operations are

completed, most fugitive emissions will already have occurred. The commenter also claimed that the HAP emissions that are prevented by this bagging requirement would not be justified by the significantly increased waste disposal costs.

The commenter, therefore, recommended the deletion of proposed §63.744(a)(1). According to the commenter, if the provision is retained in the final rule, an exception to the bagging requirement should at least be authorized if the rag or cloth is dry to the touch upon completion of the cleaning operation.

According to commenter IV-D-30, compliance with the requirement for "total containment of vapors" depends largely on the definition of "total." Therefore, the commenter recommended changing the last sentence of §63.744(a)(1) to read: "Use bags and containers of such design so as to reasonably contain the vapors of the cleaning solvent."

Commenter IV-D-29 noted that this portion of the rule also states that facilities must "[u]se bags and containers of such design so as to contain the vapors of the cleaning solvent." The commenter sought clarification from the EPA since no bag or container can "contain" all of the vapors of the cleaning solvent. Therefore, this commenter also believes that the bags and containers should be required to "reasonably" contain the vapors.

Response: The EPA has gathered information that demonstrates emission reductions have been achieved in practice by facilities using the bagging and storage requirements. The EPA is compelled to require common sense emission controls when the technology required for implementation of this housekeeping measure amounts to placing cloths and other materials in an enclosed container to contain the vapor emissions of the cleaning solvents.

Comment: Commenter IV-D-27 stated that their clean-up applications often require the use of cotton-tipped swabs for smaller projects. The commenter claimed that the housekeeping burden should be removed as it would add no appreciable

environmental benefit to this type of waste.

Commenter IV-D-29 noted that proposed §63.744(a)(1) requires proper handling of solvent-laden cloth, paper, or "other material." The commenter believes that the category of "other material" is too broad and should be narrowed to apply only to absorbent applicators.

The same commenter (IV-D-29) noted that the proposed rule also requires these materials to be placed in bags or other closed containers "immediately after use." The commenter was concerned that the use of this phrase will lead to improper enforcement. The commenter believes that the requirement to place the rag in the closed container "immediately after use" will cause a 15 to 25 percent increase in a facility's wastestream. Therefore, this commenter recommended that this language be changed to "upon completing use."

Commenter IV-D-29 recommended that §63.744(a)(1) be revised as follows:

> "(1) Place solvent-laden cloth, paper or <u>any other absorbent applicators</u> used in cleaning aerospace vehicles or components in bags or other closed containers <u>upon completing use</u>. Ensure that these bags and containers are kept closed at all times except when depositing or removing cloth or paper from the container. Use bags and containers of such design so as to <u>reasonably</u> contain the vapors of the cleaning solvent."

<u>Response</u>: The EPA accepts the commenter's recommendation that cotton-tipped swabs do not add appreciable emissions to the atmosphere. The EPA maintains that requiring that solvent-laden cloths to be enclosed immediately after use does not increase a facility's waste stream. The facility is free to continue using the application device as long as they choose. Containment of the vapor emissions from the solvent application devices when not in use has no connection to the quantity of waste resulting from the facility's cleaning operations.

Therefore, the EPA has adopted the following revision for §63.744 (a)(1):

"(a)(1) Place solvent-laden cloth, paper, or any other absorbent applicators used for cleaning aerospace vehicles or components in bags or other closed containers immediately after use. Ensure that these bags and containers are kept closed at all times except when depositing or removing these materials from the container. Use bags and containers of such design so as to contain the vapors of the cleaning solvent. Cotton-tipped swabs used for very small cleaning operations are exempt from this requirement."

5.2 HAND-WIPE CLEANING SOLVENT REQUIREMENTS

5.2.1 Vapor Pressure Limits

Comment: Commenter IV-D-31 stated that cleaning with solvents at vapor pressures of up to 45 millimeters of mercury (mm Hg) at 20 degrees Celsius does not provide for the maximum achievable reduction. The commenter noted that the record indicates that some facilities are subject to a 25 mm Hg standard. The industry has not shown that there are any physical differences between most facilities and those meeting the more stringent 25 mm Hg standard. The commenter stated that the average of the best performing 12 percent of existing sources corresponds to a vapor pressure of less than 45 mm Hg and that the proposed emission limitation cannot be less stringent than the emission limitation achieved by the average of the best performing 12 percent. According to the commenter, the statute does not permit the EPA, under any circumstances, to allow an emission limitation less stringent than the mathematically determined floor.

Response: The EPA gathered information indicating that only a few sources have demonstrated that a 25 mm Hg vapor pressure limit is achievable. The EPA believes that the sources that are complying with the 25 mm Hg vapor pressure limit are not wholly representative of the aerospace industry. According to section 114 information, a 45 mm Hg limit represents the MACT floor.

Comment: Commenter IV-D-22 stated that it is not clear whether the 45mm Hg vapor pressure cutoff level applies to all solvents, VOC solvents, or only HAP solvents. The commenter

suggested that under the proposed rule HAP-listed solvents, such as perchloroethylene, MIBK, and 2-butoxy ethanol could be used for hand-wipe cleaning because their vapor pressures are less than 45 mm Hg, while relatively nontoxic solvents such as acetone and HFC-43-10 would be forbidden. The commenter noted that the EPA is about to propose rules exempting from VOC regulations both HFC-43-10mee and acetone. In addition, with regard to perchloroethylene, the commenter stated that the EPA also intends to propose to exempt perchloroethylene from VOC regulation and that if the Aerospace NESHAP does not restrict its use, perchloroethylene could be adopted in place of high ozone depleting VOC and HAP solvents. The commenter maintained that such an outcome would not be good public policy. The commenter, therefore, recommended a restriction on the usage level of listed HAP and new unscrutinized solvents rather than a restriction on vapor pressure.

Response: In order to allow facilities to continue to use cleaning solvents that pose minimal emissions concerns, the EPA specified that non-HAP, non-VOC cleaning solvents are exempt from the cleaning standard. Paragraph 63.744(b) has been revised as follows:

> "(b) Hand-wipe cleaning. Each owner or operator of a new or existing hand-wipe cleaning operation (excluding cleaning of spray gun equipment performed in accordance with paragraph (c)(3) of this section) subject to this subpart shall use cleaning solvents that meet one of the requirements specified in paragraphs (b)(1), (b)(2), and (b)(3) of this section. Cleaning solvent solutions that contain no HAP or VOC are exempt from the requirements in paragraphs (b)(1), (b)(2), and (b)(3)."

5.2.2 Aqueous Cleaners

Comment: Commenter IV-D-29 claimed that aqueous cleaning solvents should be defined as 60 percent (not 80 percent) water. The commenter stated that some industry members are currently using low volatility cleaners such as butyl carbitol solution, which would not be considered aqueous under the definition in

Table 3. The commenter also noted that other "aqueous" cleaners such as Daracleane, Amberclean, and Brulin, are as low as 60 percent water and thus would also not be allowed to be used under this rule.

The commenter pointed out that aqueous "solvents," referred to in the Table, are generally solutions of concentrates and water. The commenter believes that the use of the term "solution" is more correct and will cause less confusion.

In addition, the commenter stated that since it is difficult to prove 100 percent solubility, this term should be removed. The commenter suggested that rather than requiring solvents to be "non-flammable and non-combustible," the rule should use the flash point. The commenter stated that this is consistent with DOT regulations and is defined by a specific ASTM. The commenter stated that since the manufacturers are required to classify their materials for transportation purposes, the EPA should utilize this readily available information.

Therefore, the commenter recommended the following revisions to the composition requirements for aqueous cleaners:

> "Cleaning solvents in which water is the primary ingredient (≥ ~~80~~ 60 percent of solution ~~solvent~~ "as applied" must be water). ~~Aqueous solvents must be non-flammable, non-combustible, and 100 percent soluble in water.~~ Detergents, surfactants, and bioenzyme mixtures and nutrients may be combined with the water along with a variety of additives such as organic solvents (e.g., high boiling point alcohols), builders, saponifiers, inhibitors, emulsifiers, pH buffers, and antifoaming agents. Aqueous solutions must have a flash point greater than 200°F (as reported by the manufacturer) and the solution must be miscible with water."

Response: The EPA believes that the final rule allows facilities many options of compliance with the hand-wipe cleaning solvent requirements. Facilities remain free to use any product as long as the product meets the requirements specified in the rule.

The EPA is adopting the language of "solvent solution" in

the rule in order to acknowledge that the cleaning agents used in the operation may be solutions of concentrates and water or a pure component.

The EPA is also adopting the commenter's recommendation that a flash point temperature be used instead of stating that an aqueous solution must be non-flammable and non-combustible.

The EPA has adopted the following revision for aqueous cleaning solution composition requirements in Table 3:

> "Cleaning solvents in which water is the primary ingredient (≥80 percent of solvent solution as applied must be water). Detergents, surfactants, and bioenzyme mixtures and nutrients may be combined with the water along with a variety of additives such as organic solvents (e.g., high boiling point alcohols), builders, saponifiers, inhibitors, emulsifiers, pH buffers, and antifoaming agents. Aqueous solutions must have a flash point greater than 93° C (200°F) (as reported by the manufacturer) and the solution must be miscible with water."

5.2.3 General Comments

Comment: Commenter IV-D-23 expressed concern that the use of high-vapor pressure solvents for a list of exempt cleaning operations could be employed as a defense to an enforcement action. The commenter believes that it is not feasible (1) for a facility to keep records of the type of cleaning operation and the amount and type of hand-wipe solvent used by each employee each day, or (2) for the permitting agency to review these records to determine if the activities performed by each individual employee could be an exempt cleaning operation.

For these reasons, the commenter recommended a facility-wide performance standard for hand-wipe cleaning. The commenter noted that the control effectiveness of the proposed rule estimated in the background information document (BID) was 55 percent. To achieve a comparable emission reduction, the commenter recommended that the EPA allow the permitting agency to require a 55 percent reduction in the use of hand-wipe solvents from the 1990 base year as an alternative. According to the commenter,

such a strategy would be easy to enforce, minimize recordkeeping, and achieve the same environmental benefit estimated in the BID.

Commenter IV-D-12 suggested that there be only two classes of solvent, one for operations that require the use of HAPs or VOCs (i.e., exempt solvents) and those which may be cleaned satisfactorily with solvents of low or no HAP or VOC content. The commenter believes that this action would simplify the recordkeeping and the regulation. For solvents of low or no HAP or VOC content, the commenter recommended that the limitation be based on a daily average weight of HAP or VOC per gallon, rather than vapor pressure. The commenter stated that using a pounds per gallon limit would make compliance and enforcement much more straightforward.

Response: The EPA has spent significant time and resources developing an emission standard which it believes to be enforceable. Numerous State and local regulatory agencies have been involved in the development of the standard. The EPA believes that the standard, as promulgated, provides affected sources and State and local agencies with enforceable requirements.

In order to provide additional flexibility, the EPA has added a pollution prevention alternative to the composition requirements specified in Table 3 (§63.744 (b)(3)). A facility may demonstrate that the volume of hand-wipe solvents used has been reduced by 60 percent using a baseline established by the permitting authority. The facility must demonstrate that this alternative compliance plan will achieve emission reductions equivalent to the cleaning solvent composition requirements.

Comment: Commenter IV-D-12 stated that the section on hand-wipe cleaning provides little incentive for using aqueous or low vapor pressure hydrocarbon based solvents as listed in Table 3. The commenter also stated that having the option of using cleaning solvents with a composite vapor pressure of 45 mm Hg or less (that may have substantial organic HAP content) does not provide much incentive for using aqueous cleaning solvent. The commenter also suggested that requiring slightly more

recordkeeping as the only consequence of using the higher vapor pressure VOC solvent will not discourage persons from using these solvents.

Response: The EPA set the vapor pressure limits based on data obtained from the industry. Many comments have been received on the recordkeeping requirements for hand-wipe cleaning solvents indicating that many facilities would like to delete the daily and monthly recordkeeping requirements. The EPA has deleted the daily recordkeeping requirements for noncompliant cleaning solvents from the final rule. The EPA believes that monthly and annual recordkeeping requirements provide facilities with the flexibility to implement a compliance strategy while alleviating recordkeeping burdens.

Comment: Commenter IV-D-35 recommended that the EPA add "semi-aqueous" cleaners to the approved composition list of cleaning solvents. The commenter stated that the aerospace industry has invested significant resources to test and qualify non-ODC cleaners. The commenter provided a list of solvents which have either been tested and found acceptable by a DoD organization or are being tested now. The commenter, therefore, recommended that the EPA evaluate the composition of the cleaners for inclusion into the list of approved compositions.

Response: The EPA believes that the composition requirements may be applied to any potential cleaning solvent including those submitted by the commenter. The EPA also believes that the specifications for the cleaning solvents are clearly defined and does not believe it is necessary to add "semi-aqueous" cleaners. Solvent solutions which contain no HAPs or VOCs are exempt from the hand-wipe cleaning solvent standard.

Comment: Commenter IV-D-11 stated that, while the approved composition list allows for the use of a wide variety of cleaning solutions whether solvent-based or aqueous, the proposed rule needs to have an option to allow the use of cleaners that have low emission rates that do not fit either of the solution categories. The commenter suggested that the EPA add this provision to the final rule.

Commenter IV-D-42 recommended that enclosed systems for cleaning be an option to solvent composition requirements.

Response: The EPA does not believe that these options to be feasible.

Comment: Commenter IV-D-10 requested the EPA to clarify whether the rule allows for (1) the use of hand-wipe cleaning solvents conforming to the composition requirements of Table 3 and (2) the use of any solvent with the only stipulation being that the vapor pressure of the solvent be below 45 mm Hg?

Response: Paragraph 63.744(b) of the final rule states that the cleaning solvent solution used in hand-wipe cleaning operations must meet the composition requirements for approved cleaning solvents or have a composite vapor pressure of 45 mm Hg (24.1 in. H_2O) or less at 20°C (68°F).

Comment: Commenter IV-D-29 noted that for hydrocarbon-based solvents, since any HAP emissions will be limited by a 7 mm vapor pressure requirement, there is no need to further restrict composition. The commenter pointed out that ozone depleting compounds will be subject to a ban by the time this rule is in place. Therefore, the commenter recommended that the composition requirements for hydrocarbon cleaning solvents be revised by deleting the last sentence as follows:

> "Cleaners that are composed of a mixture of hydrocarbons and/or oxygenated hydrocarbons and have a maximum vapor pressure of 7 mm Hg at 20°C (3.75 in. H_2O at 68°F). ~~These cleaners contain no HAP or ozone depleting compounds."~~

Commenter IV-D-33 recommended that a HAP and VOC limit equivalent to the vapor pressure limit also be included. The commenter believes this change would make it easier for sources to determine compliance with the proposed rule.

Response: The EPA is satisfied with the composition requirements for hydrocarbon cleaning solvents. Furthermore, the final rule specifies different levels of recordkeeping requirements for 7 mm Hg and 45 mm Hg vapor pressure solvents. The data collected from the industry indicate that cleaning solvents are currently being used which contain no HAPs.

Comment: Commenter IV-D-45 recommended a phased approach to implementation of the rule. According to the commenter, incrementally reducing the compliant solvent vapor pressure to reach 45 mm Hg over a 5-year period after initial enactment of the rule will allow the additional testing to be completed and provide the necessary timeframe to insure that adequate substitutes have been implemented.

Response: Section 112(i)(3) of the Act specifies that existing sources are to comply "as expeditiously as practicable, but in no event later than 3 years after the effective date..." The EPA believes that compliant solvents are available that will allow compliance to be achieved, in accordance with this statutory requirement.

Comment: Commenter IV-D-22 stated that the fact that the low vapor pressure solvents are not on the HAP list today is not because they are known to be safer but rather because there was no impetus to use or develop them for use until the last few years. According to the commenter, these solvents are not necessarily safer; they simply have health and environmental effects that are unknown. The commenter, therefore, was concerned that the regulation gives the impression that low vapor pressure solvents are safer, a conclusion for which the commenter claimed there is no basis.

Response: The EPA does not discuss in the standards or the supporting information the specific health or environmental effects of any of the solvents that may be used for cleaning. However, use of these materials will reduce emissions of and exposure to hazardous pollutants.

Comment: Commenter IV-D-29 supported the limit of 45 mm Hg for hand-wipe cleaning solvents. The commenter stated that §63.744(b) needs to revised to reflect the intent of the rule to regulate spray gun cleaning through the use of the work practice standards listed in paragraphs (c)(1)-(c)(4) of this section (and not just (c)(3)), instead of the vapor pressure controls provided for in this proposed section. The commenter, therefore, recommended the following revision to §63.744(b):

"§63.744(b). Hand-wipe cleaning. Each owner or operator of a new or existing hand-wipe cleaning operation (excluding ~~hand-wipe~~ cleaning of spray gun equipment performed in accordance with paragraph ~~(c)(3)~~ (c)(1)-(c)(4) of this section) subject to this subpart shall use cleaning solvents that meet one of the requirements specified in paragraph (b)(1) or (b)(2) of this section."

Response: The EPA accepts this revision because it adds clarity to the rule, and has revised the rule to reflect the recommended language.

5.3 SPRAY GUN CLEANING

Comment: Commenter IV-D-42 noted that the proposed rule [§63.744(b)] specifies vapor pressure limits or a minimum water percentage for aqueous solvents used for hand-wipe cleaning. According to the commenter, it is not clear how a low VOC content solvent fits in with these criteria. The commenter stated that cleaning solvents with 200 grams or less of VOC per liter of material have typically been alternatives for these operations. The commenter suggested that this should be an option for hand-wipe cleaning.

Response: The EPA believes that the vapor pressure and aqueous composition requirement sufficiently define the range of acceptable cleaning solvents. These two parameters effectively limit the potential to emit without adding additional regulatory compliance burdens. A facility can freely use a 200 g/liter solvent if it meets the vapor pressure or aqueous solvent requirements.

Comment: Commenter IV-D-29 believes that the language in §63.749(c)(1) indicates that hand-wipe cleaning of equipment is inconsistent with the process of immersing a spray gun in an enclosed vat. Therefore, the commenter recommended the following revision:

"(1) Hand-wipe cleaning. The hand-wipe cleaning operation is considered in compliance with these standards when all hand-wipe cleaning solvents, excluding those used for ~~hand-wipe~~ cleaning of spray gun equipment, meet either the

composition requirements specified in §63.744(b)(1) or the vapor pressure requirement specified in §63.744(b)(2)."

The commenter also stated that they support the work practice standards put forth in the proposed rule to control solvent emissions from spray gun cleaning operations and the determination by the EPA that cleaning methods other than enclosed gun systems are effective in reducing emissions. The commenter noted that for "enclosed systems," some over-pressure can result when solvents are rapidly flushed into an enclosed container. The commenter stated that many enclosed spray guns have venting devices as a safety precaution and unless the regulation specifically allows this device, enforcement personnel will issue NOV's for the minimal emissions escaping from these devices.

Commenter IV-D-29 recommended that the phrase "cleaning shall consist of forcing solvent through the gun with the atomizing cap in place" be deleted. The commenter believes that this is not part of the enclosed cleaning system description or capability. The commenter noted that for "nonatomized" cleaning of spray guns, the rule requires the atomizing cap to be in place. The commenter stated that removing the atomizing cap, however, ensures that the solvent is not atomized. Therefore, the commenter recommended that §63.744(c)(1)(i) and (c)(2) be revised as follows:

"(1)(i) Enclosed system. Clean the spray gun in an enclosed system that is closed at all times except when inserting or removing the spray gun. <u>The use of a venting device to prevent pressure build-up inside the enclosed cleaner shall be allowed.</u> ~~Cleaning shall consist of forcing solvent through the gun with the atomizing cap in place.~~

(2) Nonatomized cleaning. Clean the spray gun by placing solvent in the pressure pot and forcing it through the gun <u>with the atomizing cap in place</u>. No atomizing air is to be used. Direct the solvent from the spray gun into a vat, drum, or other waste container that is closed when not in use."

Response: The EPA has revised §63.744(c) and §63.749(c) according to the commenter's recommendations. The following sentence has been added to §63.749(c): "Incidental emissions resulting from the activation of pressure release valves and vents on enclosed cleaning systems shall not be considered a violation." In order to minimize the pressure buildup in the system, the EPA will adopt the commenter's suggestion that the atomizing cap may be removed prior to cleaning in an enclosed system. Therefore, "with the atomizing cap in place" has been deleted from §63.744(c)(1)(i).

Comment: Commenter IV-D-10 stated that, with regard to the leak determination for spray gun cleaners, the EPA should define what is considered to be a leak, what is considered to be a proper seal, and whether the equipment can be tagged out of service for a longer period of time than 15 days if repair parts will not be available during that time constraint. The commenter stated that their experience has been that it is extremely difficult to find a gasket that will seal the spray gun cleaner and withstand attack by the solvents utilized.

Commenter IV-D-31 stated that they believe that monthly inspection of enclosed cleaners will not achieve the EPA's objective of securing timely repair, unless coupled with an obligation to repair a detected leak within a determined period. The commenter recommended that the EPA specify that leaks must be repaired within 5 days. The commenter also recommended that the EPA allow sources that elect to inspect every week to have 10 days to complete repairs, since limited extra emissions would occur with more regular inspection.

Two commenters (IV-D-29, IV-D-35) recommended revisions for §63.744(c)(1)(ii) as a means of maintaining compliance if repairs cannot be made within the 15-day period.

Commenter IV-D-29 recommended the following language:

"(ii) If leaks are found during the monthly inspection required in §63.751(a), then repairs shall be made as soon as practicable, but no later than 15 days after the leak was found. If the leak is not repaired by the 15th day after

detection, the solvent shall be removed and the enclosed cleaner shall be shut down until the enclosed cleaner is repaired or its use is permanently discontinued."

Commenter IV-D-35 recommended:

"(ii) If leaks are found during the monthly inspection required in §63.751(a), then repairs shall be made as soon as practicable. If the leak is not repaired by the fifteenth day after detection, the solvent shall be removed and the enclosed cleaner shall be shut down until the enclosed cleaner is repaired."

Commenter IV-D-30 recommended changing §63.744(c)(1)(ii) to read as follows:

"If leaks are found during the monthly inspection required in §63.751(a), spraying may continue as long as repairs are made as soon as practicable, but no later than 15 days after the leak was found. After this 15 day period, the leaking equipment may not be used until the leak is repaired."

Two commenters (IV-D-29, IV-D-35) believe that new language is needed in §63.749(c)(2) to clarify the EPA's intent with regard to operating the spray gun cleaner during the 15-day period after leak discovery. The commenters claimed that their proposed language allows operators a means of maintaining compliance if the repairs are not or cannot be made within the 15-day period, and encourages prompt repairs. Commenter IV-D-29 also noted that their proposed language allows for disposal of equipment which is uneconomical to repair. The commenter recommended the following revision for §63.749(c)(2)(iii):

"(iii) If an enclosed system is used, monthly visual inspections are conducted and any leak detected is repaired ~~within 15 days after detection~~. If the leak is not repaired by the fifteenth day after detection, the solvent must be removed and the enclosed cleaner must be shut down until the enclosed cleaner is repaired or its use is permanently discontinued."

Commenter IV-D-35 recommended that §63.749(c)(2)(iii) be revised to read as follows:

"If an enclosed system is used, monthly visual inspections are conducted and any leak detected is repaired after no longer than 15 days of operation. If the leak is not repaired by the fifteenth day after detection, the solvent is removed and the enclosed cleaner is shut down until the enclosed cleaner is repaired or its use is permanently discontinued."

Response: The EPA has revised §63.744(c)(1)(ii) and §63.749 (c)(2)(iii) so that facilities will have a means of maintaining compliance if repairs cannot be made within the 15-day period. Section 63.744(c)(1)(ii) has been revised as follows:

"(ii) If leaks are found during the monthly inspection required in §63.751(a), repairs shall be made as soon as practicable, but no later than 15 days after the leak was found. If the leak is not repaired by the 15th day after detection, the solvent shall be removed and the enclosed cleaner shall be shut down until the enclosed cleaner is repaired or its use is permanently discontinued."

Section 63.749(c)(2)(iii) has been revised as follows:

"(iii) If an enclosed system is used, monthly visual inspections are conducted and any leak detected is repaired within 15 days after detection. If the leak is not repaired by the 15th day after detection, the solvent shall be removed and the enclosed cleaner shall be shut down until the enclosed cleaner is repaired or its use is permanently discontinued."

5.4 FLUSH CLEANING

Commenter: Commenter IV-D-30 understood that §63.744(d) applies only to flush cleaning of coating application devices and not to flush cleaning of flight hardware.

Commenter IV-D-29 requested the following change to §63.744(d) for consistency purposes:

"§63.744(d). Flush cleaning. Each owner or operator of a flush cleaning operation subject to this subpart (excluding those in which Table 3 aqueous cleaning solvents are used) shall empty the used cleaning solvent each time ~~a part,~~

~~assembly, or component of a coating unit~~ an aerospace part or coating equipment (with the exception of spray guns) is flush cleaned into an enclosed container or collection system that is kept closed when not in use or into a system with equivalent emission control."

Commenter IV-D-35 requested the following change to §63.744(d) for consistency purposes:

"Each owner or operator of a flush cleaning operation subject to this subpart shall empty the used solvent each time an aerospace part or coating equipment (with exception of spray guns) is flush cleaned into an enclosed container or collection system (that is kept closed when not in use) or into a system with equivalent emission control."

Response: The EPA accepts the commenters' recommendations and has adopted the following revision for §63.744(d):

"(d) Flush cleaning. Each owner or operator of a flush cleaning operation subject to this subpart (excluding those in which Table 3 aqueous cleaning solvents are used) shall empty the used cleaning solvent each time an aerospace part or assembly, or a component of a coating unit (with the exception of spray guns) is flush cleaned into an enclosed container or collection system that is kept closed when not in use or into a system with equivalent emission control."

5.5 EXEMPT OPERATIONS

Comment: Commenter IV-D-28 believes that the EPA's proposed cleaning solvent composition and vapor pressure requirements may be impossible for the aircraft glass industry to attain. The commenter claimed that the chemicals used in the manufacture of windshields cannot be substituted without months or years of pre-testing. For these reasons, the commenter requested that proposed §63.744(e)(10) be revised to include an exemption for glass substrates and §63.744(e)(11) be clarified to specify that "associated with production" includes all manufacturing, rework, reconditioning, or repair operations on aircraft transparencies.

Response: The EPA's intention is to not regulate the manufacture of aircraft transparencies under this rule.

Therefore, the EPA will exempt aircraft transparency manufacturing in §63.741 Applicability and designation of affected sources. Specifically, §63.741(f) has been added to address exemptions from the NESHAP.

Comment: Commenter IV-D-30 requested clarification concerning whether cleaning of the interior of the Space Shuttle System External Tank would be exempt under §63.744(e)(6).

Response: The commenter is correct in assuming that this particular cleaning operation is exempted from this provision.

Comment: Commenter IV-D-50 stated that the exemption for cleaning "aircraft fluid systems" should be clarified to include air-to-air heat exchanges. (The commenter manufactures or repairs air-to-air heat exchanges.) Although it is clear that air is a fluid, the commenter desired a clarification that air-to-air heat exchangers would be included within this exemption.

Response: The EPA accepts this exemption clarification and has revised §63.744(e)(5) as follows:

> "cleaning of aircraft fluid systems that are exposed to the fluid, including air-to-air heat exchanges;"

Comment: Commenter IV-D-31 expressed concern about the large categories of operations exempted from the 45 mm Hg cleaning standard. The commenter stated that the proposal cites no proof that cleaners with more than 45 mm Hg must be used in all of these cases. The commenter, therefore, recommended deleting §63.744(e) exemptions (2), (3), (8), (9), and (10) from the final rule. The commenter requested a detailed reasoned explanation, supported by substantial record evidence of all the exemptions made to this "very basic and excessively modest" requirement. The commenter also requested that a quantitative cap be put on any exemptions, sufficient to ensure that these exemptions remain truly trivial.

Commenter IV-D-34 pointed out that they manufacture two low vapor pressure solvents that are used at several military installations for composite repair cleanup. Therefore, the commenter believes that an exemption should not be provided for composite repair cleanup. Additionally, the commenter noted that

a company in Texas (Lockheed, Fort Worth) uses low vapor pressure flushing agents. Therefore, the commenter also recommended that the flushing agent exemption be deleted from the rule.

Several other commenters requested revisions and additional exemptions. Commenter IV-D-29 noted that proposed §63.744 contains an exemption for cleaning of breathing oxygen systems ((e)(1)) and for cleaning or aircraft fluid systems ((e)(5)) and believes that these two exemptions should be combined as suggested in the commenter's November 30, 1993 memorandum to the EPA.

The commenter stated that it is extremely important that an exemption be included for hydraulic fluid systems. The commenter stated that in the past, hydraulic systems ran at relatively low pressures (2,000 to 4,000 psi), but newer systems run at 4,000 to 6,000 psi. The commenter stated that the cleaning requirements for the higher pressure systems are much more stringent, as any residual material left in the lines can reduce or eliminate the flow of hydraulic fluids through the fine filter frets or the critically actuated valves.

The commenter recommended the following revision to §63.744(e):

"(1) Cleaning during the manufacture, assembly, installation, <u>maintenance, repair, inspection</u> or testing of components of <u>aircraft fluid and</u> breathing oxygen systems that are exposed to the breathing oxygen, <u>including the support systems that interchange fluids with such systems</u>.

Commenter IV-D-30 recommended the following exemptions:

(1) Cleaning during the manufacture, assembly, installation, testing, maintenance, or repair of components of oxygen systems that are exposed to the oxygen.

(2) Cleaning during the manufacture, assembly, installation, testing maintenance, or repair of parts, subassemblies, or assemblies that are exposed to strong oxidizers or reducers (e.g., nitrogen tetroxide, liquid or gaseous oxygen, hydrazine).

(3) Cleaning and surface preparation during the

manufacture, assembly, installation, inspection, or testing of bonding surfaces, tooling interface surfaces, and seal surfaces and joints."

Commenter IV-D-29 stated that an exemption is necessary for cleaning in the proximity of aerospace vehicle systems that could be energized. The commenter pointed out that the Uniform Fire Code does not allow the use of flammable or combustible liquids within 5 feet of any energized electrical equipment. According to the commenter, energized electrical equipment means any item that is powered by electricity (AC or DC) at such time that the current could be flowing. The commenter recommended:

"(5) ~~Cleaning of aircraft fluid systems that are exposed to the fluid~~ Cleaning in the proximity of systems that could be energized."

The commenter noted that the proposed rule contains an exemption for cleaning of "limited access spaces" in § (e)(6). The commenter claimed that limited access is defined by the EPA in terms of the painting equipment extensions and is not applicable to cleaning operations. The commenter recommended the use of "confined spaces" in place of "limited access spaces":

"(6) Cleaning of fuel cells, fuel tanks, and ~~limited access~~ confined spaces;"

The commenter also recommended the following revision for exemption (9):

"(9) Cleaning of metallic and non-metallic materials used in honeycomb cores during the manufacture of these cores, and cleaning of the completed cores used in the manufacture of aerospace vehicles or components assemblies, composites and their tools prior to cure, and plastics;"

Commenter IV-D-30 recommended:

"(9) Cleaning of metallic and non-metallic materials used in honeycomb cores during the manufacture, maintenance and repair of these cores, and cleaning of the completed cores used in the manufacture of aerospace vehicles or components."

Three commenters (IV-D-29, IV-D-30, IV-D-35) believe that

the EPA made a typographical error when proposing exemption 11. The commenters pointed out that the proposed rule would exempt cleaning operations for "production" and "quality control," as well as for research, development, and laboratory testing. The commenters believe that the EPA intended the exemption to be limited to "production testing" and "quality control testing."

Two commenters (IV-D-29, IV-D-35) recommended the following revision for §63.744(e)(11):

> "(11) Cleaning and solvent usage associated with testing related to production, research, development, quality control, and laboratory operations, to include cleaning of flight or performance simulation articles."

Commenter IV-D-29 believes an exemption is needed for those cleaning operations that have been identified in an "Essential Use Waiver" application that has been reviewed and approved by the EPA, as well as under the International Montreal Protocol. The commenter noted that Title VI, §604(d)(1) of the Clean Air Act Amendments of 1990, as well as the Montreal Protocol, allow waivers for continued production of methyl chloroform (TCA) for use in essential applications. The commenter stated that Thiokol Corporation has applied for an Essential Use Waiver to allow the continued use of methyl chloroform in critical applications on the redesigned solid rocket motors furnished to NASA for the Space Shuttle Program, through the year 2000 and that the Stratospheric Ozone Protection division of the U.S. EPA has reviewed and approved this application. The commenter also pointed out that the Air Force is in the process of making a similar application for the Titan program. The commenter believes that an additional exemption is necessary so that these cleaners, as well as any other cleaners approved as "essential," can be used.

Based on these comments, the commenter recommended the following addition to §63.744(e):

> "(12) <u>Cleaning operations identified in any Essential Use Waiver application that has been reviewed and approved by the U.S. EPA and the voting parties of the International</u>

Montreal Protocol committee."

Commenter IV-D-30 recommended:

"(12) Cleaning operations identified in an Essential Use Waiver application, which has been reviewed and approved by the U.S. EPA and the voting parties of the international Montreal Protocol committee. Reference the Clean Air Act §604(d)(1), and the applicable parts of the Montreal Protocol."

Response: The EPA has gathered information from the industry which indicates that the proposed exemptions are technically valid. The exemptions granted for specific cleaning operations allow a facility to use higher vapor pressure solvents and non-compliant compositions. However, when cleaning solvents and solutions are used that do not meet the composition requirements or vapor pressure limits of compliant solvent solutions, the facility has stricter recordkeeping requirements.

The EPA believes that the current language of §63.744 (e)(5) which states, "cleaning of aircraft fluid systems that are exposed to the fluid, including air to air heat exchanges," addresses that commenter's concerns pertaining to the exemption of hydraulic fluids.

The EPA acknowledges that a typographical error was made in the proposed rule for §63.744(e)(11). Section 63.744 (e)(11) has been revised as follows:

"(11) Cleaning and solvent usage associated with research and development, quality control, and laboratory testing."

Additionally, the EPA has exempted from the NESHAP the manufacturing and rework of any aerospace vehicle that has missions which require the vehicle to escape the earth's atmosphere. This exemption is addressed under the applicability section §63.741.

Comment: Commenter IV-D-39 noted that the proposed rule defined "hydrocarbon-based" cleaning solvents as "cleaners that are composed of a mixture of hydrocarbons and oxygenated hydrocarbons and have a maximum vapor pressure of 7 mm Hg at 20°C (3.75 in. H_2O at 68°F). These cleaners also contain no HAP or

ozone depleting compounds." The commenter stated that a petition has been filed to address the photochemical reactivity of acetone. The commenter remarked that acetone may have specific uses to the aerospace industry in such areas as surface preparation for painting. The commenter recommended that the standard anticipate the possibility that acetone (or other non-HAP hydrocarbons) may be deemed non-photochemically reactive by amending the definition of "hydrocarbon-based" as follows:

> "Cleaners that are composed of a mixture of <u>photochemically reactive</u> hydrocarbons and oxygenated hydrocarbons and have a maximum vapor pressure of 7 mm Hg at 20°C (3.75 in. H_2O at 68°F). These cleaners also contain no HAP or ozone depleting compounds."

<u>Response</u>: The EPA accepts the commenter's recommendation and has revised §63.744, Table 3. The composition requirement for hydrocarbon-based cleaning solvents states, "Cleaners that are composed of a mixture of photochemically reactive hydrocarbons and oxygenated hydrocarbons and have a maximum vapor pressure of 7 mm Hg at 20°C (3.75 in. H_2O at 68°F). These cleaners also contain no HAP or ozone depleting compounds."

Acetone was added to the list of compounds excluded from the definition of VOC on the basis that acetone has negligible photochemical reactivity and does not contribute to ozone formation. Notice of this exemption was issued June 16, 1995 in the <u>Federal Register</u> at 60 FR 31633.

5.6 DE MINIMIS EXEMPTION

<u>Comment</u>: Two commenters (IV-D-27, IV-D-50) requested that a "small quantity exemption" be provided to the solvent compositions and vapor pressure requirements.

Commenter IV-D-27 recommended that a de minimis value be set to exempt hand-wipe cleaning from the housekeeping measures. According to the commenter, if this threshold was not exceeded per day, the facility would be exempt from these requirements. The commenter recommended a threshold of 55 gallons per month per aerospace facility.

Commenter IV-D-50 stated that the cleaning methods they use

are customer-specified, and that unlike coating operations, control equipment cannot be installed to control emissions from hand-wipe operations. Therefore, the commenter contended that in instances where a client specifies a non-compliant solvent, they must refuse the business under the proposed rules. For these reasons, the commenter recommended that a specified quantity of solvent be exempted from the solvent vapor pressure and composition requirements on an annual basis.

Response: There is no technical justification to establish a low-usage exemption for cleaning solvents. The majority of emissions from the industry occur from cleaning solvent usage. Furthermore, the composition requirements for the cleaning solvents have already been adopted by more than 25 percent of the industry.

Representatives from the industry have played an integral part in the crafting of the final rule. The EPA believes that most of the OEM's have already adapted their hand-wipe cleaning specifications to the regulations imposed by the California districts and adopted in the final rule.

5.7 APPLICABILITY UNDER SUBPART GG AND SUBPART T

Comment: Commenter IV-D-49 stated that the EPA has proposed to regulate work that would be regulated under 40 CFR Part 63, Subpart T: National Emission Standards for Hazardous Air Pollutants (NESHAP): Halogenated Solvent Cleaning. The commenter also noted that the proposed Subpart T regulation, currently scheduled to be issued in November 1994, is different in scope from the proposed Subpart GG. The commenter stated that those facilities using halogenated solvents found on the HAP list for the purpose of cleaning aerospace components, either during manufacturing or during rework will be subject to both Subparts T and GG regulations. The commenter, therefore, recommended that the halogenated solvents be covered by Subpart T only.

Commenter IV-D-49 stated that the EPA may consider that by specifying hand-wipe, flush cleaning, and spray gun cleaning of components (59 FR 29223), it has sufficiently limited the regulated operations under Subpart GG. The commenter pointed out

that, however, flush cleaning and spray gun cleaning could be defined as cold cleaning machines subject to both Subparts T (the Halogenated Solvent Cleaning NESHAP) and GG (the Aerospace Manufacturing and Rework NESHAP), if a halogenated HAP solvent is used. The commenter referred to the preamble for subpart T, which states in part:

> "...today's proposed regulations for batch cold cleaning machines are based on the control of carburetor cleaners, but apply to all cold cleaners using halogenated solvents or blends" (58 FR 62568).

The commenter also noted that proposed Subpart T defines a cold cleaning machine as:

> "...any device or piece of equipment that contains and uses solvents in the liquid phase to clean and remove soils from the surface of materials" (58 FR 62588).

The commenter also suggested that if the hand-wiping is conducted in a control hood, for the purpose of worker safety, then the hooded or controlled area could be considered a cold solvent cleaning machine, and subject to both regulations.

Response: Subpart T places emission limits on cleaning devices, whereas Subpart GG does not require emission limits for enclosed cleaning devices. Under Subpart T, facilities are required to achieve limits specified in the units of kilogram per hour per square meter of solvent/air interface area. Under Subpart GG, affected aerospace facilities are required to record and report the name of the cleaning solvent, HAP content, and documentation showing the organic HAP constituents of each cleaning solvent used at the facility. The EPA believes that Subpart T and Subpart GG do not contain duplicative requirements.

6.0 PRIMER AND TOPCOAT APPLICATION

6.1 EXEMPTION REQUESTS

6.1.1 Coatings

Comment: Commenter IV-D-35 requested that the EPA consider a higher VOC content limit for chemical agent resistant coating (CARC) topcoat. The commenter suggested that the following limits be adopted: 530 g/l when used with conventional air spray equipment or 550 g/l (4.6 lb/gal) when used with electrostatic or HVLP equipment.

The commenter stated that, although 420 g/l represents the MACT floor for most topcoats, MACT has not been demonstrated for coatings that must meet the special properties of CARC as applied to aircraft. The commenter pointed out that experience has shown that in order to avoid cracking on aircraft, the dry film thickness of the CARC topcoat must be at least 1.8 mils thick and cannot exceed 2.5 mils.

The commenter stated that in order to achieve the narrow thickness range with particular emphasis on the maximum limit, it has been necessary to spray with aircraft green Mil-C-46168 exterior CARC topcoat at 530 g/l when using conventional air spray equipment and 550 g/l when using HVLP equipment.

The commenter stated that DoD usage of CARC for aerospace applications is approximately 3,500 gallons per year, as determined from GSA records. The commenter believes that establishing a limit of 550 g/l (4.6 lb/gal), as opposed to 420 g/l (3.5 lb/gal) in the proposed rule, would lower VOC and organic HAP emission reductions by 2 tons per year. The commenter also pointed out that DoD would avoid spending $131 million for installation of organic emission controls and

annualized costs of $25.9 million, or $13 million per ton of VOC emission reduction.

Therefore, the commenter recommended the following additions to address the concerns stated above:

§63.745(b)(7).

"Organic HAP emissions from Chemical Agent Resistant Coating (CARC) exterior topcoat shall be limited to an equivalent organic HAP content of no more than 530 g/l (4.4 lb/gal) when used with conventional air spray equipment and no more than 550 g/l (4.6 lb/gal) when used with electrostatic or HVLP equipment."

§63.745(b)(8).

"VOC emissions from CARC exterior topcoat shall be limited to an equivalent VOC content level of no more than 530 g/l (4.4 lb/gal) when used with conventional air spray equipment and no more than 550 g/l (4.6 lb/gal) when used with electrostatic or HVLP equipment."

Response: The EPA has exempted Chemical Agent Resistant Coating (CARC) from the NESHAP requirements. CARC has been defined as a specialty coating in §63.742 and the EPA's recommended VOC limits will be specified in the Aerospace Control Techniques Guidelines (CTG).

Comment: Two commenters (IV-D-30, IV-D-56) stated that the Space Shuttle Main Engine and External Tank Projects require a primer that is specialized in terms of performance requirements and reliability considerations. The commenters noted that the exterior of the External Tank is coated with a very specialized product--DeSoto 515 x 346 epoxy primer. Commenter IV-D-56 pointed out that approximately $600,000 has been spent investigating alternatives to the currently used cryogenic flexible primer. According to both commenters, the results of this investigation showed that the unique technical requirements of this application have been satisfied to date only by the current material. The commenters stated that DeSoto 515 x 346 primer has a VOC content of 5.4 pounds per gallon and an

approximate usage of 1,500 gallons per year based on production of four tanks per year.

Commenter IV-D-56 stated that the Space Shuttle Main Engine prime contractor also used this primer to provide cryogenic corrosion protection and adhesion on critical components and that an annual usage of 7 gallons per year allows them to adequately protect the critical areas.

The cryogenic flexible primer cannot be considered in the flexible primer category because the function of this coating is quite different. Therefore, the commenter proposed that an additional category be considered for addition to the aerospace specialty coating list and proposed the following definition:

> "Cryogenic Flexible Primer: A coating designed to provide corrosion resistance, flexibility and adhesion of subsequent coating systems when exposed to loads up to and surpassing the yield point of the substrate at cryogenic temperatures (-275°F and below). VOC Limit = 5.4 pounds per gallon."

Commenter IV-D-30 requested that the EPA allow use of this primer in limited quantities for Space Shuttle cryogenic applications.

Response: The EPA has exempted "cryogenic flexible primer" from the NESHAP requirements. This primer has been classified as a specialty coating in §63.742 and will be addressed in the Aerospace CTG.

Comment: Commenter IV-D-35 recommended the following addition to §63.745(a):

> "The four coating related operations -- adhesives, adhesive bonding primers, sealants, and specialty coatings are excluded in this rule."

The commenter noted that the proposed Aerospace NESHAP contained a broad exclusion from the definition of "primer" or "topcoat," for specialty coatings that have "additional performance criteria for specific applications." Additionally, the commenter suggested that the EPA deliberately decided not to regulate adhesives, adhesive bonding primers, or sealants, as noted in the preamble (page 29239).

The commenter stated that their recommended addition would clarify the EPA's intent to exclude these coatings from the rule.

Response: The EPA has exempted adhesives, adhesive bonding primers, and sealants from the NESHAP requirements. These coatings have been defined as specialty coatings in §63.742 and will be covered in the Aerospace CTG.

6.1.2 Application Operations

Comment: Commenter IV-D-29 noted that while §63.745(f)(5), the "inorganic HAP" standard, contains exemptions for operations that cannot be performed in a booth, there are no exemptions in paragraph (c) for the same operations that require hard controls for organic HAP emissions. The commenter claimed that if a control option is selected because no compliant material is available that meets the user's requirements, a set of exclusions for the control requirement is warranted just as it is in the case of inorganic HAP controls. The commenter recommended that the following paragraph should be added to the rule to correct the omission:

"§63.745(c)(3) The following situations are exempt from the requirements of paragraph (c) of this section:

(i) Painting operations which employ the use of application techniques that do not atomize the volatile solvents such as flow/curtain coat, dip coat, roll coat, brush coat, daub, or wipe;

(ii) Spray applications to an aerospace vehicle or component that due to size or other operational considerations, cannot reasonably be transported to and/or handled in a booth or hanger; or

(iii) Rework and/or final assembly work of areas that must be coated out of sequence, subsequent to the normal paint station process."

Commenter IV-D-30 recommended the addition of the following paragraph:

"§63.745(c)(3): The following situations are exempt from the requirements of paragraph (c) of this section:

(i) Painting operations which employ the use of application techniques that do not atomize the volatile solvents, such as flow/curtain coat, dip coat, brush coat, daub, or wipe.
(ii) Spray applications that cannot reasonably be handled in a booth or hangar where overall capture and control of 81% can be ensured."

Response: The proposal and the final rule contain exemptions for the control of inorganic HAP emissions from topcoat and primer operations. The exemptions were intended to alleviate facilities from implementing controls on operations which generate or have the potential to generate minimal emissions.

The final rule does not provide exemptions for facilities that use control devices to achieve compliance with the organic HAP emission limit. There is no technical justification for facilities using a coating than has a HAP content higher than the limit established in the standard. The use of control devices is a compliance option, not a requirement. Furthermore, the method used to apply the coatings does not have any correlation with the quantity of organic HAP contained in the coating. The fact that the volatile portion of the coating is not atomized does not prevent the solvent from evaporating.

As discussed in Section 4, an exemption for out-of-sequence painting has been included in the final rule. However, an exemption for vehicles and components that "cannot reasonably be transported due to operational considerations" has not been included in the final rule because these concepts are too vague and unenforceable.

Comment: Commenter IV-D-29 believes an exclusion from control requirements is needed for sealant detackifying. The commenter stated that primer is sprayed over fresh sealant to prevent chips and debris from embedding in the seal, thereby weakening it after cure, and that application is made primarily to major assemblies and subassemblies when they are joined and represents a small quantity of coating. The commenter claimed that transporting these parts to a booth would not be feasible

because of the tooling that is required, the large part size, and the frequency with which this process is carried out. Therefore, the commenter recommended that paragraph (vii) be added to the list of exempted operations in §63.745(f)(5) as follows:

"(vii) Sealant detackifying;"

Response: The EPA has revised the proposed rule on the basis that potential emissions from sealant detackifying are very minimal. Section 63.745(f)(5) has been revised to add sealant detackifying to the list of exempt operations for inorganic emissions from coating operations.

Comment: Commenter IV-D-35 recommended that the following be added to the rule:

§63.745(a)(1)

"Aerospace equipment that is no longer operational and is intended for or on public display is exempt from this regulation."

The commenter stated that publicly displayed stationary aircraft require low volume, low frequency applications and cannot be moved to paint facilities.

Commenter IV-D-29 stated that non-operational aerospace vehicles such as those intended for public display, which are not readily mobile and cannot be moved to paint facilities, should be exempt from the rule. Therefore, the commenter recommended that paragraph (ix) be added to §63.745(f)(5) as follows:

"(ix) Painting of non-operational aerospace vehicles which are intended for public display and are not easily capable of being moved."

The commenter also recommended that paragraph (vii) be added to §63.745(e)(2) as follows:

"(vii) Painting of non-operational aerospace vehicles which are intended for public display and are not easily capable of being moved."

Response: The EPA accepts this recommendation since the standard is not intended to apply to permanent public displays. Section 63.745(a) has been revised to include the following:

"Aerospace equipment that is no longer operational, intended for public display, and not easily capable of being moved is exempt from the requirements of this section."

Comment: Commenter IV-D-30 stated that with regard to §63.745(e)(3) and (f)(5)(v) there are applications in certain Space Shuttle operations that necessitate the use of an airbrush to apply topcoats in limited access spaces. The commenter pointed out that these airbrush applications do not strictly require "an extension on the spray gun" to properly reach the restricted area nor are the materials applied considered identification markings. They do, however, require use of an air-brush to apply very small amounts (a few ounces) of material to hardware. The commenter suggested modifying §63.745(e)(3)(i) as follows:

"(e)(3)(i) Any situation that normally requires the use of an airbrush or an extension on a spray gun to properly reach limited access spaces."

Response: The EPA accepts the commenter's recommendation and has revised §63.745(e)(3)(i) accordingly. In addition, operations and activities that are directly associated with the Space Shuttle program are exempted from the Aerospace NESHAP.

Comment: Commenter IV-D-29 stated that they support the exemptions from the application requirements for primers and topcoats in §63.745(e). The commenter also noted that airbrush application methods are exempt under SCAQMD Rule 1124 and recommended that §63.745(e)(3)(iv) be revised to reflect an exemption for airbrush application for all uses. The commenter recommended the following revision:

"(iv) The use of air brush application methods ~~for stenciling, lettering, and other identification markings, and~~"

Response: The EPA believes that the language in the proposed rule reflects the intended limited uses for airbrush applications and, therefore, has not incorporated the commenter's revision.

Comment: Commenter IV-D-28 noted that proposed §63.744(e)(3) provided that cleaning and surface activation prior to adhesive bonding is an exempt operation. The commenter stated that the manufacture of aircraft transparencies involves the application of solvent based "primers" to glass and interlayer components to enhance adhesion. The commenter believes that since the application of "primers" to glass and interlayer components involves surface activation prior to adhesive bonding, such operations also should be exempt. Therefore, the commenter recommended that §63.745 be modified to include an exemption for cleaning and surface activation operations prior to adhesive bonding.

Response: The EPA has revised §63.741 to state that the manufacture and rework of aircraft transparencies is exempt from the requirements of the NESHAP. Therefore, an individual exemption under each standard is not needed.

Comment: Three commenters (IV-D-27, IV-D-29, IV-D-30) requested that aerosol spray cans be exempt from the Aerospace regulation. Two of the commenters (IV-D-27, IV-D-30) stated that aerosol can use should be exempt due to the small emission reductions that would result from their regulation.

Commenter IV-D-29 noted that hand-held spray can applications are already exempt under SCAQMD Rule 1124. Two of the commenters (IV-D-27, IV-D-29) stated that the exemption for spray cans is needed in order to be consistent with the Aerospace CTG.

Commenter IV-D-27 recommended that §63.745(e)(3)(vi) be added as follows:

"(vi) - The use of aerosol spray can applications."

Commenter IV-D-29 recommended that paragraph (vi) be added to §63.745(e)(3) as follows:

"(vi) - The use of hand-held spray can applications;"

Response: The EPA does not intend to regulate the use of aerosol spray can applications and has revised §63.745(f)(3) by adding exemption (v) as recommended by the commenters. Section 63.745(f)(3)(v) states:

"The use of hand-held aerosol spray can application methods ..."

6.2 DE MINIMIS EXEMPTION RECOMMENDATIONS

Comment: Commenter IV-D-6 expressed concern that there is no allowance in the rule for small volume non-compliant coating use, where small volume usage coatings may be used for research and development or for other non-specialized small volume use. According to the commenter, a facility with only minor emissions of VOC that wanted to use 20 gallons of non-compliant primer or topcoat would be prohibited from doing so without either the use of a control device or emissions averaging. A facility that was a large user of aerospace coatings would be allowed to use the same 20 gallons of non-compliant coatings, without the use of controls, if they were able to average them with their compliant coatings. The commenter stated that VOC emissions from the large coating user could be much greater than the small coating user, yet the small user would be prohibited from using the 20 gallons. The commenter concluded that by not allowing the small volume exemption, the EPA, in effect, will be penalizing the small business while only minimally affecting the larger company. The commenter, therefore, believes that the Aerospace NESHAP should allow the small volume use of non-compliant primers and topcoats and recommended modeling the NESHAP after the more conservative San Diego rule (i.e., 20 gallons per year per separate formulation with a 50 gallon per year facility cap).

Commenter IV-D-30 claimed that a great majority of primers and topcoats are used in quantities of 25 gallons or less annually. The commenter believes that these small usage coatings would be cost prohibitive (in most cases) to replace with low VOC alternates. According to the commenter, a usage allowance of a total of 300 gallons of non-compliant materials annually per facility would allow continued use of these limited application coatings.

Commenter IV-D-48 stated that the State agency provides a usage exemption within the ARACT that allows the commenter to use up to 55 gallons per year of any individual coating that does not

meet the ARACT limitations. Additionally, the ARACT did not limit the number of non-compliant coatings or place a cumulative usage limit on the non-compliant coatings that the commenter used in the course of their business.

Commenter IV-D-29 stated that each of the four California regulations, which were relied on by the EPA to establish the MACT floor, contain a de minimis exclusion for coatings (applied up to a maximum of 200 gallons total at a facility). The commenter believes that these exclusions set the MACT floor and thus require the EPA to provide such an exclusion in the Aerospace NESHAP. The commenter claimed that in calculating the 200 gallon limit in conformity with these California regulations, other exempt activities (such as research and development, and use of specialty coatings) should be excluded. The commenter recommended the following revisions:

> §63.745 <u>Standards: Primer and topcoat application operations</u>.
>
> "(a) Each owner or operator of a new or existing primer or topcoat application operation subject to this subpart shall comply with the requirements specified in paragraph (b) of this section for those coatings that are uncontrolled (no control device is used to reduce organic HAP emissions from the operation) and in paragraph (c) of this section for those coatings that are controlled (organic HAP emissions from the operation are reduced by the use of a control device) <u>except as provided below.</u>
>
> (1) <u>Low volume usage: The requirements of this section shall not apply to the use of non-compliant primers and topcoats provided that the combined total of all noncompliant primers and topcoats at the aerospace facility does not exceed 200 gallons annually. Exempt primers and topcoats in paragraphs (e)(3) and f(5) of this section and in section 63.741(c)(3) shall not be included in the 200 gallon limit</u>."

<u>Response</u>: The EPA accepts the commenter's recommendation since the California regulations were used as a guideline for the

development of this NESHAP. Additionally, a large percentage of affected facilities fall within the California regulations. Therefore, the EPA has adopted a low-usage exemption in §63.741 for all coating operations. The exemption states that facilities may use up to 50 gal per separate formulation with a 200 gal total annual cap on the quantity of noncompliant coating. This low-volume usage does not include the exemptions contained in §63.745(f)(3) and (g)(4) and §63.741(f).

6.3 MACT FLOOR

Comment: Commenter IV-D-12 stated that they currently require various control techniques for different primer and topcoat application operations, citing their rule regulating surface coating and graphic arts. According the commenter, these rules established RACT requirements in the 1980's and were supplemented with more categories in May 1994. The commenter stated that their rule (NJAC 7:27-16.7) allows source operations to use either compliant coatings with lb/gal limits, daily averaging of compliant and uncontrolled non-compliant coatings, or control devices. Metal parts coating operations using more than 0.5 gal/hr or 2.5 gal/day must use compliant coatings that have between 3.0 and 4.3 lb/gal VOC content or use one of the other compliance schemes. The commenter pointed out that coating of assembled aircraft exteriors is exempt from compliance with the commenter's subchapter 16.

The commenter stated that the MACT standards should be at least as stringent as these and other States' RACT standards and that the RACT provisions for metal parts should set the baseline for this MACT standard.

Response: The EPA is mandated to implement and enforce standards that are to be applied on a national basis. Since more than 12 percent of the industry is located in California, the California regulations were used as a basis for the NESHAP. The EPA believes that the NESHAP is as stringent as the State regulations listed above. Also, any regulatory agency is always free to implement regulations that are more stringent than the

provisions in the NESHAP, but in no case may any regulatory agency adopt regulations that are less strict than the NESHAP.

6.4 VOC AND HAP CONTENT OF COATINGS

6.4.1 General Comments

Comment: Commenter IV-D-48 stated that they began investigating the possibility of using low VOC content coatings in 1990. On January 1, 1991, the commenter replaced the high VOC coatings they had been using with low VOC coatings as required under their ARACT. The commenter pointed out that at the time their ARACT was developed, certain coatings were not available with a 3.5 lb/gal VOC content; however, the State agency, manufacturers, and the commenter believed that replacement at 3.5 lb/gal would be available by 1993.

The commenter encountered several problems with the initial use of the low VOC coatings. The most recurrent problems included: (1) adhesion; (2) "fish eye"; (3) pitting or wrinkling in the surface (e.g. "orange peel"); (4) microblistering; (5) and technical difficulties in the application process. The majority of the difficulties that were experienced were essentially eliminated when the manufacturers of the coatings reformulated the products.

The commenter noted that technical application difficulties were encountered as a result of the lower solvent content in the new low VOC coatings and that the application of the low VOC coatings required different flow rates to accommodate the different viscosities of the coatings. Once the coating mixture problems were resolved and the spray guns were set at the appropriate flow rates, the painters were able to apply the coatings without any further difficulty.

Commenter IV-D-45 questioned the VOC and HAP limits proposed for paints and primers. The commenter pointed out that they are constrained in their choice of materials by the customer's specifications, and stated that the information they have received suggests that the proposed VOC and HAP limits are not necessarily achievable. According to the commenter, there are few paints and primers available meeting these standards and

those that are available require scrupulous surface preparation, often using more solvent for cleaning and generating more emissions than the higher HAP containing materials would when considering aggregate emissions from cleaning and coating. In addition, the commenter claimed that the compliant coatings proposed require a degree of control not readily available with hand application and, therefore, these materials may require the use of sophisticated application equipment (robots) and/or the use of control technology. The commenter concluded by stating that for the smaller facilities, the costs for compliance and achieving the necessary quality requirements are extremely burdensome.

Commenter IV-D-11 stated that their last 5 years of permitting experience has indicated that the proposed HAP and VOC limits of 2.9 lb/gal for primers and 3.5 lb/gal for topcoats are not currently achievable without adversely affecting coating performance. According to the commenter, one military rework facility attempted to use low-VOC primers on bombers and subsequently changed to a higher VOC content coating due to adhesion problems. The commenter also referred to several official equipment manufacturer operations in the Dallas-Fort Worth area who have opted for using add-on control devices in parts painting since no coating could be found that meets the current 3.5 lb VOC/gal limit and achieves the necessary performance.

Response: The section 114 responses provided comprehensive VOC content information for all coatings used at each facility contacted. This information was used to develop a VOC emission rate (weighted average VOC content) on a pounds of VOC emitted per gallon of usage basis. The calculation of the VOC emission rate took into account all types of coatings (e.g., high VOC, low VOC, higher solids) in use and, where possible, the effectiveness of control devices.

The VOC and HAP limits established for primers and topcoats and the approved application methods were derived from information collected in California. Those sources represent 25

percent of the industry. Since MACT standards must reflect at least the average of the best performing 12 percent of sources, and because the facilities located in California have the lowest emission rates in the country, the standards as proposed represent demonstrated technology.

6.4.2 Emission Limits

Comment: Commenter IV-D-29 believes that the EPA has proposed a standard that does not represent the MACT floor and that cannot consistently be achieved in practice without increasing emissions. Although a number of California air districts have adopted regulations that require primers to meet a 350 g/l VOC limit, the commenter believes that compliance with such standards has historically been achieved only through the use of products that are low-VOC because they contain methyl chloroform (1,1,1-trichloroethane), a HAP and an ozone depleting chemical. The commenter claimed that since ozone depleting chemicals are subject to a ban on production, when methyl chloroform is removed from the market, compliance by the use of TCA-based exterior primer to meet the proposed rule's requirements will no longer be possible.

Commenter IV-D-31 stated that they oppose the "negligibly reactive compound" exclusion from the VOC content regulations. The commenter stated that the rule contains no test method by which to evaluate compliance based on a compound by compound test. The commenter also stated that some of the emissions limitations have been justified because stricter emissions limitations in effect in some places were being met through use of ozone depleting substances. Yet, according to the commenter, the exemptions seem to allow these laxer emission limitations to be met through use of ozone depleters. The commenter stated that a lack of reactivity, which is not the same as volatility, may indicate that a particular VOC is of little concern from a tropospheric ozone standpoint. However, the commenter concluded, it does not indicate that it is of no concern from a toxics standpoint.

Response: The EPA has collected data which indicates that 87 percent of all emissions regulated by the NESHAP are emitted from hand-wipe cleaning operations. The EPA has revised the cleaning operations standard to restrict the use of ODCs. In addition, 95 percent of all aerospace facilities are located in nonattainment areas; therefore, these facilities are already required to monitor their ODC emissions. The EPA believes that the emissions limits contained in the final rule are easily attainable by affected facilities since the MACT floor was developed from information provided by the industry.

Comment: Commenter IV-D-33 supported the approach of limiting the HAP and VOC content of coatings. According to the commenter, a source using coatings that meet the applicable HAP or VOC limitations may still cause a significant public health impact because of the concentration and quantity of the emissions and the proximity of residences. The commenter, therefore, recommended that provisions for establishing source emission limitations be included. The commenter suggested that one possible approach would be to allow the implementing agency to require sources to provide additional information to determine if a source emission limitation is needed to protect public health. The commenter offered their assistance to the EPA to develop appropriate language to be included in the rule.

Commenter IV-D-31 recommended that emission limitations be more stringent than those currently in effect in California. According to the commenter, the limitations in section 3-26 of BID, Volume I are a useful starting place. The commenter claimed that coatings have been developed that reduce HAP content substantially in response to these rules.

Response: The EPA has developed the MACT in accordance with the guidelines established by the Clean Air Act Amendments of 1990. Any local or State agency may adopt regulations that are more stringent than the NESHAP, but in no case can those regulations be less stringent than the NESHAP. In addition, facilities that choose to use averaging to comply with the HAP

and VOC limits contained in the final rule must include the averaging plan in their title V permit.

6.5 TOPCOATS

6.5.1 Exterior Commercial Topcoats

Comment: Three commenters (IV-D-14, IV-D-48, IV-D-31) stated that a separate category with higher limits for commercial exterior topcoats should not be created. Commenter IV-D-14 stated that alternative operating scenarios are possible to maintain the lower level of HAP emissions. According to commenter IV-D-31, the docket contains sufficient information to show that existing technology allows for the proposed limits to be met and even exceeded.

According to commenter IV-D-48, the Agency collected data which established that 12 percent, or more, of the existing sources subject to the proposed Aerospace NESHAP rule are currently using exterior commercial topcoats with the HAP and VOC content levels established in the proposed rule. Consequently, the commenter concluded that the EPA is precluded from establishing a separate category and higher HAP and VOC content levels for exterior topcoats because it would violate the mandate by Congress requiring the Agency to set the minimum standard at the MACT floor.

Commenter IV-D-50 stated that the average VOC content of the topcoats they use has remained well above the proposed topcoat VOC limits, which supports their view that low VOC coatings for topcoats on exterior portions of aircrafts are commercially unavailable. The commenter recommended that a separate category of higher VOC/HAP limitations be adopted for exterior topcoats.

Commenter IV-D-39 recommended that exterior commercial topcoats be included within the specialty coatings category in the proposed CTG. According to the commenter, exterior commercial topcoats not only represent a very small contribution to overall emissions, but also provide specialized, high performance characteristics that cannot be found in the proposed limits for primers and topcoats. The commenter believes these

characteristics make it appropriate for treatment as a specialty coating.

Response: The EPA has collected sufficient data to determine that the HAP and VOC emission limits are applicable to exterior commercial topcoats and that the limits can be met by affected sources. The EPA believes that the record does not demonstrate a need for segregation of commercial exterior topcoats into a separate category.

6.5.2 Interior Commercial Topcoats

Comment: Commenter IV-D-52 noted that the proposed rule contains a single VOC limit for aerospace topcoats. The commenter pointed out that their Aerospace rule requires that interior topcoats (i.e. topcoats used in the habitable spaces of aircraft) meet a more stringent VOC limit of 340 grams/liter (2.8 lb/gal), unless the coating must meet extreme performance criteria of fluid, stain, or nicotine resistance. The commenter believes that interior coatings meeting these more stringent VOC limits are in common use and may likely define the MACT floor for these operations.

Response: The EPA has implemented emission limits based on the data in the record. As discussed previously, any local or State agency may adopt emission limits that are more stringent than NESHAP.

6.5.3 Self-Priming Topcoats

Comment: Commenter IV-D-35 stated that existing field surveys have documented the poor corrosion prevention and functional fluid resistance properties of chromate-free self-priming topcoats. The commenter claimed that there are insufficient data to conclude that self-priming topcoats provide comparable adhesion and environmental resistance to a conventional primer/topcoat system. Therefore, the commenter recommended that the second and third sentences in section IV.B.1.a(1)(d) of the proposal preamble be revised to read as follows:

"Self-priming topcoats function as both a primer and a

topcoat, providing some degree of adhesion, corrosion prevention, and environmental and functional fluid resistance. However, the exact nature of these properties has not been well characterized. These coatings typically contain reduced amount of chromates relative to conventional primers."

Response: The industry is free to use many different coatings on the aircraft in responding to the proposed requirements. The EPA proposed many options for coating use and application. Therefore, individual facilities may choose to select options other than the use of self-priming topcoats based on their individual experience and requirements. In addition, self-priming topcoats have been added to the rule as a subcategory of topcoats. The limits established for self-priming topcoats are the same as the limits for topcoats in general.

Comment: Commenter IV-D-35 stated that the organic HAP and VOC content levels allowable for primers and topcoats are consistent with most of the military's material substitution efforts (i.e., most of their operations will use compliant material and will not require equipment for organic emissions control). The commenter believes that the military will continue to require the inclusion of certain materials in the list of specialty coatings. Commenter IV-D-35 stated that the future development of self-priming topcoat materials to reduce the VOC and HAP content may not follow the development of either topcoats or primers.

The commenter, therefore, recommended the following additions to §63.745:

"(b)(5) Organic HAP emissions from self-priming topcoats shall be limited to an equivalent organic HAP content level of no more than 420 grams of organic HAP per liter (3.5 lbs/gal) of self-priming topcoat (less water) as applied.
(b)(6) VOC emissions from self-priming topcoats shall be limited to an equivalent VOC content level of no more than 420 grams of VOC per liter (3.5 lbs/gal) of self-priming topcoat (less water and exempt solvents) as applied."

The commenter suggested that the future development of self-priming topcoat materials which achieve a lower VOC content may not follow the development of either primers or topcoats.

Response: The EPA has not included water and exempt solvents in the emission limits for self-priming topcoats. Section 63.745(c) has been revised as follows:

"(3) ... Organic HAP emissions from self-priming topcoats shall be limited to an equivalent organic HAP content level of no more than 420 g/l (3.5 lb/gal) of self-priming topcoat (less water) as applied.

(4) ... VOC emissions from self-priming topcoats shall be limited to an equivalent VOC content level of no more than 420 g/l (3.5 lb/gal) of self-priming topcoat (less water and exempt solvents) as applied."

6.6 PRIMERS

6.6.1 Flexible Primers

Comment: Two commenters (IV-D-29, IV-D-35) recommended that the HAP and VOC limits be raised for flexible exterior primers. Commenter IV-D-35 pointed out that flexible primers are used on areas of an aircraft where the coating system tends to crack during flight. The commenters stated that cracks eventually cause corrosion of the aircraft, which impacts the aircraft's air worthiness, reliability, and maintenance costs. The commenters also pointed out that flexible primers are designed to function as a "bridge" between parts like fasteners, skins, and skin to skin joints that experience the greatest amount of flex. Commenter IV-D-35 stated that low VOC flexible primers have failed field performance tests.

After experiencing problems with corrosion on the F-16, the commenter (IV-D-35) requested that an extensive study be conducted to evaluate the corrosion problems of the aircraft. The ensuing report recommended the use of a primer system, which consisted of FMS 1058, for adhesion to the steel fasteners, and FMS 3035 (TT-P-2670), for flexibility. The report also indicated that the primer system was only critical over the steel fasteners in the high flex areas of the F-16.

According to the commenter, when the fasteners in the high flex areas are primed with the standard flexible primer, 60 to 70 percent of the aircraft is covered. The commenter claimed that limiting the low VOC coating to the remaining areas results in low adhesion in the overlap areas. The commenter also claimed that masking the fastener areas and scuff sanding the overspray areas produces inconsistent results.

The commenter noted that the depot that maintains the F-16, prototyped in 1990 both the waterborne and high solids versions of the low VOC epoxy primer on the F-16 in an attempt to meet State VOC regulations. The commenter stated that the low VOC primers were not flexible enough to avoid cracking of the paint around the fasteners and the manufacturer recommended returning to the flexible primer. In addition, the commenter noted that the low VOC flexible primer was also tested on 22 F-16's. According to the commenter, all aircraft were depainted and repainted after experiencing failures with the low VOC flexible prier.

The commenter stated that the DoD's cost to control this primer with 81 percent VOC removal would equate to $1.7 million/ton, which is based upon $11.5 million annualized cost of controls.

The commenter also stated that the performance of high solids flexible primers has been inconsistent, even though some products are qualified to the Federal specification. The commenter stated that most of their facilities have experienced problems applying the primer at the recommended thickness. The commenter also noted that adhesion problems occurred on many aircraft.

The commenter stated that the use of flexible primer is essential to the military on several types of aircraft. Without the use of the flexible primer, there will be a higher incidence of paint failures and corrosion, as indicated by records of failures prior to the use of flexible primer on those systems.

Both commenters (IV-D-29, IV-D-35) suggested that, if the EPA decides not to regulate flexible primers as a specialty

coating category under the CTG, the Agency should allow for a higher limit within the NESHAP commensurate with the established MACT floor of 640 grams per liter for VOC and organic HAP.

Commenter IV-D-29 understood that at present, flexible primer is considered a "specialty coating" because its uses are specialized and because the EPA background studies to establish the MACT floor did not address it. For these reasons alone, the commenter claimed that the EPA could not regulate flexible primers without issuing a supplemental proposal for comment.

Commenter IV-D-25 recommended the following revisions with respect to flexible primers:

Add to §63.742:

"Flexible primer - A coating that meets flexibility requirements such as those needed for adhesive bond primed fastener heads or on surfaces expected to contain fuel."

Add to §63.745:

"(a) Organic HAP emissions from flexible primers shall be limited to an equivalent organic HAP content level of no more than 640 grams of organic HAP per liter of flexible primer (less water) as applied."

Add to §63.745:

"(b) VOC emissions from flexible primers shall be limited to an equivalent VOC content level of no more than 640 grams of VOC per liter of flexible primer (less water and exempt solvents) as applied."

Response: The EPA has exempted flexible primers from the NESHAP requirements. "Flexible primer" has been defined as a specialty coating in §63.742 and will be addressed in the CTG.

6.6.2 Commercial Exterior Primers

Comment: Commenter IV-D-31 suggested that commercial exterior primers should have a minimum emission limit of 340 g/l. The commenter claimed that several military sources already meet this limitation. According to the commenter, the record fails to demonstrate that commercial aviation has any physical characteristics that make application of the primers meeting this

specification impossible. With respect to primer, the commenter claimed that the military has approved sources at 340 g/l.

Specifically, the commenter stated that the record demonstrates that the following emission limitations are achievable, based on products either approved or in the process of being approved:

antichafe:

3.5 lb/gal

(Mil-C-85285, Type I)

clear:

3.5 (Mil-C-85285, Type I)

epoxy polyamide topcoat:

3.5 (Mil-C-53022)

flexible primer:

2.8 (TTP-2756)

metalized epoxy-zinc filled: 2.0 (Mil-P-26915 C)

(this has been approved

recently)

optical antireflection: 3.5 (Mil-C-46168 and

Mil-C-85285 Type I)

fuel Tank:

3.5

rain erosion resistant:

3.5

wing:

3.5

elevated skydrol resistant primer: 340 grams per liter, (approved coatings include 44-GN-57 (McDonnel Douglas approved, 44-GN-11 and 44 GN-60 (approved to BMS 10-11 Type 1).

Commenter IV-D-29 stated that their experience under the California regulations indicates that compliance with the

proposed EPA control levels is not possible for all commercial aircraft. The commenter claimed that California sales figures from one of the major suppliers of exterior primer, provided to the EPA, show that essentially all the material (25,000 gallons) supplied in 1993 was a high HAP-containing material containing methyl chloroform produced specifically to meet local regulatory limits on VOC. The commenter also claimed that only a limited amount of high solids exterior primer has been sold in California to date. The commenter claimed that several companies have concluded that high solids exterior primer is very sensitive to the degree of surface cleanliness. The commenter stated that current cleaning techniques have difficulty removing all of the contaminants (silicone oils in particular) from the surface prior to priming, even if additional hand-wipe cleaning is employed with attendant emissions. According to the commenter, conventional primers tend to absorb these contaminants, providing a priming surface that is acceptable for topcoat adhesion and appearance. High solids primers fail to adequately absorb these low levels of surface contamination, resulting in rework to ensure that the required primer thickness is attained.

The commenter stated that one OEM developed a set of scenarios, provided to the EPA, which explored the emissions resulting from several different cleaning/painting schemes. The commenter claimed that on the 10 aircraft studied, rework resulted in 75-200 pounds of additional emissions per aircraft, which is only partially offset by the 25 pound reduction due to the use of the primer itself.

The commenter claimed that this OEM used only the high solids exterior primer on the fuselage. According to two commenters (IV-D-29, IV-D-40), other exterior primers are used on the wings, the horizontal stabilizers, the vertical fins, the fairings, the nonmetallic (composite) doors, struts, and other exterior surfaces. Commenter IV-D-29 stated that these primers are usually applied at the detail part or subassembly stage and have even more stringent erosion/corrosion requirements than the fuselage primers.

Commenter IV-D-40 claimed that this is largely because the fuselage is stripped and repainted at frequent intervals, allowing for inspection and corrosion repair, while the wings, stabilizers, and similar parts are not.

Commenter IV-D-29 added that wings and struts have extreme corrosion design requirements and must be more flexible than the fuselage primer. Two commenters (IV-D-29, IV-D-40) pointed out that none of the low-VOC candidate materials for this application have successfully met the requirements. Two commenters (IV-D-29, IV-D-88) stated that composite parts such as wing-to-body farings and landing gear doors (there are many others) are painted with a nonchromated version of the wing primer to reduce chromium emissions for both environmental and worker safety reasons. Commenter IV-D-88 is using a 650 grams/liter primer for this application operation. Commenter IV-D-88 is concerned about the level of solvents required to rework the aircraft with the 350 grams/liter coating in its current formulation. In addition to these increased VOC emissins, the commenter is concerned that the sanding and general rework increases their workers potential exposure to chromated material. Commenter IV-D-29 stated that several low VOC/HAP versions of this primer have been tested, but none has met engineering requirements. The commenter pointed out that the MACT designation for these materials must represent the available technology in use.

Commenter IV-D-88 painted the fuselage of 24 aircraft with two versions of a low-VOC commercial exterior primer produced by Crown Metro. The commenter stated that their best application results required an estimated 20 percent rework and use of additional solvent. Of the 24 aircraft the commenter painted, a conventional 650 grams/liter primer was used on the wings of all but the first 3 of these aircraft. The commenter stated that after their initial attempts to use the low-VOC, high-solids primer on the wing surfaces, both they and their customers who had requested the primer agreed that the primer did not work in this application.

The commenter clarified in a later letter that wings require special coatings due to the increased durability and corrosion resistance. The commenter pointed out that selected areas of the wings are assembled and coated with primer and wing coating on the factory floor prior to being attached to fuselages. The commenter noted that the aircraft is then delivered to the paint hangar to recieve a topcoat on the wing. The commenter stated that they tried the low VOC topcoat over the wing coating and had failures. The commenter also stated that due to the use of high temperature silicon sealants in the vicinity of the engines and the lubricants used on the many complex moving parts on the wing, the wing surface area is often covered with contaminants prior to the coating operation. The commenter claimed that the solvent based coatings will readily adhere to the contaminated surface whereas the low VOC coatings will not adhere requiring extensive rework.

The commenter is using another 650 grams/liter primer on certain limited areas of the aircraft; wing to body fairings, landing gear doors, and other composite parts. The commenter is using this primer because it is nonchromated and eliminates worker exposure to chrome. The commenter noted that they have not received any promising low VOC candidates to replace this product to date.

Commenter IV-D-40 estimated that all commercial exterior primers used on exterior surfaces represent only 20 percent of primer usage. Further, most of that material, 15 percent of all primer, is used on the metal fuselage. The commenter also added that only 5 percent of all primer is used on the wings, composites, and other surfaces. Commenter IV-D-88 estimated that last year they used approximately 36,000 gallons of exterior primer. The commenter noted that 8,000 gallons, or approximately 22 percent of the exterior primer, was used on wings.

Commenter IV-D-40 recommended that the Agency consider more feasible alternatives to the VOC/HAP content requirements for exterior primers.

Commenter IV-D-88 believes that adding 2 years to the compliance period would allow more time for the development of an alternative for the fuselage application reducing VOC emissions overall, rather that simply trading reduced VOC coating levels for additional solvent VOCs to rework the coating on the aircraft.

Commenter IV-D-90 believes that their operations show that the proposed organic HAP and VOC content limit standards for commercial exterior primers are representative of demonstrated technology so that there is no need to modify the proposed organic HAP and VOC content limits of 2.9 lb/gal.

The commenter does not believe that a separate source category should be created with a higher organic HAP and VOC content level for commercial exterior primers (or topcoats). The commenter pointed out that there has been no explanation of how the proposed standard does not represent demonstrated technology. The commenter noted that they are currently using low organic HAP and VOC content level primers at or below the proposed standard. The commenter also noted that the EPA has already collected data which indicated that 12 percent or more of existing sources meet the proposed limit. The commenter believes that there must be a factual basis to establish subcategories for commercial exterior primers. The commenter believes that the source that raised the objection to the proposed limit should demonstrate why it cannot use the primers and techniques used by the commenter and others that conform to the proposed standard. The commenter stated that the likelihood that the source would state why they cannot comply is doubtful because according to the commenter, there are only three principal manufacturers of commercial aircraft and the commenter uses its low organic HAP and VOC content level primers on all three (Boeing, McDonnell Douglas, and Airbus).

Response: The EPA received specific comments and technical justification from one company as to why they cannot comply with the emission limits. The EPA will work with that company to derive a mutually beneficial conclusion to their dilemna.

The information received by the EPA indicates that all other affected facilties can comply with the limits specified in the final rule.

6.7 PROPOSED APPLICATION METHODS

Comment: Commenter IV-D-35 recommended that the EPA reconsider adding to its list of acceptable coating methods "conventional spray equipment." The commenter believes that conventional spray equipment represents the "MACT floor" as well as any other technology. According to the commenter, as HVLP and other technologies mature they may accurately produce the claimed results of greater transfer efficiency, but for now industry requires the use of proven technology to perform its services at the highest standard.

The commenter agrees that HVLP has had admirable results in the laboratory in small scale testing, but according to the commenter HVLP's results in production tests are inconclusive at best. Removing conventional spray equipment from the approved coating application list at this time would be an unwise and imprudent move on the part of the EPA. The commenter believes that it is more appropriate for the EPA to monitor the progress the aerospace industry is making for a while longer before making such an important decision.

Commenter IV-D-29 stated that they conducted an informal survey of industry members in response to the EPA'S request for comments regarding the labor-hours per gallon of coating applied for HVLP spray guns versus conventional spray guns, and found that the use of HVLP spray was not believed to save time or money over conventional guns. The commenter stated that one user estimated that for actual spraying time (not including support), HVLP coating took 0.04 hr/gal longer to apply as compared to conventional spray guns [0.24 hr/gal (HVLP) vs. 0.20 hr/gal (conventional)]. The commenter believes that the coating material savings are small and when support and rework costs are included, the application cost of HVLP is significantly higher.

Response: All of the California facilities located in nonattainment areas use HVLP, electrostatic spray, or high

transfer application methods for coatings to reduce the emissions. As stated earlier, these facilities represent 25 percent of the industry. Additionally, these facilities have maintained economic viability, even though their standards are more stringent than other areas around the country. The EPA believes that these application methods will lead to a reduction in HAP emissions without imposing a significant burden on industry.

Comment: Commenter IV-D-29 recommended that electrodeposition of organic coatings be listed in the rule as an acceptable application procedure. The commenter recommended that paragraph (vii) be added to §63.745(e)(1) as follows:

"(vii) Electrodeposition;"

Commenter IV-D-29 also noted that a flow coat application is often referred to as flow "curtain" application. The commenter pointed out that the coating may take the form of a narrow, focused stream; a wide, less focused stream; or a wide, but thin, "curtain" of fluid. In each case, the commenter stated that the coating is not atomized and transfer efficiency is essentially 100 percent. The commenter recommended that the language in §63.745 be revised to reflect this fact. Therefore, the commenter recommended that §63.745 (e)(1)(ii) be revised as follows:

"(ii) Flow/curtain coat application;"

Commenter IV-D-29 also stated that there is a need to allow for "daub and wipe" applications. According to the commenter, certain operations, such as fastener installation, require that primers or topcoats be applied using a cotton-tipped dauber, swab, or cloth. Therefore, the commenter recommended that paragraph (viii) be added to §63.745(e)(1) as follows:

"(viii) Daub and wipe applications; or"

Response: The EPA accepts cotton-tipped swab application and electrodeposition application as acceptable coating techniques since the emissions from these techniques would be minimal when compared to conventional spray equipment. The

following have been added to §63.745 (f)(1) as acceptable application methods:

"(v) Cotton-tipped swab application;

(vi) Electrodeposition (dip) coating;"

The EPA has also revised §63.745 (f)(1)(i) as follows:

"(i) Flow/curtain coat application;"

Comment: Commenter IV-D-30 stated that a great deal of research is underway, by government and industry alike, to develop environmentally friendly coating systems. The commenter suggested that the language of the rule be modified to facilitate the implementation of emerging technologies. According to the commenter, these newer technologies should not be required to use high-transfer efficiency methods or other emission controls.

Commenter IV-D-11 believes that, while there are other spray application technologies (airless and air-assisted airless), a sufficient number of spray application technologies have been proposed to allow industry a great deal of flexibility.

Response: The EPA believes that a sufficient number of application options have been offered. Additionally, any facility may use an alternative application technique that achieves emission rates equivalent to HVLP or electrostatic spray application techniques (§63.750(i)).

Comment: Commenter IV-D-35 recommended that §63.745(e) be revised as follows:

"Application Equipment. Except as provided in paragraph (e)(3) of this section, each owner or operator of a new or existing primer or topcoat application operation subject to this subpart in which any of the coatings contain HAP or VOC shall comply with the requirements specified in paragraphs (e)(1) through (e)(3) of this section."

Response: The EPA's intention is to mandate only VOC and HAP emission controls. Therefore, the commenter's recommendation has been incorporated into the final rule (§63.745(f)).

6.8 ALTERNATIVE APPLICATION METHODS

Comment: Commenter IV-D-23 noted that the proposed rule indicates that any facility wishing to use an alternative

application method for primers and topcoats must first determine initial emission levels using HVLP or electrostatic spray application. According to the commenter, the preamble could be construed to mean that this determination must be made under actual production conditions, which would require the facility to coat parts using both the proposed alternative application method and HVLP or electrostatic spray application. If the intent is to only require that the alternate method be tested under actual production conditions, this should be more plainly indicated in the final rule. The commenter recommended that the EPA clarify this requirement and be more specific about how facilities must determine and/or demonstrate alternative methods.

Response: The rule clearly states that actual production conditions will be used to make the determination. Section 63.750(i)(2)(ii) states:

> "Upon implementation of the alternative application method, use the alternative application method in production on actual production parts..."

6.9 TOUCH-UP AND REPAIR APPLICATION OPERATIONS

Comment: Two commenters (IV-D-16, IV-D-35) noted that the proposed rule limits the amount of touch-up and repair painting to no more than 4 square feet per aerospace vehicle, regardless of vehicle size. The commenters stated that 4 square feet is insufficient, under any circumstances, to cover this type of painting operation. Commenter IV-D-35 stated that the proposed NESHAP fails to reach an adequate balance between national security and environmental quality.

Commenter IV-D-35 stated that overhaul and repair operations are called "maintenance painting" and are inappropriately given the same MACT standards as full aircraft primer and topcoat applications. The commenter stated that maintenance painting means painting operations after non-destructive inspection (NDI), corrosion rework, composite replacement, metal panel replacement, aircraft modification, panel access, or other maintenance activities to insure aircraft structural integrity. The

commenter pointed out that the proposed rule does not recognize or distinguish this type of painting.

The commenter suggested that maintenance painting is an important maintenance tool for ensuring both airworthiness and operational readiness of aerospace vehicles. Commenter IV-D-37 pointed out that Airworthiness Directives ("AD's") issued by the Federal Aviation Administration may mandate, for purposes of aviation safety, that aircraft components or systems be inspected, replaced, or repaired on a time-critical basis. The commenter claimed that compliance with AD's may necessitate the stripping and repainting of various sections of the aircraft under time constraints that potentially could not be accomplished fully in accordance with the control provisions of the proposed NESHAP. The commenter concurred with AIA's recommendation that an exclusion for permissible maintenance painting limited to 10 percent of the exterior surface of an aerospace vehicle per year would constitute a reasonable and adequate control mechanism.

The commenter, therefore, recommended that the proposed MACT standards for controlling inorganic HAP emissions from primer and topcoat applications should not be applied to maintenance painting. Since maintenance painting operations were not analyzed during the development of the proposed NESHAP, there is no basis for establishing a MACT floor, other than no control.

The commenter stated that touch-up and repair painting supports aircraft aesthetic repairs and coating system longevity on the outer mold line of the aircraft, while maintenance painting supports aircraft structural integrity during aircraft overhaul and repair operations.

According to commenter IV-D-35, touch-up and repair painting can potentially be accomplished in a paint hangar or booth with emission controls (the aircraft is mobile); however, most locations where aircraft are stationed do not have a paint hanger (80 percent estimate for DoD), and touch-up and repair painting is typically "out of cycle" or non-scheduled painting. The commenter claimed that because emission controlled hangars have

low availability (fully scheduled), it is difficult to schedule out-of-cycle touch-up and repair operations. Therefore, the commenter pointed out that touch-up and repair is usually accomplished in facilities without emission controls.

Commenter IV-D-35 believes that the 4 square feet exemption is an arbitrary limitation that ignores the range in aircraft size from 500 square feet to 33,600 square feet. Commenter IV-D-16 noted that 135 ft^2 equals 1 percent surface area on the larger planes in the U.S. Air Force fleet.

The commenter conducted a survey of 28 operational field activities and 4 major maintenance depots within the Air Force, to gather information on maintenance painting and touch-up and repair painting operations. The commenter presented the survey information on maintenance painting and touch-up and repair painting combined, including number of aircraft, gallons painted per year, area painted per year, and area of aircraft assigned (field units) or serviced (depots). Calculated values were shown for square feet of coverage per gallon of paint, square feet of aircraft assigned (or serviced) per gallon of paint, square feet painted per aircraft assigned, and gallons applied per aircraft assigned. On average, the commenter suggested that an exemption of 619 square feet per aircraft is needed. The requirement varies from 75 square feet/year (0.18 gal/yr) for a T-37 with 780 square feet of exterior surface area to 3,208 square feet/year (7.6 gal/yr) for a C-5 with 33,600 square feet of exterior surface area. The commenter pointed out that the survey demonstrated the problem associated with establishing a single square footage or gallon limit for painting exemptions. The commenter believes a better approach would be to exempt a number of gallons per thousand square feet of aircraft assigned or serviced. The commenter stated that this approach accounts for variations in size, and it allows a facility to easily determine and control its allotment of exempt painting (through a pharmacy or other distribution control system). The commenter determined, based on the data, that approximately 0.32 gal/1,000 ft^2 for

depots and 0.19 gal/1,000 ft^2 for field units would be appropriate exemptions.

According to the commenter, due to the significant need for maintenance painting in support of aircraft structural integrity efforts, the Aerospace NESHAP needs to be modified to allow maintenance painting in overhaul and repair hangers with no forced ventilation or emission controls using spray application of paints containing inorganic HAP.

The commenter, therefore, recommended that the following definition be added to §63.742:

> "**Maintenance painting** means painting operations after non-destructive inspection (NDI), corrosion rework, composite replacement, metal panel replacement, aircraft modification, panel access, or other maintenance activities to insure aircraft structural integrity."

The commenter recommended that the definition for "touch-up and repair operation" be revised as follows:

> "**Touch-up and repair operation** means that portion of the coating operation that is incidental to the main coating process and is used to cover minor imperfections in the coating finish. ~~Touch up and repair operations are not to exceed four square feet per aerospace vehicle."~~

To exempt maintenance painting and touch-up and repair painting from the inorganic HAP emission requirements of §63.745(f)(1) through (f)(4) and to limit the exemption, the commenter recommended that the following paragraph be added as §63.745(f)(6):

> "Maintenance painting and touch-up and repair painting are exempt from paragraphs (f)(1) through (f)(4) of this section. The volume of exempt maintenance painting and touch-up and repair painting is limited to 0.33 gallons per thousand square feet of aerospace vehicle assigned or serviced on an annual average basis."

The commenter also recommended that the following paragraph be added as §63.749(e)(3) for the compliance determination

associated with maintenance painting and touch-up and repair painting:

"The total gallons of inorganic HAP containing primer and topcoat used for maintenance painting and touch-up and repair painting is less than MPG, as determined using the procedures specified in §63.750(**X**)."

To ensure procedures for establishing exempt gallons for maintenance painting and touch-up and repair painting, the commenter recommended the following addition to §63.750:

"(X) Exempt gallons for maintenance painting and touch-up and repair painting. Calculate the gallon limit for exempt painting using the following equation:

$$MPG = \sum_{i=1}^{n} N_i \times GAL_i$$

where

N_i = the number of aircraft of type i assigned or serviced during the year

GAL_i = gallons per aircraft type determined by dividing the total aircraft exterior surface area by 1000 square feet and multiplying the answer times 0.33 gallons (0.33 gallons/thousand square feet exemption)

n = number of distinct aircraft type assigned or serviced."

Response: The EPA believes that the commenters' recommendations with respect to "maintenance painting" are too broadly defined and would encompass many of the activities the EPA intends to regulate. The commenters' recommendation could be interpreted to mean any rework activity. Therefore, the EPA will not add the recommended definition to the rule or exempt maintenance painting from the rule.

The EPA does, however, accept the commenters' recommendation that the 4 square feet per aerospace vehicle touch-up exemption be deleted. The EPA is not defining a size limitation on the touch-up repair operation, but will allow the permitting agencies

to define that parameter. The EPA has revised the definition as follows:

> "**Touch-up and repair operation** means that portion of the coating operation that is the incidental application of coating used to cover minor imperfections in the coating finish or to achieve complete coverage. This definition includes out-of-sequence coating." The EPA has added out-of-sequence coating to the definition to allow facilities to use any type of application method for this type of operation. This addition does not, however, allow the facility to freely use the touch-up and repair operation exemption to recoat an entire aircraft on the flightline without using controls. The exemption was incorporated in the rule to allow facilities to apply coating to small areas (4 ft^2 in the proposal) of the aircraft without being constrained to a particular type of application method. The EPA understands that 4 ft^2 is not adequate for some of the larger aircraft and will allow the permitting authority to determine what constitutes a touch-up and repair operation."

6.10 OPERATION AND MAINTENANCE OF APPLICATION EQUIPMENT

Comment: Three commenters (IV-D-27, IV-D-29, IV-D-35) stated that there are cases in which existing or new process equipment has inadequate, inaccurate, or incomplete operating instructions. In such cases, the commenters stated that the user must develop additional instructions to ensure proper operation and compliance with safety and environmental laws. In addition, a company may modify a purchased spray gun or develop its own equipment. According to two of the commenters (IV-D-27, IV-D-29), the provision should be changed to accommodate cases where modified equipment operated per the company's documentation has proven to have equivalent transfer efficiency, or when a company has identified alternative specifications that are optimal for a given application. Commenter IV-D-27 pointed out that the environmental benefit should be the same since the process is still bound by the VOC/HAP limitations or the control requirements.

Commenter IV-D-27 recommended the following revisions for §63.745(e)(2):

"(2) All application devices used to apply primers or topcoats shall be operated according to company and or the manufacturer's specifications at all times."

Commenter IV-D-29 recommended that §63.745(e)(2) be revised and paragraph (i) be added as follows:

"All application devices used to apply primers, topcoats, or self-priming topcoat shall be operated according to the manufacturer's specifications or local specified operating procedures."

Commenter IV-D-35 recommended that §63.749(d)(3)(iv) be revised to read as follows:

"Operate all application techniques in accordance with the manufacturers' specifications or local specified operating procedures."

The commenter also recommended the following revision for §63.749(d)(4)(iv):

"Operate all application techniques in accordance with the manufacturers' specifications or local specified operating procedures."

The commenter suggested that in many cases existing or new process equipment have inadequate or incomplete operating instructions which require additional instructions to ensure proper operations and compliance with safety and environmental laws.

Response: The EPA accepts the commenter's recommendations and will allow companies to implement their own operational plans for equipment that has been modified or developed by the company. The modified equipment must achieve an equivalent transfer efficiency to HVLP or electrostatic application techniques. In no case may company modified or company developed application equipment be used where the transfer efficiency is less that the results achieved by HVLP or electrostatic application techniques. The EPA has adopted the following revisions for §63.745(f)(2):

"All application devices used to apply primers or topcoats shall be operated according to company procedures, local specified operating procedures, and/or the manufacturer's specifications, whichever is most stringent, at all times. Equipment modified by the facility shall maintain a transfer efficiency equivalent to HVLP and electrostatic spray application techniques."

Section 63.749(d)(3)(iv) has been revised as follows:

"Operates all application techniques in accordance with the manufacturer's specifications or locally prepared operating procedures, whichever is more stringent."

The following revision has been adopted for section 63.749(d)(4)(iv):

"Operates all application techniques in accordance with the manufacturer's specifications or locally prepared operating procedures, whichever is more stringent."

Additionally, §63.743(b) requires a facility to report the startup and shutdown, and operational procedures that are followed when a facility varies from the procedures specified by the equipment manufacturer.

6.11 AVERAGING BETWEEN TOPCOATS AND PRIMERS, CONTROLLED AND UNCONTROLLED

Comment: Three commenters (IV-D-29, IV-D-33, IV-D-43) noted that the proposed regulation prohibits averaging between primers and topcoats. According to commenter IV-D-43, even though the majority of coatings used will meet or exceed the VOC or HAP limit stated in the regulation, a few facilities may require emissions averaging in order to demonstrate compliance. The commenter stated that their future VOC emissions reduction programs will depend on providing flexibility, such as averaging between primers and topcoats. Two of the commenters (IV-D-33, IV-D-43) recommended that the EPA allow averaging between primers and topcoats and that the EPA grant the State and local agencies the discretion to allow or to preclude sources from emissions averaging without having to make a section 112(1) rule approval request. Commenter IV-D-29 believes that the ability to average

such emissions will encourage the industry to develop lower VOC/HAP coatings and processes in order to take advantage of emissions averaging as the need arises.

Commenter IV-D-33 suggested that, if averaging is allowed, the following provisions should also apply:

1) The sources who elect to use averaging must demonstrate to the satisfaction of the implementing agency that compliance through averaging will not result in greater hazard or risk than compliance without averaging.
2) The implementing agency should be allowed to limit the number of emission points or coatings allowed under averaging.
3) State and local agencies should be granted the discretion to preclude sources from using emissions averaging to comply with the rule without having to make a section 112(1) rule approval request.

Commenter IV-D-50 suggested that the 1-day averaging requirement for a coating may, in effect, greatly exceed the MACT floor. The commenter noted that the rule summary stated that the VOC/HAP limit was based on the average emissions of the best 12 percent of the sources. The commenter pointed out that it was not reported over what time period the emissions from these sources were averaged to obtain the VOC/HAP limits. According to the commenter, if a greater time period than 1 day was used, then the proposed limits are far stricter than the MACT floor. The commenter recommended that the proposed averaging include a time period at least as long as that upon which the coating limitations were calculated for the best 12 percent of the sources.

Response: The information collected by the EPA indicates that separate levels of emission control are needed for topcoats and primers. In no case may emissions averaging be used between topcoats and primers since different levels of emissions control are required for each. Averaging of topcoats or averaging of primers is a compliance option. Facilities do not have to use emissions averaging. Facilities that use compliant coatings and

compliant application methods will not have to use averaging and or control devices in order to be in compliance.

The EPA has revised the averaging period from daily to monthly. Therefore, the volume-weighted average mass of organic HAP emitted per volume of coating must be calculated on a monthly basis. However, the permitting agency may require a shorter averaging period as part of an ambient ozone control program.

In addition, the EPA is currently investigating a number of options with respect to implementing a broad-based averaging scheme as a compliance option for the Aerospace NESHAP. The EPA will issue a supplemental proposal to the NESHAP that will solicit public comments on an expanded averaging plan (see Section 2.2).

Comment: Two commenters (IV-D-27, IV-D-29) recommended that averaging be allowed between uncontrolled and controlled coatings.

According to commenter IV-D-29, the EPA could actually gain an environmental benefit if it allowed emissions averaging between controlled and uncontrolled sources if it required offsets of greater than one to one (i.e., 1.2 to 1) which is consistent with the EPA's 1986 Emissions Trading Policy.

Commenter IV-D-27 recommended the following revision for §63.745(d)(2)(iii) as follows:

> "(2)(iii) Averaging both controlled and uncontrolled primers together or both controlled and uncontrolled topcoats together is allowed provided the daily volume-weighted average of VOC and organic HAP comply with the specified content levels."

Response: The EPA has collected data that indicate that the emission limits for topcoats and primers are currently being met by the industry. The emissions averaging plan contained in the rule grants facilities flexibility in choosing compliance options. Averaging between controlled and uncontrolled sources was not included in the rule because there is no technical justification for including such a provision. If a facility chooses to implement control devices in order to achieve the

emission limits specified in the rule, than all of the emissions should be controlled. The EPA cannot allow a facility to selectively choose which emissions to control. The new averaging proposal discussed in the previous response will address this issue.

6.12 EMISSIONS CONTROL

6.12.1 Control Efficiency

Comment: Commenter IV-D-43 noted that the proposed regulation requires the control device to reduce the HAP and VOC emissions by 81 percent or greater. The commenter pointed out that AQMD's Rule 1124 has the following requirements for the overall control efficiency requirements of VOCs:

1. The control device shall reduce emissions from the emission collection system by at least 95 percent, by weight; or,
2. The output from the control device should be less than 50 ppm, calculated as carbon with no dilution; and,
3. The collection system is at least 90 percent efficient by weight.

The commenter recommended that the EPA adopt a similar approach for VOC control, and is concerned if similar control requirements are feasible for HAPs.

Response: The EPA adopted the 81 percent control level to provide facilities with greater flexibility in the design of their emissions control system. The EPA believes that by not specifying capture and control efficiencies, facilities will have more choices in their equipment design.

Comment: Two commenters (IV-D-27, IV-D-30) recommended that the EPA delete the phrase "all of the" from §63.745(c)(1) as follows:

> "(1) The control device shall be designed to capture and control ~~all of the~~ emissions from a coating application operation."

Commenter IV-D-27 believes that the word "all" could be interpreted to mean 100 percent and therefore should be deleted.

The commenter stated that it is generally accepted that control devices cannot achieve 100 percent efficiency.

Response: The EPA published revisions regarding the use of the phrases "all of the" and "incidental" emissions in the November 22, 1994 Federal Register notice. These phrases were eliminated from the rule.

Comment: Commenter IV-D-27 recommended the following revisions to §63.749(d)(3)(ii)(A):

> "(A) ~~All of the~~ emissions will be controlled by the control device, except for emissions that may escape the capture system when the capture system is operated per the manufacturing or company specifications ~~are controlled by the control device~~."

The commenter stated that this paragraph needs to be clarified because "all" emissions could be interpreted to mean 100 percent of the emissions. The commenter believes this is impracticable given technology has not achieved 100 percent regarding control/capture efficiency. Also, the commenter suggested that the term "incidental" needs to be defined or removed from this paragraph. Additionally, the commenter stated that if this paragraph, as proposed, is interpreted to suggest all emissions will be controlled by the control device, then it is in conflict with the stated efficiency of 81 percent. The commenter claimed that it is generally accepted that control devices cannot achieve 100 percent efficiency, that 100 percent is theoretical and cannot be achieved.

Response: The EPA has deleted proposed §63.749(d)(3)(ii)(A) from the final rule. The final rule deleted Method 309 for determining the control efficiency of carbon adsorbers and now contains specific provisions for carbon adsorbers.

Comment: Commenter IV-D-29 suggested that the EPA provide a "hard control" option that would allow industry to "overcontrol" emissions from coating operations. The option proposed by the commenter would allow a facility to install equipment that would "overcontrol" emissions beyond the 81 percent standard proposed in §63.745(c)(2). The commenter stated that the delta

"overcontrol" beyond 81 percent will be the amount of control necessary to offset the lack of high transfer efficiency (HTE) application techniques. Therefore, the commenter concluded that the approach would be to first determine emission reductions achievable from HTE techniques, similar to the testing outlined in §63.750(i). Having determined those emission reductions achievable from HTE, an equivalent "overcontrol" could be calculated as follows:

ECE = P + (81 percent)(1 - P).

In summary, the commenter requested that facilities be allowed to control emissions at an 81 percent reduction level plus the calculated emissions reduction level that would be achieved by using HTE application methods.

Two commenters (IV-D-29, IV-D-30) recommended the following addition for §63.745(e)(4):

> "Compliance with the emission reduction requirements in paragraphs (e)(1)(i) through (e)(1)(vii) of this section, which are accomplished as a result of reduced coating usage through more efficient application methods, may also be obtained through installing higher efficiency capture and destruction equipment than would otherwise be required in paragraph (c)(2). Compliance rests on demonstrating a total emission reduction equivalent to that obtained from installing hard controls (81 percent reduction) plus that obtained from converting to application techniques equivalent to HVLP or electrostatic application techniques."

Commenter IV-D-42 noted that the proposed rule [§63.745(c)(1)] prohibits an add-on emission control system from being designed to capture only a portion of the emissions from nonexempt coating application operations. The commenter believes that this provision may lead to unnecessary costs in capturing and controlling small amounts of HAP or VOC in low concentration emission streams. According to the commenter, the control system need not capture all emissions as long as the overall emission reduction is at least 81 percent (including all non-captured emissions). The commenter, therefore, recommended that the

overall emission reduction requirement remain at 81 percent, but that an add-on emission control system be allowed to capture only a portion of the total emissions.

Response: The EPA believes that a sufficient number of compliance options have been offered which afford facilities a great deal of flexibility. The EPA believes that the options proposed by the commenters would significantly increase the regulatory burdens on the Agency and the aerospace industry. The EPA will, however, address pollution prevention alternatives in an emissions averaging plan that will be issued as a supplemental proposal to the final rule and will consider the commenters' suggestions in the development of the proposal.

Comment: Two commenters (IV-D-42, IV-D-52) pointed out that the proposed rule [§63.745(f)] does not specify any device removal efficiency or overall control efficiency for inorganic HAP add-on emission control systems. The commenter recommended that on overall control efficiency or device removal efficiency be specified.

Commenter IV-D-52 stated that it may be difficult or impossible to determine control device efficiency by source testing on dry particulate filters and waterwash systems, and that appropriate ventilation requirements may also may be difficult to generalize in a rule. The commenter, therefore, recommended that the rule contain more detailed information regarding what capture and control systems are required, or specify that the detailed requirements be established on a case-by-case basis at the discretion of the permitting authority.

Response: The final rule does not contain a control efficiency requirement for particulate filters used to control inorganic HAP emissions from coating operations. The EPA has revised the standard and has adopted provisions that specify workplace standards. In addition, the EPA is currently investigating a number of options with respect to implementing controls on the emissions resulting from coating operations. Test methods are being developed which will allow filter manufacturers to qualify their filters as EPA-approved. The

Agency would then require affected sources to use EPA-approved filters in the control devices used to capture the particulates resulting from the coating operations. The EPA must determine the best way to implement the provisions and will issue a supplemental proposal to the NESHAP that will solicit public comments on a provision that the Agency deems to be enforceable and guarantees the public's safety.

6.12.2 HEPA Filter Use

Comment: Two commenters (IV-D-76, IV-D-90) supported a provision that would require new source coating operations to install HEPA filters.

Commenter IV-D-76 strongly supported the high efficiency particulate filter requirement for new sources and recommended that the EPA apply this requirement to existing sources as well. The commenter stated that there is growing evidence that particulate matter is responsible for thousands of deaths per year. The commenter also recommended stricter controls of particulates from new and existing sources for this and subsequent MACT standards. The commenter suggested that reduction requirements be specified at the 0.3 micron level in order to reduce small particulates.

Commenter IV-D-90 supports the HEPA filter amendment because the amendment is limited in scope such that it applies only to new sources and because the amendment is limited to spray-applied coating operations due to the generation of particulate matter.

Five commenters (IV-D-79, IV-D-80, IV-D-81, IV-D-83, IV-D-85) were opposed to the proposed HEPA filter requirement. Two commenters (IV-D-81, IV-D-85) stated that HEPA filters are used in a "clean" room environment for the manufacture of electronic components and circuits.

Three commenters (IV-D-80, IV-D-81, IV-D-83, IV-D-85) believe that the cost of hangar-sized filtration systems would be prohibitive. Commenter IV-D-81 stated that the cost of adding HEPA filter systems has been reported as $3 to $4 per cubic feet per minute (CFM) of air flow. Commenter IV-D-80 stated that the cost can range from $2 per CFM to $8 per CFM. Commenter IV-D-81

pointed out that typical aerospace paint booths are sized at over 200,000 CFM, resulting in costs from $600,000 to $800,000 just for the filter system. The commenter believes that the cost is excessive when considering the amount of particulate that will be captured by the filter.

Two commenters (IV-D-80, IV-D-85) do not believe that HEPA filtration technology has been demonstrated to be effective, economically viable, or necessary for controlling inorganic HAP emissions in aerospace coating operations. The commenters claimed that the filters do not represent demonstrated technology in areas large enough to service commercial aircraft, large paint hangars, or even on open paint booths for large aircraft parts. Commenter IV-D-80 recommended that paint hangars be exempt if the EPA implements a HEPA filter requirement, since the Agency has no information that the technology is used in practice. Commenter IV-D-85 stated that the EPA has made no showing that the source cited in the Federal Register notice is similar in scope, size, or type of operation to a large airline rework painting facility, as is required for new source standards by section 112(d)(3) of the Clean Air Act.

Two commenters (IV-D-80, IV-D-85) also stated that the EPA has not conducted an adequate analysis of the costs and non-air quality health and environmental impacts and energy requirements as mandated by section 112(d)(2) of the Act.

Commenter IV-D-79 was concerned that the EPA has extrapolated the presence of HEPA filters at one facility's coating operations into a MACT standard for all primer and topcoat operations involving any inorganic HAP.

Commenter IV-D-80 noted that the 99.97 percent control efficiency for HEPA filters is a manufacturer's representation and does not represent actual source test results. The commenter believes that the EPA should have actual test data before mandating a control efficiency at a specific particulate size, or alternately, allow the use of manufacturer's specifications for compliance.

Commenter IV-D-80 was concerned that if the HEPA filter requirement is adopted, the proposed language at §63.745 (f)(2)(ii) could be read to require the stacking of more than one bank of HEPA filters. The commenter requested that if the EPA proceeds with the HEPA filter requirement, the EPA should clarify that only one bank of filters would be required.

Two commenters (IV-D-79, IV-D-80) suggested that if the EPA proceeds with the HEPA filter requirement, the EPA should specify that the MACT standard applies only to hexavalent chromium emissions from chromated primers. Commenter IV-D-79 stated that the EPA should treat chromium-containing primer and topcoat application as a distinct source category. Commenter IV-D-80 recommended that a chrome concentration and quantity be specified and commenter IV-D-79 recommended that the requirement also apply to chromated topcoats. Both commenters stated that facilities which do not have to consider hexavalent chromium emissions will view the additional cost of maintenance and installation of HEPA filters as unacceptable.

Commenter IV-D-80 stated that without a threshold concentration limit, HEPA filters could be required on many insignificant sources.

Commenter IV-D-85 stated that paint overspray particulates are typically no less that 2.8 microns in size. Commenter IV-D-80 pointed out that an analysis by the Air Force indicated that the particulate size entering the filter is greater than 2 microns. Therefore, two commenters (IV-D-80, IV-D-85) believe that the 0.3 micron filtering system as specified in the proposed rule would not significantly increase filtration efficiency.

Commenter IV-D-83 conducted an evaluation of the distribution of particulate mass from one 100,000 cubic feet per minute (CFM) aircraft coating operation at Tyndall AFB. The commenter also received data from Binks Manufacturing Company on particle size data for the Binks MACH 1 HVLP paint gun. The commenter's conclusion from these limited data was that the submicron particles in the exhaust from primer and topcoat

applications represent less than 1/10,000 of the total particulate mass.

Commenter IV-D-83 stated that multiple stage (double or triple) dry filters can remove as much as 99.9 percent of the total particulate mass. The commenter also noted that HEPA filter systems can remove as much as 99.97 percent of total particulate mass down to very small particle sizes. The commenter also stated that a triple stage filter system is capable of a 99.9 percent total particulate mass reduction.

The commenter stated that their analysis indicated that HEPA filters remove only minor amounts of additional inorganic HAP at a substantial cost (over $18 million per ton). According to the commenter, based on the national average of PM_{10}, the HEPA system would lead to a 57.1 lb/year increase of PM_{10} at the power plant to reduce the inorganic HAP from the coating process by only 7.4 lbs/year. The commenter stated that the EPA needs to conduct a more thorough analysis before switching to HEPA filters.

The commenter also stated that two single stage dry systems at McClellan AFB were found to emit approximately 0.13 lbs of inorganic HAP per ton of coating sprayed. The commenter stated that the filters themselves did not achieve this level of efficiency in laboratory testing. The commenter believes that the apparent 99.6 percent filter efficiency must be due to other factors, such as a fall out rate much larger than 20 percent. According to the commenter, for a 464,000 CFM system (operating 3 shifts, 251 days/year) the cost would reach $193,042/year to control an additional 2.4 lbs of inorganic HAP. The commenter claimed that the result is $161 million/ton of emissions reduced, with secondary PM_{10} emission of 44.35 lbs at the power plant (based on the emissions of 44.35 lbs at the power plant (based on the California average). The commenter believes that the EPA should conduct further analysis before adopting any standard beyond waterwash and dry filters. The commenter included their data and analysis from the study.

Three commenters (IV-D-79, IV-D-80, IV-D-90) recommended that the EPA revise the proposal by setting an alternative

standard of performance which would allow less costly high efficiency particulate removal systems to be installed. Two commenters (IV-D-79, IV-D-80) pointed out that data from filter manufacturers presented to the EPA indicated that very high efficiencies are achievable with two- and three-stage filters. Commenter IV-D-79 suggested that the EPA use the model plant scenarios to determine what control efficiency is required to adequately reduce emissions and mandate that control efficiency as an alternative. According to commenter IV-D-79, HEPA filters will satisfy that control requirement. The commenter believes that a facility should have an option to use other types of filtration that meet that control requirement. Two commenters (IV-D-79, IV-D-80) stated that the manufacturers of HEPA filters should have the opportunity to have their filters tested by some testing organization so they can market them as NESHAP compliant filters, thus removing some of the testing burden from the facilities.

Two commenters (IV-D-79, IV-D-80) pointed out that the above approach was incorporated by the EPA into the Halogenated Solvent Cleaning NESHAP. According to the commenters, in that NESHAP, controls could be chosen from a menu of options or alternative controls that meet an emission standard.

Response: The EPA is required to impose emission limits for new sources which represent the best technology in use at the time of promulgation. The EPA determined that the use of HEPA filters to reduce emissions sets is appropriate for the new source MACT. Data were also received by the Agency which indicated that two- and three-stage dry filters could achieve equivalent results to HEPA filters. Therefore, the EPA has imposed an equipment specification for new sources and has specified that two-stage dry particulate filters shall be used to control particulate emissions from coating operations. In addition, if the coating contains chromium or cadmium, then new sources must use three-stage particulate filters or HEPA filters to control the particulate emissions.

Comment: Commenter IV-D-83 stated that the proposal to require HEPA filters (§63.745) for new primer and topcoat applications raises the additional issue of whether projects currently in development must comply with the new higher standard. The commenter stated that a great amount of time and expense has been incurred to design and build new facilities that will comply with the pre-HEPA filter requirement. The commenter stated that these projects should be exempted or the funds expended thus far will be completely wasted.

Commenter IV-D-83 proposed that the EPA define a stage of development for a project. The commenter stated that a definition for development stage would be used to determine "existing" versus "new" for compliance purposes. The commenter stated that for military construction projects, the appropriate stage should be the "PD" or Project Definition stage.

Response: Projects that are completed prior to the 3 year compliance date will be considered "existing" and projects completed after the compliance date will be deemed as "new" sources. This action gives facilities a 3-year notification prior to full implementation of the rule.

Comment: Three commenters (IV-D-79, IV-D-80, IV-D-83) stated that the EPA has not indicated that any company has installed HEPA filters as a retrofit technology to control inorganic HAP emissions from waterwash booths. According to the commenters, installation of HEPA filters for waterwash spray booths is more difficult and more costly because the moisture entrained from the water curtain will prevent the HEPA filters from operating properly. Commenter IV-D-83 stated that such a system would likely require the addition of a water separator to remove high moisture in the exhaust air prior to entering the HEPA filters. The commenter claimed that the cost and technical feasibility of a high CFM water separator are unknown factors. Thus, the commenter believes there is no foundation for establishing a new source requirement adding HEPA filters to waterwash systems. Two commenters (IV-D-79, IV-D-80) stated that if the EPA would allow a reasonable alternative control standard,

industry would have more flexibility and could achieve the standard at a lower cost than for HEPA filter installation.

Commenter IV-D-83 collected data on a 464,000 CFM waterwash operation in 1993. The commenter indicated that the waterwash operation had an inorganic HAP emission rate of 0.21 lb of inorganic HAP per ton of coating sprayed, which results in a 99.92 percent control efficiency of the inorganic HAP used in the process.

The commenter stated that the cost of retrofit easily exceeds $4/CFM--about twice the cost of new construction. In some cases, the commenter believes that modifications could exceed the cost of constructing a new hangar. The commenter requested that the EPA clarify the limits on "new source" in the proposed rule.

Three commenters (IV-D-79, IV-D-80, IV-D-83) stated that the HEPA filter issue is important because modifications to waterwash booths can also be treated as major modifications subject to new source MACT in the future. According to the commenters, maintenance and replacement of parts due to corrosion can exceed 50 percent of the value of the booth. The commenter stated that this type of maintenance is not related to an emission increase or change in the coating operation. The commenters interpreted the general provisions as stating that this type of maintenance operation may deem the waterwash booth as "reconstructed" and thus subject to the new source MACT.

Two commenters (IV-D-79, IV-D-80) recommended that the EPA clarify that the Aerospace NESHAP supersedes the language of the General Provisions. Three commenters (IV-D-79, IV-D-80, IV-D-83) requested that the EPA specify that HEPA filters would not be required for reconstruction of a waterwash booth and that replacement of components of waterwash booths, modifications, and retrofit do not subject a source to new source MACT requirements.

Response: For new sources, the EPA has adopted a performance standard for emissions control systems. The standard does not require the installation of HEPA filters on waterwash booths. However, new sources must use three-stage particulate

filters or HEPA filters to control emissions from coatings which contain chromium or cadmium. The Agency has not specified the order in which the three stages of filtering media must be installed in order to provide affected facilities with compliance options. In addition, §63.753(a)(1) states:

> " ...initial notification requirements for new or reconstructed affected sources in §63.9(b)(3) through (5) shall not apply."

6.12.3 Hangar Use

Comment: Commenter IV-D-39 stated that proposed §63.745(f)(1) would require coating operations to be performed in a "booth or hangar in which the air flow is directed across the part or assembly being coated and exhausted through one or more outlets." The commenter claimed that in many surface coating operations, a downdraft booth provides better and safer performance. To clarify that this industry may use such technologies, the commenter recommended adding the term "downwards onto or" before the term "across the part or assembly" to clarify that the provision does not restrict the industry from using other paint booth or hangar configurations.

Response: The EPA has accepted this revision and has incorporated the change in the final rule. Final §63.745(g)(1) states:

> "Apply these coatings in a booth or hangar in which air flow is directed downward onto or across the part or assembly being coated and exhausted through one or more outlets."

Comment: Two commenters (IV-D-2, IV-D-23) stated that there are situations during assembly where aerospace components cannot be reasonably moved into a spray booth for coating. The commenters stated that it is not practical to move a large subassembly into a paint hanger for a small coating operation and since the amount of coating applied is relatively small and occurs in a large building, there is little chance of inorganic HAP being released to the ambient air. The commenters recommended that the rule provide flexibility to the permitting agency to exempt in the title V permit those circumstances where

it is not technically feasible to paint in a booth by including an exemption to be included in §63.745(f) which allows "painting in an area identified in a part 70 permit, where the permitting authority has determined that it is not technically feasible to paint in a booth."

Response: The EPA accepts the commenters' recommendation because it gives facilities an opportunity to define operations that would have minimal emissions. The EPA does not intend to regulate minimal emissions. The EPA also does not intend to force emissions control on operations that have minimal impact on a facility-wide basis. Therefore, §63.745(g)(4)(ix) states:

> "Painting parts in an area identified in a title V permit, where the permitting authority has determined that it is not technically feasible to paint the parts in a booth."

6.12.4 Monitoring of Emissions and Shutdown Requirement

Comment: Proposed §63.745(f)(4) requires facilities to shut down operations in response to a pressure drop that is outside the limit(s) specified by the manufacturer. Four commenters (IV-D-29, IV-D-32, IV-D-25, IV-D-37) believe that an allowed period of operation should be available in lieu of the immediate shutdown requirement. Three of the commenters (IV-D-29, IV-D-32, IV-D-37) recommended that the provisions be amended to permit completion of the current operation when the pressure drop parameter is exceeded. Commenter IV-D-35 suggested that the language be softened to require shutdown only if repair operations cannot be accomplished within 24 hours.

Commenter IV-D-30 recommended that "operational shift" be defined and provision be made for action to remedy easily correctable excursions without requiring total operation shutdown.

Four commenters (IV-D-29, IV-D-32, IV-D-35, IV-D-37) stated that, with respect to painting operations, immediate discontinuation of work prior to completion of the task would needlessly result in wasted paint and other materials, along with lost labor costs associated with surface preparation. According to the commenters, since partially-painted components would

likely have to be repainted entirely, the premature cessation of an operation may also result in greater total emissions than would completion of the initial operation with less than optimal filter efficiency.

Commenter IV-D-11 stated that the most preferable method of determining violations is to require an operational parameter to be monitored and recorded once per shift. The commenter suggested that the rule require that the system be brought back into compliance before any painting is performed on the next shift and that subsequent shifts that do not meet the standard would constitute a violation. The commenter stated that this would allow current shift work in progress to be completed before a mandatory shutdown.

Commenter IV-D-35 recommended that §63.745(f)(4) be revised to read as follows:

> "If pressure drop, as recorded pursuant to §63.752(d), is outside the limit(s) specified by manufacturer's instructions <u>or locally prepared operation procedures,</u> shut down the operation <u>immediately after the aircraft undergoing painting operation is complete</u> and take corrective action. The operation shall not be resumed until the pressure drop is returned to the limits specified by the manufacturer."

Commenter IV-D-29 recommended the following revision to 63.749(e)(2) and the addition of (3) to be consistent with previous comments:

> "(2) <u>For particulate filter, it</u> is shut down ~~immediately~~ <u>at the completion of the application to the aerospace vehicle or components being coated</u> whenever the pressure drop is outside the limit(s) established for it and is not restarted until the pressure drop is returned to the limit(s) (as required in §63.745(f)(4)); <u>or</u>
>
> <u>(3) For waterwash booth, it is shut down at the completion of the application to the aerospace vehicle or components being coated whenever (1) the water path fails the visual continuity/flow characteristics check, or (2) where visual</u>

inspections are not applicable, the daily flow meter requirements show an interruption in flow, or the booth manufacturer's maintenance procedures have not been performed as scheduled, and is not restarted until the nonconformance is corrected."

Commenter IV-D-35 recommended that §63.749(f)(4) be revised as follows:

"If the pressure drop, as recorded pursuant to §63.752(d), is outside the limit(s) specified by the manufacturer, the operation is to be shut down at the completion of the application of the primer or topcoat currently being applied to the aerospace vehicle or components being coated. The operation shall not be resumed until the pressure drop is returned to the limit(s) specified by the manufacturer."

Commenter IV-D-29 recommended that §63.745(f)(4) be revised as follows:

"(4) If the pressure drop, as recorded pursuant to §63.752(d), is outside the limit(s) specified by the filter manufacturer, shut down the operation ~~immediately~~ at the completion of the application to the aerospace vehicle or components being coated and take corrective action. If (1) the water path fails the visual continuity/flow characteristics check, or 2) where visual inspections are not applicable, the daily flow meter requirements show an interruption in flow, or the booth manufacturer's maintenance procedures have not been performed as scheduled, the operation must be shut down at the completion of the application to the aerospace vehicle of components being coated and take corrective action. The operation shall not be resumed until the ~~pressure drop is returned to the limit(s) specified by the manufacturer~~ non-conformance is corrected."

Commenter IV-D-29 recommended the following revision for §63.753:

"§63.753(c) Primer and Topcoat Application Operations ...

(1)...

(vi) All periods where a coating ~~primer or topcoat~~ application operation was not ~~immediately~~ shut down at the completion of the application to the aerospace vehicle or components being coated when the pressure drop across the particulate filters ~~or waterwash~~ was outside the limit(s) specified by the manufacturer or the operator or for waterwash booths when (1) the water path fails the visual continuity/flow characteristics check, or (2) where visual inspections are not applicable, the daily flow meter requirements show an interruption in flow, or the booth manufacturer's maintenance procedures have not been performed as scheduled."

Response: The EPA has gathered information indicating that the pressure drop parameter does not change rapidly. Quite frequently, filters have to be changed monthly or weekly. The continuous monitoring requirement means that a monitoring device should be installed to alert the operator if the pressure drop exceeds or falls below the filter manufacturer's specified pressure drop parameters or if a change in the flow rate to waterwash booths occurs. The monitoring device data should be recorded once per shift, not continuously. The final rule does not allow a facility to continue painting when the dry particulate filter is not operational or if it exceeds the pressure drop specified by the manufacturer because facilities have sufficient lead time to change filter media. The rule also does not allow facilities to continue coating operations when a waterwash booth is not operational, flow is interrupted, or if the water curtain has gaps that would allow emissions to escape. The EPA will allow locally prepared operational procedures to be used for filter operation in addition to the manufacturer's specifications. The EPA has revised §63.745(g)(3) as follows:

"(4) If the pressure drop, as recorded pursuant to §63.752(d)(1), is outside the limit(s) specified by the filter manufacturer or in locally prepared operating procedures, shut down the operation immediately and take corrective action. If the water path in the waterwash

system fails the visual continuity/flow characteristics check, or the water flow rate pursuant to §63.752(d)(2) exceeds the limit(s) specified by the booth manufacturer or in locally prepared operating procedures, or the booth manufacturer's or locally prepared maintenance procedures for the filter or waterwash system have not been performed as scheduled, shut down the operation immediately and take corrective action. The operation shall not be resumed until the pressure drop or water flow rate is returned within the specified limit(s)."

7.0 DEPAINTING OPERATIONS

7.1 EXEMPTION REQUESTS

Comment: Two commenters (IV-D-29, IV-D-35) stated that the EPA should provide an additional exclusion from coverage for depainting conducted on aerospace vehicles or equipment that is out of service and no longer operational and intended for public display. The commenters recommended adding paragraph (1) to §63.746(a) as follows:

> "(1) Aerospace vehicles [equipment] which are [is] no longer operational and are [is] intended for or on public display and are not easily capable of being moved are exempt from the requirements of this section."

The commenters emphasized that this case constitutes a low volume and frequency of coating application.

Response: The EPA accepts the commenters' recommendation and has added a provision to the standard that exempts aerospace vehicles and components which are intended for public display.

Comment: Two commenters (IV-D-33, IV-D-43) stated that they support the proposed regulation to prohibit any HAP emissions from any organic depainting operation, except for certain specific operations (i.e., depainting radomes, spot stripping, removal of decals, etc.), noting that, within their jurisdiction, they have permitted a number of facilities to switch over from methylene chloride to media blasting, using materials such as plastic or wheat starch. Nevertheless, the commenters recommended that the State or local agencies be given the discretion to exempt a source from this requirement if a source can demonstrate that the use of inorganic depainting is not feasible. One of the commenters suggested that the criteria for the case-by-case exemption be based on the following:

1. The facility is concerned about safety issues and has data to indicate that depainting with abrasive media or other inorganic methods might lead to damage and build-up of stresses in the aircraft frame;
2. The facility installs Best Available Control Technology; and,
3. The emissions from the depainting operation meet the local district's risk assessment criteria and New Source Review regulations.

This commenter concluded by recommending that: (1) the rule allow alternative methods for the depainting of aircraft, if they meet local air pollution regulations, and (2) case-by-case exemptions be allowed in the regulation without requiring a section 112(l) equivalency submittal. The other commenter recommended that §63.746(b)(3) be revised to include:

"(iv) depainting of parts, subassemblies, and assemblies approved, on a case-by-case, by the permitting agency."

Response: The EPA is mandated to promulgate national standards for the control of HAP's utilizing maximum achievable control and cannot allow local agencies to exempt facilities from the minimum requirements. However, any State or local agency can request that their program be evaluated for equivalency to the NESHAP by submitting a request under section 112(l).

Comment: Commenter IV-D-36 requested that all depainting performed on the U.S. Presidential ("VH") helicopter fleet be exempted from the requirement to utilize non-HAP depainting methods. The commenter is the sole contractor for the manufacture, overhaul, and repair of the Presidential helicopters.

The commenter stated that they investigated the use of non-HAP paint stripping technologies and found that none of the processes was technically adequate or cost-effective. The commenter determined that use of the current methylene chloride-based stripper on assembled Presidential aircraft would be limited to only 800 gallons per year for the foreseeable future, or at least through the remainder of the 1990's. Therefore, the

commenter concluded that an exemption for this aircraft would not result in a significant increase in the use of HAP-type strippers.

Response: Under section 112, Presidential exemptions are only given in cases where national security is threatened. Additionally, the final rule allows a facility to use organic HAP-containing chemical strippers when a control device is installed on the operation to control the emissions. The number of options available to the industry should not necessitate that any facility seek an exemption from the standards.

Comment: Commenter IV-D-79 is pleased that the EPA is considering control devices for depainting operations using HAP-containing chemicals as an addition to the depainting standard. The commenter stated that they know of no system which can achieve an overall control efficiency of 99 percent and recommended that an 81 percent control efficiency be adopted. The commenter pointed out that their Tucson operations have a UVOX control system installed to control organic HAP emissions from HAP-containing strippers. The commenter doesn't believe that it would be cost effective for any other companies to install such a control device. The commenter stated that since they have already installed the UVOX, they believe that the EPA should allow it to operate under the NESHAP.

Response: The EPA has adopted a provision in the standard which allows the use of HAP-containing chemical strippers as the primary depainting technique when used with emission control systems. New requirements have also been added to the rule which specify the emissions control efficiency, recordkeeping, reporting, and compliance procedures for the use of HAP-containing chemical strippers. Control systems installed before the effective date must reduce the operation's organic HAP and VOC emissions to the atmosphere by 81 percent or greater. Control systems installed after the effective date must reduce the emissions by 95 percent or greater.

Additionally, procedures are specified in the final rule which provide a company with the means to obtain a compliance determination for alternative control devices and systems.

Comment: Commenter IV-D-30 stated that without further clarification, it is difficult to determine the applicability of this rule to elements of the Space Shuttle Program and space operations generally. The commenter pointed out that chemical HAP-containing strippers are allowed for "commercial and military aircraft;" other vehicles and equipment are not mentioned. The commenter also recommended that the status of spacecraft be further defined.

Response: Space vehicles designed for missions which exceed the earth's atmosphere have been exempted from the rule. This exemption has been addressed in §63.741, Applicability and Designation of Affected Sources and includes the Space Shuttle.

7.2 APPLICABILITY

Comment: Commenter IV-D-27 stated that they support the EPA's intent to control significant emissions from aircraft and large aircraft wings and stabilizers. However, the commenter was concerned with the limitations that proposed §63.746 would put on small parts operations. The commenter recommended deleting the reference to missiles and rockets on the basis that depainting operations associated with missiles and rockets are small in nature and are usually performed in a controlled environment. Also, the commenter believes that depainting processes of this scale will have a minimal environmental impact due to the small size of these parts. The commenter stated that if this deletion cannot be allowed, then they recommend the revisions listed below, which would allow a de minimis value for exempting wings and stabilizers on the same basis as mentioned above.

Commenter IV-D-35 suggested eliminating the word "entire" in depainting operation applicability to prevent conflicting interpretations of the term. The commenter stated that the word "entire" can be interpreted too loosely or too restrictively, and adds an unnecessary level of ambiguity. For example, the word could be interpreted as meaning that mechanical sanding (or any

depainting operation) is regulated as depainting only when it is accomplished on the entire outer surface of an aerospace vehicle. Thus, the commenter believes, an operation which scuff sands (or chemically strips) 10-70 percent of an aircraft prior to painting would not be regulated under §63.746(d). However, if "entire," as used in §63.746(a), means that depainting is regulated when accomplished on an assembled (entire) vehicle, as opposed to parts, then any amount of mechanical sanding on the outer surface may be regulated under §63.746(d). The commenter concluded that the first interpretation is too loose from an environmental perspective, whereas the second interpretation is too restrictive and would require the modification of all aerospace repair hangars where any mechanical sanding is performed on the outer surface of an aerospace vehicle.

Commenter IV-D-17 stated that they normally partially disassemble their aircraft before depainting operations are performed. From a reading of the proposed rule, the commenter gained the impression that they would be exempted. The commenter asked for clarification on this point.

Commenter IV-D-27 recommended the following revisions:

"§63.746 Standards: Depainting Operations

(a) Applicability. The provisions of this section apply to the depainting of the outer surface areas of ~~entire~~ <u>assembled</u> aerospace vehicles, including the fuselage, wings, and vertical and horizontal stabilizers of the aircraft. ~~and the outer casing and stabilizers of missiles and rockets~~ The provisions do not apply to the depainting of parts or units normally removed from the entire aerospace vehicle for depainting. However, depainting ~~of~~ <u>aircraft</u> wings and stabilizers is always subject to the requirements of this section regardless of whether their removal is considered by the owner or operator to be normal practice for depainting.

(1) <u>Aerospace facilities who use less than 50 gallons/year on all combined aircraft parts are exempt from the requirements of this section</u>.

(b)(1) Organic HAP emissions. Except as provided in paragraph (b)(3) of this section, each owner or operator of a new or existing aerospace depainting operation subject to this subpart shall emit no organic HAP from the depainting operation.

(3) The following depainting operations are exempt from the requirements of paragraph (b)(1) of this section:

(iv) Wings and stabilizers with a surface area less than or equal to six square feet are exempt from the requirements of this section."

Another commenter (IV-D-29) recommended the following revision to §63.746(a):

"(a) Applicability. Except as described below in paragraph (1), the provisions of this section apply to the depainting of the outer surface areas of entire aerospace vehicles, including the fuselage, wings, and vertical and horizontal stabilizers of the aircraft, and the outer casings ~~and stabilizers~~ of missiles and rockets. The provisions do not apply to the depainting of parts or units normally removed from the entire aerospace vehicle for depainting. However, the removal and depainting of aircraft wings and stabilizers is always subject to the requirements of this section regardless of whether their removal is considered by the owner or operator to be normal practice for depainting."

Commenter IV-D-27 recommended adding a new paragraph (v) to §63.746(b)(3) to exempt from the depainting requirements, aerospace parts or components that have not reached final assembly. The commenter stated that the rule essentially doubles the recordkeeping requirements at no appreciable environmental benefit. The suggested addition is as follows:

"(v) Aerospace parts or components that have not reached final assembly."

Response: The EPA has revised the standard and has adopted a provision which requires that all depainting operations be conducted in a controlled environment.

The EPA intended for the word "entire" to indicate that the standard covers the depainting of the outer surfaces of aircraft. The surfaces include the fuselage, wings, tail, and horizontal and vertical stabilizers. Also, removable panels or sections of coated surfaces located on the outer surface of the aircraft that may be considered a part of the "fuselage," such as on helicopters, are intended to be covered by the standard. The EPA has deleted the word "entire" from the provision in order to remove ambiguity from the rule. The EPA believes that the provision clearly reflects the Agency's intent without the use of this word.

With respect to the commenter's request that "assembled" be substituted for "entire," there may also be instances where one small part may not be attached to the vehicle and, therefore, the vehicle would not be considered "assembled." In this case, a facility could interpret the standard to mean that the provision does not apply to the vehicle. Additional ambiguity may be added if "assembled" were adopted. Therefore, the EPA will not adopt the word "assembled" as a substitute for "entire."

Additionally, the EPA has not adopted a provision which exempts from the standard any facility that uses a total of 50 gallons or less per year of chemical stripper for parts because parts are not covered by the standard. The EPA did not adopt provisions in the proposed or final rule for parts depainting because the information collected by the Agency indicated that a large majority of the industry currently uses media blasting on parts and assemblies. Additionally, the EPA did not specify requirements for parts depainting because the emissions from this source are minimal when compared to the depainting of the fuselage, wings, and stabilizers.

7.3 DRY MEDIA BLASTING

Comment: Commenter IV-D-47 was concerned about the EPA's evaluation of non-chemical-based depainting techniques, which focus on media blasting. First, the commenter stated that the EPA relied almost exclusively on data from military operations in evaluating the health and environmental impacts of media blasting

techniques. The commenter believes that reliance on military data is not an adequate or even a relevant data base for evaluating the environmental and health impacts of media blasting for commercial aerospace facilities, given the obvious differences in commercial and military depainting operations such as size, equipment, types of planes, parts, and substrates stripped, as well as safety and other regulatory requirements. Also, the commenter claimed that an evaluation based on such data is not sufficient for a proper MACT determination.

Response: Information was collected from a variety of sources in the industry, including the military. The docket contains information from several commercial facilities that use media blasting and non-HAP strippers. Recent advances in the media blasting industry have increased the efficiency of the operation. The standard does not specify that a particular technique or method be used for depainting operations. The EPA encourages the industry to evaluate all depainting methods and techniques.

Comment: Commenter IV-D-38 stated that while several techniques exist, only two blasting technologies, plastic media and wheat starch, have been employed in other than experimental/pilot applications. The commenter claimed that the rest of the techniques described in the EPA's background information document remain in their developmental stages. As a result, the commenter stated that the EPA's review of blasting technologies as part of its development of MACT for depainting operations should be limited to dry media blasting with plastic media and wheat starch.

Response: The docket contains information that several types of media have been used successfully to strip aircraft. Additionally, the EPA would like to share information on emerging technologies, such as CO_2 blasting, sodium bicarbonate blasting, high pressure water blasting, grit blasting, glass bead blasting, aluminum oxide blasting, wheat starch blasting and the various plastic media that have been used for blasting depainting operations. The EPA has not restricted depainting operations to

any particular technique or method. The standard states the level of control that must be achieved in order to reduce emissions from depainting operations.

Comment: Commenter IV-D-87 stated that the ENVIROSTRIP wheat starch based dry stripping process has been successfully used in various aircraft coating removal applications since 1991. The commenter claimed that two of the largest corporate/private aircraft manufacturers, Beech Aircraft and Cessna, currently use the process in-house to remove coatings and flashing from aircraft subassemblies, including applications on very thin aluminum.

According to the commenter, Hunting Aircraft (now Stevens Aviation - Peachtree City, Georgia) has successfully utilized a manual wheat starch dry stripping system on numerous corporate and private aircraft for nearly 2 years. The commenter also claimed that Boeing has authorized unlimited use of the wheat starch dry stripping process on aluminum surfaces as thin as 0.032 inch and that Northrop exclusively utilizes the process on the very sensitive, high-tech composite B-2 stealth aircraft. The commenter stated that the USAF has wheat starch based dry stripping programs in place for both composite and full aircraft stripping. Additionally, the commenter stated that the European Airbus has also authorized the use of this process.

The commenter stated that difficulties have been encountered from a technology development standpoint to make the process as economically competitive (time and materials) as HAP-based chemical strippers.

The commenter stated that the ENVIROSTRIP process has obtained more optimization since the first corporate aircraft was stripped at Hunting Aircraft in 1992. The commenter pointed out that with the state of technology at the time, Hunting could not stay competitive with others using HAP chemical strippers and was forced strictly by economics to change back to HAP chemicals. The commenter claimed that Hunting was able to successfully dry strip all corporate and private aircraft presented, but material

(media consumption) and labor costs were higher than HAP chemical processes used by competitors at that time.

The commenter claimed that they have been successful in removing all commercially known aircraft coatings, including those used on corporate and private aircraft. According to the commenter, some coatings are removed faster than others, but removal is achieved without damage to the surface. The commenter noted that they have also made their test facility available to all OEM's conducting process approval testing.

The commenter believes that Northrop's successful stripping of the high-tech, sensitive surface (both structurally and radar detection) B-2 stealth aircraft, using the ENVIROSTRIP process, demonstrates how adaptive this technology is. The commenter stated that with the current investments by Archer Daniels Midland, CAE Electronics, and other supporting dry stripping industry organizations, the overall process is now more competitive than before and a viable alternative to the continued use of HAP-based chemicals.

Response: The EPA supports the use of media blasting along with any other technique or method that does not emit HAPs.

Comment: Commenter IV-D-38 stated that while several military facilities depaint fighter planes and other military aircraft with thicker skins, a number of facilities have submitted comments to the EPA concerning the inability to use media blasting techniques on thin-skinned military aircraft, including transport planes and bombers. The commenter pointed out that the U.S. Air Force, for example, does not permit abrasive paint removal on thin-skinned aircraft (e.g., C-135's and B-52's) because of its concerns over cladding removal, metal fatigue, and stress cracking. The commenter maintained that even wheat starch blasting, which appears to be less abrasive than plastic media, lacks the necessary materials-qualification data and no foreseeable milestones for military implementation of the wheat starch technology on large, thin-skinned aircraft.

The commenter suggested that while partial dry-media stripping may be possible for (thin-skinned) military bomber and

transport aircraft, it is unlikely that a media process will be approved for stripping of the entire aircraft.

Commenter IV-D-47 stated that where safety is a paramount concern, media blasting should not be recommended for use in depainting operations without further research, particularly for use on commercial aircraft. The commenter pointed out that several airlines do not recommend plastic media blasting for use on composite substrates, or for repeated depainting cycles on certain metal types or thickness, because it may cause severe damage and metal fatigue, implicating serious public safety concerns.

Commenter IV-D-45 stated that wheat starch shows some promise as a mechanical stripper, but it has some drawbacks since it can easily be contaminated with metal fines, sand, airborne abrasive media, dust, etc. The commenter pointed out that this contamination causes increased metal removal and can cause pitting or surface failures to occur prematurely from local area fatigue resulting from impact damage.

Response: The docket contains information on many depainting techniques and methods that have been successfully employed on a wide variety of aircraft. In a current test program with NASA and the Air Force, the EPA is investigating several stripping methods that do not utilize methylene chloride. It is not the EPA's intention to endorse or reject any particular depainting method. The EPA has specified in the standard the level of control that shall be achieved for organic and inorganic HAP emissions from depainting operations. A wide range of depainting options are available to facilities. It is possible that some facilities will choose a combination of techniques.

Comment: Commenter IV-D-5 stated that the effect on the structural integrity of the substrate of an aircraft has always been one of the most important factors in determining the usability of a chemical paint remover, yet the proposal ignores this problem with media blasting, a method the depainting industry has always refused to use due to potential damage to the aircraft.

Response: Section 114 questionnaire responses and site visit information have indicated that many facilities currently use dry media blasting to depaint aircraft without any reports of adverse effects.

Comment: Commenter IV-D-5 stated that it is amazing that the EPA would even suggest the use of media blasting as a possible solution to air emissions, let alone think that this method could maintain a 99 percent level of control. The commenter suggested that a visit to any media blasting facility will show the inability to control inorganic HAP emissions. The commenter claimed that the property around these facilities will be surrounded by particulates from the paint, heavy metals from the substrate, and residue from the media.

This commenter stated that the media blasting industry is the dirtiest and greatest source of environmental pollution within the coating removal industry. The commenter also claimed that to leave the "operation" of the equipment up to the facility would only encourage the aircraft industry to continue the current work practices of the media blasting industry.

Response: The commenter did not provide any specific support for their comment.

Comment: Commenter IV-D-38 noted that dry media blasting requires dust collection and media separation and recycling systems. The commenter stated that media blasting produces a considerable amount of dust (from the paint and breakdown of the media) that must be collected. Otherwise, the commenter claimed, the dust generated during the blasting operation can create an unsafe working environment and interfere with other maintenance operations occurring at the same time. The commenter believes that the generation of dust requires worker protection and air-supplied respirators and, in the case of wheat starch blasting, may create potential for explosion. According to the commenter, while much (90 percent or more) of the dry media can be recycled, the reusable material must be separated from the waste paint and dust.

Response: The information collected by the EPA indicates that respirators are commonly used during all depainting techniques and methods currently used by the industry.

7.4 CHEMICAL STRIPPING METHODS

7.4.1 HAP-containing Strippers

Comment: Commenter IV-D-47 stated that many of the alternative chemicals that will take the place of methylene chloride (DCM) chemical strippers are not classified as HAP only because they have not been tested or used extensively, so adequate human health and environmental data are not available to characterize the risks of their use. According to the commenter, because none of the non-HAP alternatives have been tested as extensively as methylene chloride, the EPA's recommendation that such untested chemicals be adopted as MACT to the exclusion of methylene chloride is somewhat surprising. The commenter pointed out that it is even more surprising since the EPA previously designated methylene chloride as an acceptable alternative to ozone-depleting chemicals in various use sectors in implementing its Significant New Alternative Policy program.

The commenter suggested that the proposed standard appears to be inconsistent with ongoing rulemaking and pollution prevention initiatives relating to paint stripping. The commenter stated that the Occupational Safety and Health Administration (OSHA) is in the process of adopting a standard that will fully protect the health of workers in, among others, aircraft depainting operations. (56 FR 57036, November 7, 1991.) The commenter asked the EPA to explain how a ban on chemical strippers is legally or scientifically justified if the workers are fully protected by a workplace standard.

Additionally, the commenter noted that the EPA recently announced the formation of a Paint Stripping Use Cluster. The commenter pointed out that the principal purpose of the activity is to compare the potential risks of methylene chloride and alternative paint strippers, at least one of which has been found by the EPA to present a "'significant risk' of reproductive and developmental effects." The commenter claimed that by law and

its own policy, the EPA must carefully consider the health and environmental effects of alternatives before effectively seeking to ban a listed HAP, and the EPA seems only to have begun the process of reviewing such alternatives.

The commenter strongly believes that the available scientific evidence does not support the extreme nature of the proposed depainting provisions, which amount to a virtual ban on methylene chloride use. According to the commenter, methylene chloride is listed as an HAP solely by virtue of its carcinogenic potential. The commenter pointed out that the full body of the epidemiological and toxicological data on methylene chloride makes a compelling case that methylene chloride is unlikely to pose a cancer risk to humans at current exposure limits in industry, including stripping of aircraft, a use sector that was discussed at length at the OSHA hearings and rulemaking.

Commenter IV-D-5 claimed that methylene chloride is listed as a HAP only because it is considered a suspect carcinogen. However, the aircraft refurbishing industry has consistently opposed the classification of methylene chloride as a carcinogen due to a perfect health record with the use of this chemical.

The commenter felt that studies funded by the refurbishing industry to be published in late 1994 would demonstrate that methylene chloride should not be listed as a suspect carcinogen and a HAP. The commenter believed that this study would alter the proposed NESHAP standard by allowing the continued use of methylene chloride paint removers.

Response: There is an existing procedure, as required under section 112, for petitioning that a chemical be removed from the section 112 list. The EPA has not banned or regulated the use of any individual chemical under this NESHAP. The EPA is mandated to regulate the emissions resulting from the use of HAPs. Additionally, the EPA has revised the standard to allow the use of HAP-containing chemical strippers in conjunction with control equipment.

Comment: Commenter IV-D-38 remarked that the proposal to prohibit HAP strippers effectively eliminates any possibility for

implementing control techniques that could allow continued use of these formulations, even though such techniques exist. The commenter believes that this would be contrary to the intent of the 1990 revisions to section 112 of the Act.

The commenter recommended that the EPA revise its proposal to ensure both commercial and military compliance while still achieving significant reductions in HAP emissions from depainting operations. The commenter believes that both objectives can be achieved by establishing separate commercial, military thin-skinned (bomber and transport), and military thick-skinned (fighter, etc.) emission rates for HAP strippers based on the best performing five or more (i.e., 12 percent) sources in each category. The commenter suggested that for simplicity, these rates should be expressed on an emission per square foot of aircraft surface basis and be based on an annual average.

The commenter believes that the depainting standards should be designed such that facilities would have an incentive to implement cost-effective, non-HAP stripping techniques, but could continue to use HAP strippers for some period of time if they chose to implement the necessary control measures/work practices.

Response: As stated in the previous response, the EPA has revised the standard to allow the use of HAP-containing strippers in conjunction with added control devices and work practices.

7.4.2 Non-HAP Strippers

Comment: Commenter IV-D-78 claimed that non-HAP strippers have been proven to be effective, reliable, and economical for the removal of cross-linked polymer coatings. The commenter stated that several medium to large facilities use these products routinely to strip private and corporate aircraft and that all major domestic airlines are currently using these products, either as their standard method of depainting, or as part of an ongoing evaluation program. The commenter claimed that none of the facilities have found non-HAP strippers to be ineffective on cross-linked coatings, although some have expressed a wish that they be made faster-acting.

Commenter IV-D-5 believes that non-HAP strippers are not effective in removing modern, highly durable coatings. The commenter suggested that if the demand for non-HAP strippers increases, the result will be the use of less durable coatings that can be removed by less active removers and provide less protection to the aircraft, thus decreasing its structural integrity and creating a risk to the public. Commenter IV-D-47 stated that non-HAP strippers may be effective on some coatings, but simply cannot remove certain coatings and paints. Commenter IV-D-45 pointed out that the effectiveness of non-HAP strippers is very sensitive to the paint system used, as well as the number of layers of coating to be stripped.

Two commenters (IV-D-45, IV-D-47) claimed that most non-HAP strippers also require a longer time for application, and have a slower stripping rate. Commenter IV-D-47 also claimed that some acidic strippers have a high potential for increasing corrosion and fatigue of steel components. The commenter believes that further testing is necessary before most non-HAP strippers can be considered a proven technology that is effective for depainting operations.

Commenter IV-D-38 pointed out that available information indicates that there currently exist three basic formulations of non-HAP stripper products: formic acid-based, ammonia-based, and benzyl alcohol-based. The commenter claimed that, in addition to concerns raised over the performance of these types of products, information submitted to the EPA suggested that problems exist with each of these formulations.

The commenter suggested that formic acid-based formulations present significant concerns of hydrogen embrittlement of high-strength steel parts (e.g., fasteners, hinge pins, and landing gear), which can reduce aircraft fatigue life on these components. The commenter claimed that because of the potential for embrittlement of steel components, acid-based formulations cannot be used on military aircraft. Further, the commenter stated that data submitted by one major commercial airline

suggested that these products are only effective on single-coat paint systems, and are quite temperature-sensitive.

The commenter stated that ammonia-based formulations do not appear to be effective on urethane paint systems commonly for both commercial and military applications.

The commenter stated that non-HAP stripper formulations based on benzyl alcohol appear to be limited to aircraft primed with a polysulfide product. The commenter also suggested that benzyl alcohol formulations do not appear to be effective on epoxy primers. For these paint systems, the formulation has been used as a softener and is followed by a high-pressure water spray to remove the coating. The commenter suggested that in these instances, adequate prevention of water entrapment and the effects on composite structures need to be addressed.

Response: Some facilities reported information which stated that they had no problems stripping with non-HAP strippers. Other facilities reported that the non-HAP strippers would only remove certain types of coatings and frequently needed additional touch-up work, whereas still others stated that non-HAP strippers can be used to strip topcoats and not damage the primed surface.

The regulation does not require that non-HAP strippers or any other particular technique be used. The regulation offers facilities many alternatives for depainting of aerospace vehicles. There are many techniques and methods available that meet the provisions in the final rule. The final rule provides the industry with a great deal of flexibility in their choice of compliance options.

Comment: Two commenters (IV-D-38, IV-D-47) stated that the EPA used information from only one commercial facility as a basis from listing non-HAP strippers as MACT. Commenter IV-D-38 suggested that the Agency's decision appears to be based on the use of a formic-acid based product in an "on-going research project" at one commercial aircraft maintenance facility.

Commenter IV-D-47 stated that a single source of information is clearly insufficient to serve as the basis for a proper evaluation of the health and environmental impacts of the use of

non-HAP strippers, and is certainly not a proper basis for a determination that non-HAP stripping should be the MACT standard.

Response: The fact that one large commercial facility routinely uses a technology that contains no HAPs is significant. Additionally, the docket contains information on a number of facilities that have used non-HAP strippers. The EPA has selected non-HAP depainting methods as MACT because this technology provides the environment the maximum benefit. Additionally, HAP-containing chemical strippers may be used with abatement. Non-HAP chemical stripping does not require emissions control and is just one of many techniques and methods which may used under the standard.

Comment: Commenter IV-D-5 contended that the EPA's statement that "nearly all models of commercial airliners are currently being stripped with one or more of these non-HAP methods" is false and not representative of the industry. The commenter claimed that if this was a factual study, methylene chloride depainting as performed by the industry would have been used as the "floor," and the data collected are not sufficient to set standards.

Response: The commenter is correct in stating that many facilities use methylene chloride strippers to depaint aircraft. However, the docket contains information to support the EPA's position that non-HAP depainting methods have been used at many facilities to strip commercial aircraft and constitutes the MACT floor level of HAP control.

7.5 OTHER STRIPPING TECHNOLOGIES

Comment: Commenter IV-D-35 stated that the development of non-HAP depainting processes within the aerospace industry has evolved within the framework of three major technologies which include abrasive blasting, high pressure water stripping, and high energy light stripping. The commenter pointed out that these technologies require significant capital expenditures for both equipment and facility interfaces. The commenter also pointed out that all of these techniques are heavily process equipment dependent, and in most cases, the use of robotics and

other high-tech equipment/components are employed. According to the commenter, while these technologies insure successful non-HAP aircraft paint removal, they are more susceptible to equipment breakage and require a high frequency of scheduled maintenance downtime.

Commenter IV-D-35 noted that one of the most technically complex non-HAP processes currently being developed for military use is the Large Aircraft Robotic Paint Stripping (LARPS) system. The commenter stated that this system will be operational at Oklahoma City Air Logistics Center in April 1995, and employs a robot which uses high pressure water blasting to depaint large military aircraft. The commenter pointed out that LARPS will have a minimum system availability of 85 percent and will require a 2-week annual downtime for scheduled equipment maintenance.

Response: The EPA encourages the industry to continue with development of alternative non-HAP technologies.

Comment: Two commenters (IV-D-29, IV-D-35) believe that the depainting definitions (§63.742) and depainting operations standards (§63.746) in the proposed rule do not clearly address mechanical sanding operations.

Commenter IV-D-35 pointed out that in some cases mechanical sanding is used for bulk removal of paint. The commenter stated that this is especially true for sensitive substrates which can not tolerate currently developed chemical and non-chemical stripping methods. The commenter also noted that the proposed MACT for this type activity is a hangar with inorganic emission controls. The commenter claimed that this is an inappropriate MACT. According to the commenter, the emissions from bulk removal of paint using mechanical sanding can be more effectively controlled by using filtered vacuum sanders such as NILFISK Model GB 933/GB 1033 with HEPA Exhaust Filter #215337. Since mechanical sanding emissions can be equally contained (if not better contained) from vacuum assisted sanders at a significantly lower cost, the commenter, therefore, recommended that EPA evaluate this technology for a mechanical sanding MACT, when

mechanical sanding is used for bulk removal of paint. The commenter stated that, for all other mechanical sanding operations, the emissions are negligible and should not be controlled.

According to commenter IV-D-35, it is difficult to determine if mechanical sanding is a regulated operation under the proposed rule. The commenter claimed that the MACT floor established for controlling depainting related inorganic HAP emissions is inappropriate for mechanical sanding.

The commenter noted that, when the primers and topcoats contain inorganic HAP, the mechanical sanding operation leads to small emissions of inorganic HAP. The commenter was concerned that the proposed aerospace NESHAP standard as written would inappropriately require the modification of thousands of buildings into depaint hangars, as specified in proposed §63.746(d), in order to accomplish mechanical sanding.

The commenter maintained that the descriptions of depainting operations used in the model plants and in the subsequent section 114 data requests do not provide sufficient information to establish a MACT floor for mechanical sanding. Therefore, the commenter claimed that an appropriate MACT standard still needs to be established for mechanical sanding, if it is included as a regulated depaint activity.

The commenter also claimed that the requirements for controlling inorganic HAP emissions from depainting operations, specified in proposed §63.746(d), do not constitute a reasonable control technology for mechanical sanding. In particular, the commenter recommended that non-powered sanding, by hand or with a pole attachment for extending reach, should not be regulated.

The commenter, therefore, recommended the inclusion of the following definition for "mechanical sanding" in §63.742:

> "<u>Mechanical sanding</u> means aircraft surface conditioning to include the use of directional and random orbital tools and aluminum oxide or nylon abrasive pads for the purpose of corrosion rework, substrate repair, prepaint surface preparation, or other maintenance activities."

Commenter IV-D-35 also recommended the following change to §63.746(d) to include the proposed exemption:

"Inorganic HAP emissions. Except as provided in paragraph (d)(5) of this section, each owner or operator of a new or existing depainting operation subject to this subpart that generates airborne particulate emissions that contain inorganic HAP shall comply with the requirements specified in paragraphs (d)(1) through (d)(4) of this section."

Add paragraph (d)(5) to read as follows:

§63.746(d)(5) Depainting methods in which particulate control is built into the stripping apparatus at the emission source is exempt from paragraphs (d)(1) through (d)(4) of this section. Depainting methods other than dry media blasting are exempt from paragraphs (d)(2) through (d)(4) of this section.

Commenter IV-D-29 recommended adding a paragraph to §63.746(e) as follows:

"(5) Mechanical sanding is excluded from these requirements of this section when used in preparation for paint touchup and repair or where an aerospace vehicle or component due to its size or other operational considerations, cannot be transported to and/or handled in a booth hanger."

Response: Mechanical sanding has always been an appropriate mechanism for depainting. The EPA believes that the airborne particulate emissions from mechanical sanding are minimal. The final rule states that particulate air emissions from mechanical sanding do not have to be controlled by particulate filter systems.

7.6 MACT Floor

7.6.1 General Comments

Comment: Commenter IV-D-5 stated that if the overall objective of the rule is the achievement of the maximum degree of emission reduction without unreasonable economic or other impacts, then the proposal should not limit methods of compliance to a particular method of depainting.

Response: Facilities are free to use many methods and techniques to comply with the depainting standard.

Comment: Commenter IV-D-38 noted that section 112(d) of the Act provides that the EPA shall develop emission standards for categories of major sources of hazardous air pollutants that require the application of MACT, "taking into consideration the cost of achieving such emission reduction and any non-air...health and environmental impacts and energy requirements." The commenter also noted that in establishing MACT, Congress instructed the Agency to consider the best performing 12 percent of the existing sources, or the best performing 5 sources in categories with fewer than 30 sources. Further, the commenter pointed out that section 112(d) authorizes the EPA to "distinguish among classes, types, and sizes of sources" within a category. The commenter concluded that it is clear, therefore, that Congress intended that MACT standards be based on technology applied on a production basis at a significant number of existing sources.

The commenter claimed that in developing its proposed standard for aerospace depainting operations, the EPA has failed to adequately address the following issues:

- the level of HAP control at existing rework facilities for major commercial airlines;
- the applicability of the standard to rework facilities for regional airlines and private aircraft;
- the potential adverse economic impacts on commercial and military facilities; and
- the need to distinguish between the types of military aircraft that require depainting.

According to the commenter, the shortcomings of the EPA's analysis and the Agency's determination that a prohibition of HAP strippers is achievable is flawed and inconsistent with the requirements of section 112(d).

Two commenters (IV-D-5, IV-D-47) believe that the data in the record supports the continued use of organic HAP strippers. To control HAP emissions, commenter IV-D-47 recommended using an

annualized average of methylene chloride stripper per square foot of aircraft as MACT for depainting operations, in addition to the non-HAP stripper and media blasting technologies included in the proposed MACT standard.

Response: The EPA has adopted a provision in the standard which allows facilities to utilize HAP-containing strippers in conjunction with control devices. Section 112 requires that the EPA determine the MACT floor based on the average emissions of the best performing 12 percent for which the EPA has information. The EPA made many solicitations to the industry for information and made decisions based on the information known to the Agency.

7.6.2 Reduced Paint Scheme

Comment: Commenter IV-D-38 stated that several airlines and the Air Transport Association have submitted information to the EPA indicating that a reduced paint scheme is not a viable compliance option for the Agency's proposed depainting provisions for companies that currently paint their planes. According to the commenter, the data submitted by these organizations indicated that a reduced paint scheme would require some aircraft operators to replace the Alclad surface on aircraft exteriors that provide part of the corrosion protection system.

The commenter noted that polishing is an alternative method of corrosion protection for unpainted aluminum surfaces employed by two of the commercial airlines. The commenter suggested that both methods, painting and polishing, appear to perform satisfactorily if properly applied and maintained. However, the commenter claimed that switching from a painted to a polished surface presents a significant safety concern.

The commenter also claimed that repeated cycles of depainting and repainting continually erode the Alclad layer such that reliance upon protective qualities of the paint itself is increased. The commenter believes that if painting were ceased, other protective measures would have to be introduced, such as reapplication of Alclad, which is cost-prohibitive. The commenter also claimed that established company logos would

likely be abandoned with a likely loss of marketing value on the order of tens of millions of dollars.

The commenter acknowledged that some controversy exists in the record on the merits of paint versus polishing of aircraft surfaces for corrosion protection. The commenter stated that, while they are not in a position to question the merits of either argument, they believe that sufficient data exist to support the concern expressed by several commercial airline representatives about switching from a painted to a polished aircraft. Therefore, the commenter concluded, while a reduced paint scheme may be viewed as MACT for new aircraft, it should not be viewed as a viable option for existing painted aircraft.

Response: A reduced paint scheme was discussed between the Agency and the industry prior to proposal. The Agency did not include a reduced paint scheme in the proposed or final rule as a means of compliance for the depainting standard. However, the EPA encourages facilities to consider implementing a reduced paint scheme for new aircraft in order to reduce the total VOC and HAP emissions from the industry.

7.6.3 Depainting of Private, Corporate, and Small Aircraft

Comment: Commenter IV-D-5 believes that the section 114 questionnaires were selectively distributed since no one within the private aircraft depainting industry received one. The commenter stated that the depainting and refurbishing industry, through the National Air Transport Association (NATA), submitted a list of 391 facilities and it appears that none of these facilities was sent a questionnaire. The commenter concluded that the EPA's sample of 20 from an industry of 2,800 is not sufficient to draw valid conclusions.

Commenter IV-D-86 stated that the record contains little or no information on the application of media blasting, non-HAP chemical strippers, or polishing techniques on general aviation facilities. The commenter believes that the EPA has not collected sufficient data to support imposing the depainting provisions on non-major sources.

Five commenters (IV-D-5, IV-D-13, IV-D-78, IV-D-83, IV-D-86) stated that small aircraft are very thin skinned and cannot be depainted using media blasting.

Commenter IV-D-13 stated that elimination of chemical stripping would halt the repainting of business aircraft. The commenter claimed that general aviation manufacturers (Cessna, Beechcraft, British Aerospace, Falcon, Jet, Gulfstream, Israeli Aircraft Industries International, Learjet, Raytheon Corporate Jets, and Piper Aircraft) do not allow or severely limit the use of media blasting as an approved stripping method. The commenter pointed out that all general aviation manufacturers recommend chemical stripping as the preferred method for removing paint from this class of aircraft.

According to the commenter, the extremely lightweight skins used in this class of aircraft can be rendered non-airworthy by media blasting and some manufacturers are now issuing warnings about this. The commenter concluded by stating that the use of media blasting would countermand FAA operating requirements which require general aviation service facilities to follow manufacturer's recommendations.

Commenter IV-D-5 also stated that the cost of media blasting equipment is beyond affordability for many small facilities.

Commenter IV-D-86 stated that any suggestion that facilities maintaining general aviation can use blasting techniques is inconsistent with the EPA's own economic analysis.

Commenter IV-D-78 stated that small aircraft can readily and safely be depainted using non-HAP chemical strippers. Commenter IV-D-78 stated that they supply non-HAP chemical stripping compounds to a large number of users who routinely use these products to depaint private, corporate and small commuter aircraft. The commenter claims that there is no basic technological difference in the stripping operation between commercial and private aircraft. According to the commenter, the same types of paint are routinely used over the same types of substrates. Commenter IV-D-78 stated that the following manufacturers of private or corporate aircraft have approved non-

HAP strippers for use on their aircraft: Beechcraft, Cessna, and Grumman.

Commenter IV-D-83 stated that coatings which have a cross-linked polymer structure cannot be stripped using non-HAP strippers or media blast technology.

The commenter stated that they use cross-linked polymer coatings for durability and corrosion resistance, not for appearance. The commenter stated that their experience indicates that cross-linked coatings are not stripped as easily as other coatings. The commenter stated that many thin skinned aircraft are still stripped with HAP-containing materials to prevent damage to the exterior skins.

Several commenters provided responses to the use of emission control systems for HAP-containing stripper use at small facilities.

Commenter IV-D-86 believes that sources engaged in maintenance of private, corporate, and small commuter aircraft should have the alternative of implementing simple work practices and engineering requirements to reduce the emissions from HAP-containing strippers. The commenter stated that Delta Air Lines reduced emissions by 35 percent by implementing simple work practices. The commenter is very concerned about the ability of small facilities to install carbon adsorption and emission control equipment.

Commenter IV-D-76 stated that since the statute requires maximum achievable emission reductions, substituting 99 percent efficient control devices for HAP emissions from HAP-containing chemical stripping is only permissible where zero emission approaches cannot be instituted. This commenter also stated that they hope that the EPA differentiates between current cosmetic practices and the needs for proper safety in maintenance in evaluating the appropriateness of mandating zero emissions approaches to depainting small aircraft. According to the commenter, safety issues could justify a less stringent control. The commenter also stated that zero emissions are justified under section 112(d) if a change in the coating is for appearance only.

Commenter IV-D-83 believes that the EPA should extend any exemption or waiver it may grant to private, corporate, and commuter aircraft to military aircraft as well.

Response: The docket contains summaries of information obtained from site visits that were made to private aircraft depainting industry operations. The final rule's provisions allow facilities to use the techniques and methods that are currently being used throughout all aspects of the industry. The final rule does implement abatement for facilities which use HAP-containing chemical strippers as the primary technique for depainting. Any non-HAP depainting method or technique is acceptable under the standard.

The docket includes information which indicates that dry media blasting is used by some of the general aviation manufacturers cited by the commenters. Additionally, it is the EPA's understanding that the FAA does not require general aviation to follow manufacturer's recommendations. The EPA also understands that many facilities choose to follow the manufacturer's recommendations in order to retain the warranty on the aircraft. The information collected by the Agency indicated that many facilities used methylene chloride strippers because they perform the stripping at a faster rate than some of the other methods of depainting. Additionally, the EPA has exempted non-major sources from the NESHAP which should eliminate small businesses from coverage under the NESHAP. The EPA will issue a Aerospace CTG to address VOC emissions from non-major sources.

7.7 ORGANIC HAP EMISSIONS

7.7.1 General Comments

Comment: Two commenters (IV-D-29, IV-D-35) stated that many depaint technologies emit small quantities of organic HAP. The commenters noted that pulsed light technologies such as laser, flashlamp, and pinch-lamp, as well as abrasive methods have the potential of emitting organic HAP due to chemical reactions in the volatilized paint. Commenter IV-D-35 suggested that the intent of the EPA would be better achieved by disallowing materials which contain organic HAP based on an MSDS. The

commenter recommended that users be allowed to rely upon the organic HAP content listed on the MSDS to determine compliance with the rule.

Commenter IV-D-29 claimed that in all of their pre-proposed rule discussions with the EPA, the Agency had asserted that depainting should not result in any organic HAP emissions from the chemical stripper. The commenter pointed out that the proposed rule incorporated a prohibition on all organic HAP emissions from the depainting operation. The commenter claimed that this change is not acceptable because it makes literal compliance impossible.

The commenter recommended the following revision of §63.746(b), which they believe restores the original intent to regulate the HAP content of the stripping media. Thus, §63.746(b)(1) should be revised as follows:

> "§63.746(b)(1) Organic HAP emissions. Except as provided in paragraph (b)(3) of this section, each owner or operator of a new or existing aerospace depainting operation subject to this subpart shall ~~emit no~~ not use chemical strippers that contain any organic HAP reported as exceeding the OSHA de minimis threshold concentration as defined by 29 CFR §1910.1200. ~~from the depainting operation.~~"

Commenter IV-D-35 recommended that §63.746(b)(1) be revised to read as follows:

> "Organic HAP emissions. Except as provided in paragraph (b)(3) of this section, each owner or operator of a new or existing aerospace depainting operation subject to this subpart shall not apply depaint materials which contain organic HAP as identified in the MSDS."

Response: The docket contains information that the abrasive technologies noted by the commenter are usually accompanied by an emissions capture device attached at the point of coating removal and that the organic HAP emissions are very small. Therefore, the final rule does not regulate these emission sources.

7.7.2 Emissions Control

Comment: Nine commenters (IV-D-5, IV-D-27, IV-D-42, IV-D-47, IV-D-77, IV-D-80, IV-D-81, IV-D-84, IV-D-86) recommended that HAP-containing chemical stripper usage be retained in the final rule and that the rule specify an emissions limit when emissions capture and removal systems are used.

Commenter IV-D-38 stated that control of organic HAP emissions from depainting operations currently is not performed at either commercial or military facilities, and is likely to be prohibitively expensive. Nevertheless, the commenter pointed out, the record contains a description of one project in which emissions of methylene chloride from the depainting operation and VOC emissions from a coating operation will be controlled by a UV/ozone system with combined scrubber and carbon adsorbers.

The commenter also pointed out that data were submitted by Delta Air Lines which indicate that significant emission reductions can be achieved through relatively simple engineering and work practices. The commenter stated that Delta reported a 35 percent reduction in fugitive emissions through the use of waste-stripper troughs. The commenter stated that the troughs are placed around the aircraft and plastic is draped from the aircraft to one side of the trough. The troughs collect the waste stripper which is pumped directly into waste drums. Moreover, the commenter noted that the design of the maintenance facility allows full access to the aircraft, thereby reducing stripping times significantly. As a result of these measures, the commenter noted, Delta reported an average emission rate of 0.05 lb of methylene chloride or less per square foot of aircraft surface. The commenter stated that Delta's emission rate is one half or less of that reported by Robins AFB, which the commenter believes reflects a more efficient depainting operation and stripper formulations.

The commenter suggested that, rather than specifying a control level, the EPA may wish to consider HAP control requirements from depainting operations based on (1) equipment

(i.e., carbon adsorption) and work practices, or (2) an emission/loss rate derived from the available data.

Commenter IV-D-81 stated that the option of installing a control device in depainting operations is essential for everyone in the aerospace industry. The commenter stated that the EPA said from the onset on the NESHAP negotiations that if compliant coatings and solvents were used by a company, control devices would always be an option of control. The commenter stated that the EPA stipulated that a 81 percent control efficiency (90 percent capture, 90 percent destruction) would be required as a minimum for any instance requiring a control device.

Five commenters (IV-D-80, IV-D-81, IV-D-83, IV-D-84, IV-D-86) supported the 81 percent control efficiency requirement.

Commenter IV-D-84 stated that an 81 percent total capture and control efficiency appears to be an achievable level of control of HAP emissions from depainting operations, according to information from the U.S. Navy and the aerospace industry.

Commenter IV-D-78 stated that the use of control devices to control emissions from HAP-containing chemical strippers is generally regarded as impractical with current technology. The commenter suggested that this is because all HAP-containing chemical strippers are based on methylene chloride as the principal solvent. According to the commenter, methylene chloride, due to its small size and high volatility, is poorly absorbed by activated carbon, and has a very short breakthrough time. The commenter claimed that the low adsorption efficiency makes it very difficult to concentrate methylene chloride vapors sufficiently to destroy the methylene chloride, either by incineration or other technology.

Commenter IV-D-77 stated that carbon adsorption in combination with catalytic oxidation (incineration) as a control option for HAP emissions from depainting operations can be designed to easily achieve a 99 percent plus reduction in low concentration streams. In particular, the commenter stated that systems are currently employed to treat streams from 35,000 scfm to in excess of 350,000 scfm, reflecting that the technology can

be used as an effective control strategy for depainting operations for large commercial and military aircraft as well as smaller aircraft.

Based on technological concerns, some commenters (IV-D-80, IV-D-84, IV-D-86) do not believe that a MACT standard requiring a carbon adsorber/catalytic incinerator combination with 99 percent control efficiency can be considered "achievable" under section 112(d)(2). Commenter IV-D-86 pointed out that information submitted to the EPA from Tyndall AFB indicated that even a 95 percent control efficiency of solvent depainting emissions could not be attained on a long-term basis in practical applications.

Two commenters (IV-D-81, IV-D-86) believe that a 99 percent removal efficiency is not economically feasible.

One commenter (IV-D-35, IV-D-83) suggested that organic HAP should be allowed if controlled with at least an 81 percent control efficiency and emissions are not more than an equivalent of 50 gallons of stripper per aircraft.

Three commenters (IV-D-29, IV-D-35, IV-D-81) believe that if the EPA would allow control devices and require that facilities stay within the level of emissions that would result from the use of the 26 and 50 gallon spot-stripping exemption, then the industry would be provided with a workable option.

Two commenters (IV-D-35, IV-D-29) recommended that the following be added to §63.746(d):

> "<u>Control of organic HAP strippers. Each owner or operator of a new or existing depainting operation shall have an option to use organic HAP stripper if the control device maintains a minimum of 81% organic HAP control efficiency and does not emit more than an equivalent of 50 gallons of organic HAP stripper per aircraft.</u>"

<u>Response</u>: The EPA has adopted the commenter's recommendations and included a provision in the standard which allows the use of HAP-containing chemical strippers used in conjunction with an emission control system. Facilities which choose to use HAP-containing chemical strippers will be required to conduct their operations in enclosed areas. Additionally, for

existing control systems, organic HAP emissions must be captured and controlled at an overall system efficiency of 81 percent. For new control systems, emissions must be controlled at 95 percent.

Only facilities using non-HAP depainting methods or techniques may use the 26-gallon or 50-gallon spot stripping and decal removal exemption.

Comment: Commenter IV-D-5 stated that the use of the term "no" in proposed §63.746(b)(1) exemplifies the inadequate use of the scientific process for this proposal in determining the facts. The commenter asked whether "no" means "zero," or is it less than current detectable limits or any future detectable limits? The commenter pointed out that the use of 1 percent could mean "no" in a particular situation.

Another commenter IV-D-42 believes that compliance with §63.746(b)(1) will depend on measurement instrument sensitivity and may be influenced by trace contaminants in depainting materials.

A third commenter IV-D-30 suggested that, since analytical methods are rarely absolute, the EPA should consider imposing a minimum detection limit for compliance with this requirement.

Commenter IV-D-31 expressed support for the zero emissions standard for depainting operations. The commenter stated that the EPA is correct in recognizing that the wide variety of available techniques with zero emissions make a zero emissions standard achievable in this area.

Response: The HAP content of chemical strippers shall be determined from manufacturer's formulation data (i.e., MSDS).

7.7.3 Emissions during periods of equipment malfunction

Comment: Commenter IV-D-31 recommended that the EPA limit sources to 15 days annually of HAP compound depainting in the event of an equipment failure. Generally, the commenter believes that if the depainting system fails, the source should replace the system or use non-HAP chemicals, rather than go back to HAP-containing stripper. The commenter claimed that most malfunctions should be repairable (or the system replaceable)

within a day. According to the commenter, allowing too much time removes the incentive to repair the system as quickly as possible. The commenter stated that allowing a 15-day maximum period only seems reasonable if using the entire period puts the operator in some danger of having to slow down operations if the problem occurs again without a backup. The commenter believes manufacturers should have non-chemical backups if they anticipate repeated problems.

A second commenter (IV-D-11) stated that, for periods of non-chemical based depainting equipment malfunction, replacement parts can usually be obtained and installed within 5 working days. The commenter believes that most facilities stock spare parts and that the 45 days allowed annually for equipment failure could be reduced by adding a requirement that specifies that a sufficient number of parts be kept on site. The commenter concluded by stating that the annual limit of 45 days would allow about nine periods of malfunction of nonchemical-based depainting equipment and is enough time allowance to facilitate estimated repairs as well as any incidental repairs.

Commenter IV-D-35 believes that a 14-day period is justifiable and realistic. Additionally, the commenter recommended that 14-day periods include downtime for extended scheduled equipment maintenance. The commenter pointed out that the Air Force currently uses HAP-containing stripper over a 13 flow (work) day period to depaint E-3 aircraft. The commenter stated that this period is consistent with the time required to chemically depaint other large military aircraft using HAP-containing strippers.

Commenter IV-D-35 also stated that the limitation on substitute materials is unclear and leads to technical problems associated with engineering qualification of substitute materials. The materials available, either on-site or in the marketplace, which minimize organic HAP emissions, may not be appropriate (qualified) for aircraft application. According to the commenter, if the limitation on substitute materials is not

removed, then the EPA needs to clarify "available" to mean "qualified materials which are available on-site."

Commenter IV-D-35 suggested that due to the complexity of the Large Aircraft Robotic Paint Stripping (LARPS) system being implemented at the Oklahoma City Air Logistics Center in April 1995, the LARPS system should serve as the baseline for the annual number of days that a HAP-containing stripper may be used when equipment is not functional. The commenter stated that the total number of days allowable for HAP-containing stripper use due to equipment malfunction and scheduled equipment maintenance should be calculated as follows:

Annual Limit Days = (365 work days/year x (1-0.85)) +
14 maintenance days = 68.75 days.

Response: The EPA has not stated in the rule that HAP-containing chemical strippers may be used during periods of equipment malfunction and maintenance. The rule states in §63.746(b)(2), "...During periods of malfunctions of such equipment, each owner or operator may use substitute materials during the repair period provided the substitute materials used are those available that minimize organic HAP emissions." This statement should not be construed by the industry to mean that each facility may use HAP-containing chemical strippers without any abatement or without work practices designed to minimize the emissions from this type of stripper. The intention in the rule was not to limit facilities to a particular method or technique of depainting during periods of equipment malfunction. The EPA is providing facilities with the flexibility to determine what constitutes the phrase "minimize organic HAP emission." Additionally, since the EPA has adopted a provision which allows a facility to use HAP-containing chemical strippers, the number of days that a facility may use organic HAP-containing strippers without complying with the emission limits in the standard has been revised to 15 days annually. Also, a facility may always use any non-HAP technique or method during periods of equipment malfunction without any restriction on the number of days that these techniques may be used.

7.8 INORGANIC HAP EMISSIONS

Comment: Commenter IV-D-29 recommended the following revision for §63.746(b)(2):

> "§63.746(b)(2) Where non-chemical based depainting equipment is used to comply with paragraph (b)(1) of this section, either in total or in part, each owner or operator shall operate and maintain the equipment according to the manufacturer's ~~instructions~~ specification or local specified operating procedures. During periods of malfunctions of such equipment, each owner or operator may use substitute materials or methods during the repair period provided the substitute materials used are those available that minimize organic HAP emissions. In no event shall substitute materials be used for longer than 14 consecutive days, unless such materials are organic HAP-free."

Commenter IV-D-35 recommended that §63.746(b)(2) be revised to read as follows:

> "Where non-chemical based equipment is used to comply with paragraph (b)(1) of this section, either in total or in part, each owner or operator shall operate and maintain the equipment according to manufacturer's specification or locally specified operating procedures. During periods of malfunctions of such equipment, each owner or operator may use substitute materials during the repair period. Each owner or operator shall minimize organic HAP emissions from the substitute materials or methods during the repair or maintenance period. In no event shall substitute materials be used for longer than 14 days, unless such materials are organic HAP-free."

The commenter stated that in many cases existing or new equipment has inadequate or incomplete operating instructions which require additional instructions to ensure proper operations, safety, and compliance with environmental laws. The commenter noted that the rule provides for an allowance of 50 gallons of HAP stripper for spot stripping and decal removal per aircraft per facility. The commenter claimed that the facility

must be allowed to utilize this exemption during any periods when non-chemical based equipment malfunctions, without the limitations proposed by the EPA.

A second commenter IV-D-5 stated that requiring non-chemical-based depainting equipment to be operated and maintained according to manufacturer's specifications is not an adequate control since the manufacturer's specifications may not be adequate and because everyone does not operate in a responsible manner. The commenter was concerned that large amounts of inorganic HAP could be introduced into the environment.

Response: The EPA's experience is that requiring equipment to be operated according to the manufacturer's specifications is sufficient control on the operation and maintenance of many types of equipment that do not have universally accepted operational standards. The EPA recognizes that locally specified operating instructions may provide an opportunity for facilities to maximize the performance of their equipment based on their own particular operating environment. The EPA does not anticipate any enforcement problems associated with this requirement. Additionally, a new provision has been added to the rule which requires a facility to report the operational procedures that are followed when a facility varies from the procedures specified by the equipment manufacturer.

Comment: Commenter IV-D-29 believes that the intent of the rule was never to regulate trace amounts of inorganic HAP from depainting operations, which the commenter stated is consistent with industry data collected on depainting operations. According to the commenter, the airborne inorganic HAP to be controlled are those omitted from the removal of paint which is reported to contain inorganic HAP at levels exceeding the OSHA de minimis threshold concentration, as defined by 29 CFR §1910.1200.

The commenter, therefore, recommended the following revisions to §63.746(d):

"(d) Inorganic HAP emissions. Each owner or operator of a new or existing depainting operation subject to this subpart

that involve the depainting of coatings containing inorganic HAP reported as exceeding the OSHA de minimis threshold concentration as defined by 29 CFR §1910.1200, and that generates airborne particulate emissions from the coating being removed that contain inorganic HAP shall comply with the requirements specified in paragraphs (d)(1) through (d)(4) of this section."

Response: The EPA believes that adopting the commenter's recommendation would require facilities to do additional testing to determine the concentration and content of the inorganic HAP. Therefore, the EPA has not incorporated the commenter's recommendation into the final rule. Furthermore, final rule will control particulate emissions through workplace standards instead of specifying control efficiencies or establishing de minimis concentration exemptions.

Comment: Commenter IV-D-5 stated that it is significant that the solid waste generated by a methylene chloride remover will in most cases be less than the solid waste generated by dry blasting techniques. According to the commenter, an air filter system would not be necessary when stripping with the methylene chloride remover because the inorganic HAP probably would not become airborne.

Response: The commenter is correct in stating that the solid waste generated by methylene chloride remover is less than the solid waste generated by media blasting. However, the quantity of solid waste generated is not an indicator of the quantity of HAPs emitted from the process. In many cases, a large percentage of the used media can be recycled through the process.

7.9 PARTICULATE CONTROL

7.9.1 99 Percent Control Efficiency

Comment: Three commenters (IV-D-29, IV-D-35, IV-D-37) stated that the 99 percent control efficiency proposed for inorganic emissions is not an achievable limit. Two commenters (IV-D-29, IV-D-37) questioned the legal sufficiency of proposed §63.746(d)(2), a 99 percent inorganic HAP filtration efficiency

for media blasting depainting operations. The commenters noted that section 112(d)(3)(B) of the amended Act requires that if a subcategory contains fewer than 30 sources, the MACT floor should be determined based on the average level of control achieved by the best controlled 5 sources.

According to commenter IV-D-29, if the sole source that constitutes the MACT floor in this case is within its own separate subcategory (e.g., if that facility uses blast depainting on relatively small assemblies), it is not appropriate to extend the same control efficiency claim to a hanger-sized depainting operation.

Three commenters (IV-D-5, IV-D-29, IV-D-37) pointed out that the Agency adopted, as the MACT standard, the filter efficiency reported by the top-performing single facility out of seven sources that provided information regarding media blast depainting. Commenter IV-D-37 remarked that no differentiation appears to have been made by EPA of the type and amount of mechanical depainting technology employed by these seven sources.

Five commenters (IV-D-5, IV-D-29, IV-D-35, IV-D-37, IV-F-1) pointed out that the control efficiencies reported on the section 114 questionnaire responses were based on manufacturers' data and not source testing.

Commenter (IV-F-1) stated that the manufacturers did not use an ASHRAE test to substantiate the control efficiencies reported on the section 114 responses. According to the commenter, when the manufacturers did use an ASHRAE testing method, the particle size distribution was not constant, and the manufacturers did not match particle size distribution to the claimed removal efficiency. Commenter IV-D-37 believes that the filter manufacturer efficiency claims are based on ability to capture particulates of a certain size at controlled air flow rates.

Commenter IV-D-29 stated that, while the rule requires 99 percent overall control of all emissions from depainting (overall control efficiency), the data submitted to the EPA and upon which this requirement was based only reflected control of those emissions that were actually captured (removal efficiency). Two

commenters (IV-D-29, IV-D-52) stated that overall control efficiency can only be determined when "capture efficiency," as well as removal efficiency, is accounted for. According to commenter IV-D-35, the only emission testing conducted on a PMB process using Method 5 was conducted on August 10-12, 1994, by CH2M Hill at McClellan AFB, CA. The commenter provided a summary of the testing process and the results which indicated control efficiencies ranging from 74 to 93 percent. According to the commenter, without process testing to establish both particle size distribution and the concentration distribution of inorganic HAP, there is no way to know if a 84 percent efficient particulate control system would provide significantly less reduction in inorganic HAP than a system with 99 percent efficiency.

Two of the commenters (IV-D-23, IV-D-33) stated that collection of samples upstream of controls for the Method 5 determination may be difficult or impossible in many cases.

Three other commenters (IV-D-11, IV-D-27, IV-D-29) also expressed concerns over the fact that particulate size specifications were not listed.

Commenter IV-D-27 recommended either clarification regarding particle size in relation to the control efficiency (because an efficiency rating cannot be placed on a baghouse or dry filter without referencing a particle size) or a rewording of the text.

Commenter IV-D-29 believes that the particulate size varies, depending upon the mechanical depainting technology being used. The commenter maintained that in order to set a numerical MACT floor, the EPA must obtain results of actual filtering operations and set the control efficiency based upon the applicable particulate profile (depainting technology) being used.

Commenter IV-D-11 believes that a performance standard based upon outlet grain loading is more appropriate than using a control efficiency standard. The commenter proposed that an outlet grain loading of 0.01 grain per standard cubic foot (gr/scf) should be the standard. According to the commenter,

this would allow for a wide variety of abrasive blast media to be used while minimizing HAP and non-HAP emissions. The commenter supports the 99 percent control efficiency standard and noted that particulate control equipment vendors have routinely submitted laboratory and field test results verifying the level of control required.

Commenter IV-D-31 recommended that the final rule require high efficiency particulate filters when inorganics are present and that, at a minimum, a 99 percent reduction in PM_{10} be required, rather than a 99 percent reduction of particulate in general.

Two commenters (IV-D-5, IV-D-32) believe that a distinction must be made between (1) the total quantity and throughput of material used and (2) the particulate content of the air that actually enters the filter system. Commenter IV-D-5 was concerned that the 99 percent control requirement does not account for the concentration of emissions entering the filter, specifically hexavalent chromium emissions. Commenter IV-D-32 requested that the rule clarify that the 99 percent figure applies to the total quantity of particulate in the operation, and not just the quantity that reaches the filter.

Commenter IV-D-35 recommended that particulate filter control be applied only to dry media blasting.

Commenter IV-D-37 concluded that the Agency should adopt the same standard for depainting filters as proposed in §63.745(f) of the NESHAP for control of inorganic HAP from primer and topcoat application operations; i.e., a general description of the required control device combined with monitoring requirements.

Commenter IV-D-32 recommended that the EPA modify the requirement that air be passed through a "particulate filter" to read that it be passed through a "particulate control system."

Commenter IV-D-27 recommended that §63.746(d)(2) be revised as follows:

"Pass any air stream removed from the ~~hangar~~ <u>enclosed area</u> through a particulate filter ~~with a particulate control~~

~~efficiency of at least 99 percent~~ before exhausting to the atmosphere."

Commenter IV-D-35 recommended that §63.746(d)(2) be revised to read as follows:

"Pass any air stream removed from the hangar through a particulate filter before exhausting to the atmosphere."

Two commenters (IV-D-43, IV-D-52) recommended that the regulation offer local control districts the flexibility to propose alternate monitoring requirements from inorganic depainting regulations. Commenter IV-D-43 noted that their district has permitted a number of sources for the depainting of aircraft, commercial and military, using plastic media blasting and that these operations are conducted in an enclosed hangar with large filter banks for the capture of particulate matter. For the parametric monitoring of filter media, the commenter requires the following:

1. Installation of differential pressure gauge across the filter banks;
2. Replacement of the filter media when the pressure drop exceeds a pre-set amount;
3. Filter media at least two inches thick;
4. Recording the frequency of filter media changes; and,
5. An initial source test to determine the particulate emission rate from the exhaust stacks.

Commenter IV-D-33 recommended that alternative methods to demonstrate particulate emission reductions for depainting operations be allowed, such as:

1. equipment and filter specifications,
2. certification of manufacturer's equipment, and/or
3. setting a de minimis exhaust concentration.

Commenter IV-D-35 recommended that the EPA delete §63.750(l), revise §63.746(d) and (d)(2), and add paragraph (d)(5) as follows:

"(d) <u>Inorganic HAP emissions.</u> Except as provided in paragraph (d)(5) of this section, each owner or operator of a new or existing <u>dry media blasting</u> depainting operation

subject to this subpart that generates airborne particulate emissions that contain inorganic HAP shall comply with the requirements specified in paragraphs (d)(1) through (d)(4).

(2) Pass any air steam removed from the hangar through a particulate filter ~~with a particulate control efficiency of at least 99%~~ before exhausting to the atmosphere.

(5) Depainting methods in which particulate control is built into the stripping apparatus at the emission source is exempt from paragraphs (d)(1) through (d)(4) of this section. Depainting methods other than dry media blasting are exempt from paragraphs (d)(2) through (d)(4) of this section."

Response: The EPA proposed a 99 percent control efficiency requirement based on the top performing emission sources. The top four sources reported control efficiencies equal to or in excess of 99 percent. The fifth source reported a 95 percent efficiency based on engineering judgment. Three of the top four performing facilities reported efficiencies based on manufacturers' claims. The EPA also acknowledges that a particulate size was not stated in the proposed rule, nor was an emissions concentration limit specified.

The EPA believes that significant quantities of emissions can be controlled by allowing facilities to operate the filter system according to the manufacturer's specifications in lieu of requiring a 99 percent control efficiency. The EPA acknowledges that there are inherent difficulties associated with determining compliance, since particle size has not been correlated with specific values of control efficiency. Therefore, the EPA has deleted the 99 percent control efficiency and the Method 5 testing requirement. The final rule requires facilities to operate and maintain their particulate filter systems in accordance with work practice specifications and according to manufacturer's recommendations for dry particulate filters and waterwash booths used in conjunction with depainting operations.

Waterwash booths will be monitored by visual inspection of the water curtain and monitoring the water flow rate. If gaps

are present in the water curtain or the flow rate is outside of the parameters established by the manufacturer, the final rule requires the operator to shut down the operation immediately and take corrective action. For dry filter systems, the EPA has adopted the following:

1. Installation of a differential pressure gauge across the filter banks;
2. Replacement of the filter media when the pressure drop exceeds or falls below the manufacturer's recommendations; and,
3. continuously monitor the pressure drop across the filter.

Additionally, the EPA is currently investigating a number of options with respect to implementing compliance options for particulate filters. Test methods are being developed which will allow filter manufacturers to qualify their filters as EPA-approved. The Agency would then require affected sources to use EPA-approved filters in the control devices used to capture the particulates resulting from the depainting operations. The EPA must determine the best way to implement the provisions and will issue a supplemental proposal to the NESHAP that will solicit public comments on a provision that the Agency deems to be enforceable and guarantees the public's safety.

7.9.2 Waterwash Booths

Comment: Commenter IV-D-29 stated that they previously presented the EPA with information on waterwash booths for control of inorganic HAP emissions from painting operations. The commenter believes that this same information supports the use of waterwash booths for the control of inorganic HAP emissions from depainting operations. The commenter included the information sent to the EPA with their comments on the proposed rule.

The commenter recommended that proposed §63.746(d)(2) through (4) be revised as follows:

"(2) Pass ~~any~~ the air stream ~~removed from the hangar through a particulate filter with a control efficiency of at~~

~~least 99 percent before exhausting to the atmosphere~~ through either dry particulate filters or a waterwash system before exhausting to the atmosphere.

(3) ~~Continuously monitor the pressure drop across the particulate filter.~~ Each owner or operator using particulate filters shall daily monitor the pressure drop across the particulate filter. Each owner or operator using a waterwash system shall either (1) perform a daily visual inspection of the water path for continuity/flow characteristics, or (2) where visual inspections are not applicable, (a) monitor water flow meter readings daily, or (b) adopt the booth manufacturer's maintenance procedures.

(4) If the pressure drop, as recorded pursuant to §63.752(e)(5), is outside the limit(s) specified by the filter manufacturer, shut down the operation immediately and take corrective action. If (1) the water path fails the visual continuity/flow characteristics check, or (2) where visual inspections are not applicable, the daily flow meter requirements show an interruption in flow, or the booth manufacturer's maintenance procedures have not been performed as scheduled, the operation must be shut down immediately and take corrective action. The operation shall not be resumed until the ~~pressure drop is returned to the limit(s) specified by the manufacturer~~ non-conformance is corrected."

Response: The EPA has adopted a provision that allows the use of waterwash booths for particulate control from depainting operations. The EPA has included the following provisions in the final rule for waterwash booths: (1) if the water path fails the visual continuity/flow characteristics check, or the flow meter requirements show a disruption in flow, or the booth manufacturer's maintenance procedures have not been performed as scheduled, the operation must be shut down immediately and corrective action taken; and (2) the operation shall not be resumed until the waterwash flow is within the limit(s) specified by the booth manufacturer.

7.9.3 Monitoring Requirements

Comment: Commenter IV-D-5 stated that the entire proposed monitoring process is all paperwork with no actual emissions monitoring. The commenter believes that the negative environmental impact through labor and recordkeeping material costs could be greater than the 2.6 percent HAP emissions from current methylene chloride methods of depainting aircraft.

Response: The commenter did not provide any specific support for their comment.

Comment: Commenter IV-D-33 supported the provision that requires the operator to shut down the depainting operation immediately if the pressure drop across the particulate filter is exceeded. Two commenters (IV-D-11, IV-D-43) recommended that in the case of an exceedance, the facility should stop operation at the end of the shift, replace the filters, and record this activity. Commenter IV-D-11 stated that subsequent shifts that do not meet the standard should constitute a violation. Commenter IV-D-43 recommended that the facility install an alarm system to indicate when the pressure drop has been exceeded.

Response: The EPA will not allow facilities to continue using any depainting method that generates airborne inorganic HAP when the control device is not functional. For the majority of facilities using media blasting techniques, this means that when the pressure drop exceeds or falls below the manufacturer's recommendations, the depainting operation must be shut down. The docket contains information which indicates that the pressure drop is a parameter that does not fluctuate dynamically. The EPA believes that most cases of pressure exceedance occur due to a lack of proper monitoring. Therefore, any facility that continues to operate depainting operations when the pressure drop parameter exceeds the manufacturer's specifications will be considered in violation of the standard. Additionally, for facilities that choose a waterwash system for particulate control, the facility must also be shut down when the particulate control system is not fully operational.

7.9.4 General Comments

Comment: Commenter IV-D-27 recommended the following revision to paragraph §63.746(d)(1):

"(d) * * *

(1) Perform the depainting operation in an enclosed ~~hangar~~ area."

According to the commenter, many small parts are depainted in an enclosed controlled environment.

Response: The EPA has adopted and incorporated the commenter's recommendation into the final rule.

Comment: Commenter IV-D-35 recommended that §63.746(d) be revised to read as follows:

"Inorganic HAP emissions. Except as provided in paragraph (d)(5) of this section, each owner or operator of a new or existing dry media blasting depainting operation subject to this subpart that generates airborne particulate emissions that contain inorganic HAP shall comply with the requirements specified in paragraphs (d)(1) through (d)(4) of this section."

The commenter stated that other non-chemical depainting operations such as mechanical sanding and pulsed-light technologies have much lower emissions than dry media blasting. The commenter believes that requiring the same control efficiency for these technologies is counterproductive.

Commenter IV-D-35 pointed out that the data provided to the EPA on the section 114 questionnaire reported control technologies on facilities used for plastic media blasting and wheat starch blasting. Two commenters (IV-D-29, IV-D-35) stated that other depainting technologies, such as water blasting, CO_2 blasting, Flashjet, and laser have different emission characteristics and control technologies which have not been evaluated. Both commenters suggested that these other technologies may not require filtration of the entire depaint hangar to control particulate emissions.

Commenter IV-D-29 believes that the final rule should provide for the use of alternate control approaches and recommended that §63.746(d)(1) be revised as follows:

"(1) Perform the depainting operation in an enclosed hangar <u>or with equipment which allows for capture of paint debris and fine particulates from the depainting operation at the source.</u>"

<u>Response</u>: The EPA concurs with the commenter's analysis and has incorporated a revision in the standard that specifies that particulate control devices apply to media blasting only. The EPA added this provision because dry media blasting operations appear to be the only technology that releases substantial quantities of inorganic HAP into the air.

7.10 SPOT STRIPPING EXEMPTION

<u>Comment</u>: Commenter IV-D-38 noted that the proposed rule would prohibit the use of paint strippers containing HAP except in the cases of spot stripping, decal removal, and periods of non-chemical based depainting equipment malfunction. The commenter believes that it is not clear from the information available in the record that the proposed 50-gallon exemption for spot stripping of military aircraft would allow these facilities to continue to perform their depainting operations. Moreover, the commenter claimed that use of such an exemption is not desirable from a production standpoint because it requires moving the aircraft between the PMB facility and the chemical strip facility. The commenter suggested that it also is likely that remasking of the aircraft would be required for each process.

Commenter IV-D-74 believes that the spot-stripping exemption is unnecessary. According to the commenter, any paint residue not completely removed by the non-HAP stripper has been found in practice to be readily removable with a minimum amount of hand detail work. The commenter recommended that the spot-stripping exemption be eliminated from the NESHAP.

Commenter IV-D-74 stated that the spot-stripping allowance should be reduced and that it be expressed as an allowance per square foot of total aircraft surface area so that smaller

aircraft (which comprise 96 percent of the domestic aircraft fleet) would still be effectively included in the NESHAP. The commenter claimed that to do otherwise would allow the unnecessary continued emission of tons of methylene chloride and other HAPs into the atmosphere.

Another commenter IV-D-31 asked for a "reasoned" explanation of why the spot stripping and decal exemption, if retained in the final rule, is higher for military aircraft than for commercial aircraft.

Several commenters expressed additional opinions on this proposed exemption. Two commenters (IV-D-2, IV-D-23) were concerned that the 26-gallon exemption of HAP-containing chemical strippers for spot stripping and decal removal could be employed as a defense to an enforcement action.

Commenter IV-D-23 recommended that the decision on the technical feasibility be left to the permitting agency and any authorization for the use of HAP-containing chemical strippers for spot stripping be contained in the title V permit.

Commenter IV-D-31 recommended that the amount of allowable HAP containing stripper be limited to less than 26 gallons annually for each facility (not each aircraft) both military and commercial. According to the commenter this exemption, if justifiable at all, should be justified by occasional equipment failure. However, according to the commenter, the proposal structures it in such a way as to allow repeated failures to go unrepaired.

Commenter IV-D-35 supported the 50-gallon spot stripping and decal removal exemption for military aircraft.

Commenter IV-D-29 stated that the proposed 26- and 50-gallon exemptions for commercial and military aircraft do not reflect the needs and practices of OEMs.

According to the commenter, media blasting cannot be performed in existing paint hangars, because non-chemical blasting techniques generate particulates. The commenter believes that the cost of constructing a new hangar for

depainting is not economically feasible considering the low number of aircraft depainted by this portion of the industry.

The commenter believes that for OEMs, the spot stripping exemption should be based on each vehicle produced, not depainted.

The commenter, therefore, recommended the following revision to §63.746(c):

"§63.746(c) Spot stripping and decal removal. Each owner or operator of a new or existing depainting operation subject to this subpart shall not, on an annual average basis, use more than 26 gallons of organic HAP-containing chemical strippers per commercial ~~aircraft~~ aerospace vehicle or more than 50 gallons of organic HAP-containing chemical strippers per military ~~aircraft~~ aerospace vehicle for spot stripping and decal removal. For OEM's the 26/50 gallon limit is based on aircraft produced per year."

Two commenters (IV-D-38, IV-D-47) believe that the existing proposal for a spot stripping/decal removal exemption needs to be revised and expanded. The commenters stated that the exemption would not allow the use of a HAP stripper on the main fuselage of the aircraft. Commenter IV-D-47 suggested that the exemption be revised to allow an annual 50 gallon per aircraft limit for any type of stripping. Commenter IV-D-38 stated that the 26- and 50-gallon exemptions should be increased. Both commenters (IV-D-38, IV-D-47) suggested that a broader exemption would provide flexibility to facilities as they comply with the standard without risking excessive penalties for non-compliance.

Response: The exemption for military use was based on the need to depaint the "leading edge" of the B-52 wing sections with chemical strippers. This area equals 870 ft^2. The B-52 has a total surface area of 16,000 ft^2. The 50-gal exemption is based on information supplied by Tinker AFB, where they use 0.6271 lb stripper/ft^2. The 50 gal exemption allows 5.5 percent of the exterior surface to be stripped with chemical strippers.

Facilities choosing to use HAP-containing strippers to depaint the entire outer surface of the aircraft may not use the

26/50 spot stripping exemption. When HAP-containing strippers are used to depaint the entire outer surface of an aerospace vehicle or component, their is no technical justification why all of the emissions from the stripping operation cannot be controlled.

7.11 GENERAL COMMENTS

Comment: Three commenters (IV-D-38, IV-D-47, IV-D-46) expressed concern with the use of non-HAP stripper formulations and the potential for an increase in the release of VOC in urban areas. The commenters stated that while methylene chloride is listed as an exempt VOC under the Federal provisions for ozone attainment, the active ingredients of non-HAP strippers generally are not. As a result, commenter IV-D-38 proposed that facilities wishing to use one of these products may encounter VOC permitting problems. This commenter claimed that this has reportedly been the experience of an Air Force base in California where the local air quality management district is concerned about emissions resulting from wind or elevated temperatures. Two commenters (IV-D-38, IV-D-47) believe that for many facilities, increased VOC emissions may make it impossible to comply with existing state ozone rules for the aerospace industry.

Commenter IV-D-47 suggested that, while the use of non-HAP strippers would have the effect of reducing methylene chloride (DCM) emissions from depainting operations, it also would increase the emissions of other chemicals used in the reformulated, non-HAP chemical strippers used to comply with the rule. The commenter claimed that the increase in emissions would be exacerbated since non-HAP strippers often require longer stripping times than methylene-chloride based strippers.

Commenter IV-D-46 stated that the current definition of VOC is based on regulations originally developed for paints, and is not really relevant for many other solvent containing materials. The commenter also stated that when paint dries, essentially all of its solvent content evaporates, or is driven off by heating, but this does not occur for non-HAP chemical strippers. According to the commenter, in the case of non-HAP chemical

strippers, only a very small amount evaporates (<1 percent), even over extended periods of time (>24 hrs), and that small amount is principally water. The commenter, therefore, recommended that any future control of VOC emissions be based on composite vapor pressure control rather than VOC content. The commenter suggested that this type of action would be consistent with many local regulations, such as SCAQMD's Rule 1124.

Response: The EPA has adopted a provision which allows the use of HAP-containing chemical strippers with abatement, to which methylene chloride-containing strippers belong. The depainting standard is written in a way which allows facilities to choose from a full range of compliance options. Facilities can freely select any technique or method that suits their business environment and operation as long as the technique selected meets the requirements of the standard.

The VOC content of non-HAP chemical strippers is being addressed by the EPA in the Aerospace CTG.

Comment: Commenter IV-D-5 claimed that media blasting has had only limited use in the industry since the manufacturers of aircraft allow for only one media blasting in the life of an aircraft before the aircraft's structural integrity is destroyed. The commenter pointed out that chemical depainting has been used for more than 50 years without damage to aircraft. The commenter stated that aircraft in the private sector receive three to four depainting processes during the life of the aircraft, which is in excess of 30 years. The commenter also stated that chemical stripping has little or no adverse effect on the aircraft. The commenter was concerned that the standard gives the impression that both chemical and media blasting are common methods of aircraft depainting.

Response: The docket contains information that indicates that both non-HAP chemical strippers and media blasting are the depainting methods of choice by some facilities. Additionally, the information contained in the docket indicates that manufacturers will allow up to five plastic media blasting depainting applications per aircraft. The standard does not

require that particular techniques and methods of depainting be used by a facility. The standard specifies control efficiencies for organic HAPs and workplace standards to control the inorganic HAP emissions from non-HAP dry media blasting operations.

Comment: Commenter IV-D-45 stated that they, like other support companies, have little flexibility in the compounds used for depainting since these are specified by their customers and ultimately by the aircraft OEMs.

The commenter requested a more gradual implementation of the depainting requirements by reducing the quantity of HAP contained in depainting compounds incrementally over the first 5 years of the NESHAP enactment before zero HAP depainting compounds are required. The commenter believes that a incremental implementation schedule would allow sufficient time for suitable depainting alternatives to be completely demonstrated and tested.

Response: As discussed in a previous response, the EPA has adopted depainting provisions which allow many techniques and methods to be used. Acceptable methods of depainting would include: media blasting with emissions controls, mechanical sanding, non-HAP chemical strippers, and HAP-containing chemical strippers with abatement. All of these methods are currently used in production environments. In addition, facilities that choose to use HAP-containing strippers can use carbon adsorbers to control emissions or any other type of control device approved by the permitting agency. The menu of options available in the final rule should provide affected facilities with a great deal of flexibility to choose the method which best fits into their business climate. Since each of the options listed above has been demonstrated conclusively, no extensions of the compliance date will be granted.

8.0 CHEMICAL MILLING MASKANT APPLICATION

8.1 GENERAL COMMENTS

Comment: Commenter IV-D-15 asked if all other maskants, line sealers, and repair materials will be controlled at the local level.

Response: The EPA cannot speculate as to what local districts and agencies may do. The EPA has included bonding maskants, critical use and line sealer maskants, and maskants used with Type I etchants in the list of specialty coatings; therefore, these coating categories will be addressed in the CTG. However, the EPA has recently requested additional information from the industry on the usage of each of these maskants and their application. If the EPA determines that there are sufficient reasons to reconsider coverage of these coating categories in the NESHAP, then the EPA will issue a supplemental proposal to solicit public comment on the information collected by the Agency.

Comment: Commenter IV-D-15 stated that the proposed regulation as it pertains to chemical milling maskants is realistic and attainable. The commenter stated that there are now approximately 20-22 facilities applying chemical milling maskants in the United States, with numerous companies having closed during the last 2 years due to the cost of complying with the current environmental rules. The commenter believes half of those currently in business may already meet the proposed regulations. The commenter also estimated that those now in compliance account for 75 percent of the maskant applied.

The commenter stated that electrostatic and HVLP spray equipment do not work for chemical milling maskants due to the

composition and solids content and that the proposed rule was appropriate for not requiring them for chemical milling maskants. According to the commenter, hot or cold airless spray equipment is used successfully throughout the world.

Response: The EPA did not specify any application method for chemical milling maskants for the reasons cited by the commenter. Maskants are required to comply by meeting specific VOC/HAP content or by controlling the emissions to obtain an 81 percent overall control system efficiency.

8.2 EXEMPTION REQUEST

Comment: Commenter IV-D-06 stated that the emissions from the use of touch-up maskants are insignificant when compared to the overall emissions from the coating operation and recommended that touch-up maskants be exempted from the rule. The commenter stated that the EPA used the same rationale to exempt touch-up operations associated with topcoats and primers. Further, the commenter stated that it is impractical to move a part back into the control device to effect a minor repair for a company using a control device to comply with the standard. To do so creates an additional processing step with little environmental benefit. Therefore, as long as a company is able to achieve the emission reduction required by the MACT floor, the commenter believes the rule should exempt maskant touch-up.

Response: The EPA has accepted the commenter's recommendation and has added §63.747(c)(3) which states:

"(c)(3) The requirements of paragraphs (c)(1) and (c)(2) of this section do not apply to the following:

(i) Touch-up of scratched surfaces or damaged maskant; and

(ii) Touch-up of trimmed edges."

Comment: Commenter IV-D-6 pointed out that the proposed rule has no provision for non-compliant small volume maskant use. According to the commenter, emissions from the use of these maskants are negligible when compared to a facility's overall emissions. The commenter referred to the San Diego APCD aerospace rule and the South Coast AQMD rule, which allow 20 gallons per year per separate formulation, with 50 and 200

gallons per year caps, respectively. Therefore, the commenter recommended that a small-use exemption for non-compliant maskant use be included in the NESHAP.

Response: The EPA has adopted a low-usage exemption as the commenter suggested. The EPA will exempt from coverage any source that uses no more than 50 gallons per year per separate formulation, with a total annual usage cap of 200 gallons per facility. This revision is addressed in §63.741(g) and applies to topcoats and primers as well as chemical milling maskants.

8.3 UNCONTROLLED MASKANTS

Comment: Commenter IV-D-35 recommended that §63.747(e)(2) be revised to read as follows:

> "Use any combination of chemical milling maskants such that the annual volume-weighted average organic HAP and VOC content of the maskant complies with the specified content levels."

The commenter claimed that due to the low-usage level involved, it is reasonable to require an annual average. The commenter believes that a daily average will impose an unreasonable and burdensome recordkeeping requirement that will limit the ability to average, and will not consider variations in workload.

Commenter IV-D-29 stated that the application of maskants is generally a batch process. According to the commenter, days may go by without feeding the tank with fresh maskant, even though masking operations are continuing. The commenter believes that this makes daily recordkeeping of usage inaccurate and impractical.

Commenter IV-D-29 believes that the averaging periods for maskants in §63.749(g) should be 30 days at a minimum. According to the commenter, small volumes of maskants will be used in any 24-hour period and, with a 24-hour averaging period, the magnitude of measurement error propagation will be greater than or equal to the magnitude of the measurement. The commenter claimed that 24-hour volume weighted averages would be meaningless. The commenter requested that 90-day performance

periods be considered as a reasonable period for verification of compliant maskant organic HAP and VOC solvent content less water. In addition, the commenter suggested that the EPA record annual records for compliant material recordkeeping.

The commenter recommended the following revisions:

"§63.752(f)(1)...

(i) The mass of organic HAP emitted per unit volume of chemical milling maskant as applied (less water)(H_1) and the mass of VOC emitted per unit volume of chemical milling maskant formulation used ~~each month~~ annually.

...

(iii) The volume (gallons) of each chemical milling maskant formulation used ~~each month~~ annually.

(2) For chemical milling maskants complying with the organic HAP or VOC content by averaging:

(i) The mass of organic HAP ~~emitted~~ monthly volume-weighted average masses of organic HAP emitted per unit volume ..."

Response: Facilities may choose to use compliant maskants that do not require control devices or daily averaging. In order to provide facilities with additional flexibility, the EPA has changed the averaging period from 1 day to 30 days, unless the permitting agency specifies a shorter averaging period as part of an ambient ozone control program.

8.4 LEVEL OF OVERALL EMISSIONS CONTROL

Comment: Two commenters (IV-D-6, IV-D-42) recommended that the 81 percent emission reduction requirement for chemical milling maskants be adopted as an overall control efficiency for all maskant usage. Commenter IV-D-6 stated that if a facility is able to reduce its emissions from a maskant application operation by reducing their HAP and VOC emissions by at least 81 percent, it should not matter that some small volume non-compliant maskants are not controlled.

The commenter suggested that a standard requiring a higher control efficiency, but allowing the minor use of non-compliant maskants outright or by averaging with controlled maskants, would be equivalent to the proposed rule while still allowing industry

the operational flexibility to function efficiently. The commenter, therefore, recommended raising the control efficiency to 85 percent and allowing either a small-use exemption or the averaging of controlled with uncontrolled maskants. The commenter believes that the EPA can allow the small volume use of non-compliant coatings, and still achieve the defined MACT floor.

Commenter IV-D-42 believes that prohibiting an add-on emission control system from capturing only a portion of the emissions from nonexempt maskant application operations may lead to unnecessary costs in capturing and controlling small amounts of HAP or VOC in low concentration emission streams. The commenter, therefore, recommended that the overall emission reduction requirement remain at 81 percent, but that an add-on emission control system be allowed to capture only a portion of the total emissions.

Commenter IV-D-31 stated that, if the Agency determines that substitution is only possible for maskants used with Type II etchants, the EPA must require use of an appropriate control device providing for 81 percent reduction in HAP and VOC emissions, taking into account capture and destruction efficiencies.

Response: The standard has been clarified to state that "each control system shall reduce the operation's organic HAP and VOC emissions to the atmosphere by 81 percent." In addition, definitions have been included for both "control device" and "control system" to distinguish the equipment that destroys or recovers the pollutants from the total capture and control system. The standard specifies that add-on emission control systems must be used to capture emissions resulting from non-compliant maskant usage when facilities are not using averaging to achieve compliance.

8.5 MASKANT USAGE WITH TYPE I AND TYPE II ETCHANTS

Comment: Three commenters (IV-D-18, IV-D-19, IV-D-31) recommended the elimination of the exemption for chemical milling maskant operations involving Type I etchant. The commenters were perplexed as to why Type I etchants should be considered

differently from Type II etchants, since VOC's are not contained in the etchants. Two commenters (IV-D-18, IV-D-19) noted that there is no relationship between the emissions of VOC from the maskant and its toxicity and the media the maskant is used in.

Commenter IV-D-75 stated that waterborne chemical milling maskant for use with Type I etchants is being implemented at McDonnell Douglas, Long Beach, is in use at McClellan Air Force Base in Sacramento, and is approved for use at Hill Air Force Base in Utah. The commenter also stated that many facilities operate chemical milling processes by utilizing both Type I and Type II etchants for different types of applications. According to the commenter, the following facilities using Type I etchants have installed control devices: Grumman in New York, Aerochem in Los Angeles, McDonnell Douglas in Long Beach and Chem-Tronics in San Diego.

Commenter IV-D-75 stated that a low-VOC, waterborne maskant used with Type I and Type II etchants has passed tests for the following process applications: anodizing in chromic, phosphoric, and sulfuric solutions. The commenter stated that the waterborne maskant is also used for chemical milling of titanium aerospace component parts and for nickel plating of engine blades, and in the stretch forming process.

Commenter IV-D-31 stated that the EPA must require the maximum achievable reductions from all maskants, not just those used with Type II etchants.

Four commenters (IV-D-29, IV-D-35, IV-D-82, IV-D-89) recommended that the low-VOC content maskant be required only when used exclusively with Type II etchants.

Three commenters (IV-D-80, IV-D-82, IV-D-83) stated that the technology which may have caused the EPA to reconsider control for maskants use in Type I etchants is too new to rely on and doesn't represent a MACT floor. Commenter IV-D-83 does not believe that a limit of 1.3 lb/gal represents MACT for chemical milling maskants used with Type I etchants.

Commenter IV-D-82 provided a position paper and test results to support their point of view that maskants used with Type I etchants should be exempt from the standard.

Three commenters (IV-D-80, IV-D-82, IV-D-89) stated that the low-VOC (1.3 lb/gal) maskant has not been used successfully on high strength, high copper content aluminum alloys which make up a majority of Type I processed parts.

Commenter IV-D-89 provided several technical analyses to support their view that Type I etchants provide required specialized material properties on milled metals. The commenter also provided details on Type I and Type II etchant composition and processing temperature.

Commenter IV-D-89 surveyed nine aerospace manufacturers to gather information on the HAP content of maskants used for Type I chemical milling operations. The commenter stated that the results indicated that maskants are available that perform acceptably in Type II etchants and meet the proposed NESHAP standard (160 grams of HAP per liter or less). The commenter also stated that the survey indicated that no manufacturer has successfully used low organic HAP content maskants (less than about 1,000 grams of HAP per liter) for Type I chemical milling of production parts. The commenter concluded that, at the present time, no maskant with a HAP content of less than about 1,000 grams per liter has been demonstrated to work in practice for Type I chemical milling of aluminum alloys.

Commenter IV-D-89 stated that Type II etchants are used in about 85 percent of the aluminum chemical milling applications. Due to the cost of emissions control and technical concerns, the commenter recommended that maskants used in Type I etchants remain exempt from the NESHAP. In addition, the commenter stated that the HAP emissions for Type I chemical milling operations are estimated to be less than 1 percent of the total HAP emissions from the aerospace industry. The commenter also recommended that the exemption of Type I chemical milling maskant operations from the organic HAP content requirements be reexamined in 2 years

since active research on low-HAP maskants for Type I chemical milling shows some promise.

Two commenters (IV-D-80, IV-D-82) believe that the EPA should classify maskants used in Type I etchants as a specialty coating regulated under the CTG. Commenter IV-D-80 stated that these maskants represent a very small percentage of maskant usage. Commenter IV-D-82 stated that Type I maskant materials should be regulated in the aerospace CTG in order to preserve the technology investment in pollution prevention.

Commenter IV-D-80 was also concerned that specialty coating maskants may inadvertently be required to meet the standards set for Type II chemical milling solutions. The commenter stated that line seal and seal coat maskants are used in extremely low volumes, and that there are no low organic HAP/VOC alternatives. The industry asked the EPA to clarify that the chemical milling maskant application requirements do not apply to specialty coating maskants (bonding, critical use and line sealer, seal coat, and Type I maskants) applied to parts that may later be processed in a Type II chemical milling solution.

Two commenters (IV-D-29, IV-D-35) recommended that §63.747(a) be revised to read as follows:

> "Applicability. This section applies to chemical milling maskant application operations in which <u>only</u> Type II chemical milling etchants are used."

<u>Response</u>: The EPA has collected information which indicates that maskants used with Type I etchants have specialized properties and that the usage of these maskants is small when compared to maskants used with Type II etchants. Based on the information available, the EPA will not regulate maskants used with Type I etchants under the NESHAP, but will address them in the Aerospace CTG. However, the EPA has recently requested additional information from the industry on the usage of maskants with Type I etchants. If the EPA determines that there are sufficient reasons to reconsider coverage of this coating category in the NESHAP, then the EPA will issue a supplemental

proposal to solicit public comment on the information collected by the Agency.

9.0 HANDLING AND STORAGE OF WASTE

9.1 NEED FOR STANDARD

Comment: Four commenters (IV-D-27, IV-D-29, IV-30, IV-D-40) believe there are compelling reasons for the EPA to reconsider its proposed requirements for waste handling and storage (§63.748). Commenter IV-D-27 believes that the EPA has proposed housekeeping measures for HAP-containing non-RCRA wastes without offering any justification. Two commenters (IV-D-29, IV-D-40) believe that the waste handling and storage requirements are overly broad and burdensome. Two commenters (IV-D-30, IV-D-40) stated that many of the waste streams resulting from aerospace operations are already regulated under RCRA. Commenter IV-D-40 believes that additional requirements for the remaining wastes would over-regulate wastes with little or no potential for HAP emissions, resulting in no environmental benefits and imposing significant operational and economic impacts on the industry.

Three commenters (IV-D-27, IV-D-29, IV-D-40) pointed out that the proposed rule does not account for the emission potential of certain HAP-containing waste. The commenters stated that aerospace parts such as wings or fins that have been coated with a paint containing an organic HAP may become waste if damaged. The commenters stated that because the cured paint contains a HAP (even though it has no potential to emit the HAP), the proposed rule would require a special container to enclose this waste, and the same scenario would apply to paint chips or spent blast media. Commenter IV-D-40 believes that it was not the intent of the EPA to impose such disruptive impacts on the

manufacturing process while obtaining no reductions in HAP emissions.

Commenter IV-D-40 noted that the RCRA exceptions are debris, rags contaminated with oils, and automotive filters, all of which are regulated by the State. These wastes and other non-aerospace process related waste streams, such as facility operation and maintenance wastes, are applicable broadly to any industry, contain trace amounts of HAP, and would be over-regulated by the proposed regulation. Two commenters (IV-D-29, IV-D-40) provided two examples where trace amounts of HAP occur: oil-water separators in storm and industrial sewers and the steam cleaning of vehicles. They noted that in both of these cases, the proposed regulation would require that the materials be kept in closed containers. Commenter IV-D-40 stated that since the thousands of other oil-water separators that may contain organic HAP's will not be regulated, simple equity demands modification of the rule to restrict its applicability.

Additionally, commenter IV-D-29 stated that under the RCRA regulatory system, once wastewaters have entered an NPDES treatment or pretreatment facility, they are excluded from hazardous waste regulation, assuming they would otherwise be included. This commenter noted that although the preamble to the Aerospace NESHAP expressly excludes wastewater from regulation, it does not define this term. According to this commenter, it is not clear whether this exclusion extends to wastewater inside an NPDES treatment system. The commenter claimed that if the EPA were to apply the same conceptual distinction to non-hazardous wastewaters that it applies to hazardous wastewaters, vast quantities of such wastewaters could be regulated as "wastes" under the Aerospace NESHAP.

The same commenter stated that the EPA's concern for the evaporation of the volatile portion of the organic HAP contained in the waste does not limit the scope by volatility to organic HAP. Commenter IV-D-27 stated that the emissions from HAP-containing non-RCRA wastes will already be controlled by limitations on vapor pressure and HAP/VOC content. Two

commenters (IV-D-29, IV-D-35) recommended that the following text be added to the end of §63.741(e):

> "Wastes which have a composite vapor pressure of less than 45 mm Hg (24.1 in. H_2O) or less at 20 C (68 F) are excluded from this rule."

Commenter IV-D-29 claimed that this change would clarify the EPA's stated intention of limiting the applicability to volatile organic HAP. Commenter IV-D-35 believes that the only wastes in the industry that exceed this volatility threshold are already regulated as RCRA waste. Commenter IV-D-29 also stated that no purpose would be served by requiring vapor pressure testing of dried paint, or metal filings, or wastewater, or any other such discarded material that clearly cannot exceed the vapor pressure limits.

Commenter IV-D-29 also believes that affected sources should be able to rely (at their own risk) on general knowledge of the process to determine whether or not specific waste streams exceed this level, just as they are allowed to rely on general knowledge to make the basic judgment of RCRA applicability. The commenter claimed that any other approach would impose major process costs with no regulatory benefit.

Two commenters (IV-D-29, IV-D-30) recommended that a de minimis level be set so that negligible emissions would not be regulated. Specifically, commenter IV-D-30 recommended that the EPA eliminate §63.748 from the proposed standard to avoid repetitious requirements that result in negligible emission reductions. The commenter felt that, if HAP-containing waste must be regulated separately, a minimum detection limit, similar to that of RCRA, should be fixed. Commenter IV-D-29 recommended that the EPA provide the administrative structure to implement a de minimis level.

Commenter IV-D-27 suggested that the provisions in proposed §63.748 be deleted because no quantifiable emission reductions have been determined to justify them. If these standards cannot be deleted, the commenter recommended that §63.748(b) be revised as follows:

"(b) Store all waste that contains organic HAP in closed containers <u>to prevent the release of liquids and solids</u>."

This commenter also recommended that §63.749(h) (specifying that noncompliance with the waste handling and storage requirements constitutes a violation) be deleted. The commenter believes that compliance with RCRA is sufficient to control HAP emissions from the handling and storage of wastes, and claimed that the EPA has not demonstrated that there is a need to control all HAP-containing wastes to the level of RCRA.

<u>Response</u>: The general waste handling and storage provisions of proposed §63.748 are similar to the "housekeeping measures" for cleaning operations in §63.744(a).

None of the comments appear to address §63.748(a), which requires the minimization of spills during the handling and transfer of HAP-containing waste. The EPA believes that this is a "common-sense" provision, but nonetheless necessary to ensure that facilities formally incorporate these practices into their operating procedures.

Paragraph (b) of this section stated at proposal:

"Store all waste that contains organic HAP in closed containers."

The intent of this provision was not to require enclosure of extremely large items, such as wings, or of materials with no potential to emit HAP's into the air. However, upon reviewing the public comments and the data previously received from the industry, the EPA has decided to delete §63.748(b). The items of principal concern to the EPA, solvents and solvent-laden materials associated with cleaning operations, will be controlled by the provisions of §63.744(a). Facilities that must already comply with RCRA must ensure that hazardous wastes affected by that regulation are disposed of properly. The EPA believes that these facilities should not have to comply with additional regulations. Information available to the Agency indicates that the industry is practicing limited waste control measures (see next response).

9.2 BASIS FOR STANDARD

Comment: Three commenters (IV-D-27, IV-D-29, IV-D-40) claimed that the EPA has provided no justification that the proposed regulation's universal control of waste streams is practiced in the aerospace industry and thus represents the MACT floor. One of the commenters noted that industry data collected through a section 114 request were very general with minimal information on actual procedures in practice. Specifically, commenter IV-D-27 stated that the section 114 survey of the industry was not sufficiently detailed to establish a MACT floor for non-RCRA wastes. To the commenter's knowledge, no aerospace companies are practicing the techniques of handling and storing non-RCRA wastes as would be required by the proposed rule. The commenter claimed that, even if the EPA is able to point out a few non-aerospace companies that are implementing some of the proposed requirements, the nature and magnitude of their manufacturing is fundamentally different and makes the proposed requirements inapplicable. Therefore, the commenters recommended that the portion of the rule pertaining to the handling and storage of waste be deleted from the Aerospace NESHAP.

Response: In response to these comments, the EPA reviewed the data and information collected in the survey of the industry conducted by the EPA during development of the proposed standards.

The numbers of facilities reporting waste streams, by process operation, were as follows: hand-wipe cleaning (35), spray gun cleaning (38), primer use (39), topcoat use (39), depainting (17), and maskant use (5). For each of these operations, the "best control level" was determined to be temporary storage of wastes in covered drums prior to shipment off-site. However, the wastes subject to this control in each case consisted of such items as rags, waste paint and maskant, thinners, sludge, and used paint filters. These item are subject to the RCRA requirements.

Based on these data, the EPA agrees that facilities are not practicing these controls on non-RCRA wastes, and so the proposed requirement in §63.748(b) has been deleted.

10.0 COMPLIANCE DATES AND DETERMINATIONS

10.1 COMPLIANCE PERIODS

Comment: Two commenters (IV-D-1, IV-D-46) requested that the final rule be promulgated by November 1994. Commenter IV-D-1 requested the November date in order for this agency to have time to implement and enforce the NESHAP standard. Commenter IV-D-46 proposed the November implementation date so that the zero HAP emission requirement for depainting operations would become effective as soon as possible. The commenter stated that an accelerated implementation date is both realistic and desirable because:

- Non-HAP chemical strippers are recognized as a MACT
- Non-HAP strippers are widely available
- Non-HAP strippers are drop-in replacements for the currently used methylene chloride strippers
- Non-HAP strippers are proven performers both in commercial and military use.

The commenter claimed that non-HAP strippers are currently in widespread everyday use, stripping over 30 aircraft of all types and sizes every month, both military and commercial. The commenter also claimed that these products are now regarded as "best commercial practice." The commenter believes that immediate implementation would cause no disruption in user production schedules, but would result in the immediate removal of hundreds of tons of HAP from the atmosphere.

Two commenters (IV-D-11, IV-D-31) recommended a compliance date of 90 days after the effective date of the standards for the cleaning operation housekeeping measures. Commenter IV-D-31 believes that waiting 3 years for compliance with requirements that can practicably be complied with long before that is

inappropriate. The commenter recommended compliance within 1 year of promulgation for most substitutions and reformulations. The commenter stated that because the EPA has based its standards on already proven substitution methods, a source should be expected to upgrade its program within a year.

Commenter IV-D-11 stated that a compliance date of 90 days after the effective date of the standards for the use of enclosed containers for flush cleaning solvents in §63.744(d), and the provisions for handling and storage of waste in §63.748, is a reasonable amount of time for sources to comply. The commenter believes that these pollution prevention and housekeeping measures will have minimal economic impacts and can be readily implemented. The commenter also stated that a compliance date of 180 days after the effective date of the standards for the spray gun cleaning provisions in §63.744(c) is a reasonable allowance of time for sources to comply.

Commenter IV-D-31 recommended requiring implementation of the NESHAP's emission limitations within 1 year of promulgation of the NESHAP, or within 1 week of promulgation of SIP limitations, whichever is later. The commenter stated that moderate ozone nonattainment areas need emission reductions in 1994, 1995, and 1996 in order to attain by 1996. The commenter also noted that serious nonattainment areas must have clean air in 1997, 1998, and 1999 in order to attain the standard. Due to transport problems, the commenter concluded, control in serious, severe, and extreme areas in 1994-6 may be necessary to allow moderate areas to attain. For these reasons, the commenter claimed there is no justification for allowing CTG implementation to wait until 3 years after State adoption of a SIP revision, since MACT compliance begins before the SIP is adopted implementing the CTG.

Five commenters (IV-D-11, IV-D-12, IV-D-27, IV-D-29, IV-D-37) recommended that the EPA allow the full 3-year period for implementation of any and all compliance measures to meet the new Aerospace NESHAP requirements, noting that the text of the

proposed Aerospace NESHAP would give sources the full 3 years allowed by the Clean Air Act to comply with the final rule.

Commenter IV-D-12 believes that the probability of compliance would be enhanced if the EPA and States provide outreach services to affected facilities. The commenter noted that they have begun conducting a series of workshops to provide sources with an overview of the various proposed MACT standards.

Commenter IV-D-11 recommended that technical assistance be afforded to all sources in the form of up-to-date data on available technologies and methods of economical implementation, and assistance should be provided in the form of listing product substitutions for coatings and hand-wipe cleaning solvents, and disseminating the results of such substitutions to industry as information becomes available. The commenter also felt that new sources should comply with MACT upon startup.

Commenter IV-D-37 stated that compliance with the proposed NESHAP for airline maintenance facilities will require extensive facility construction and modification; new equipment and product research, budgeting, and procurement; chemical evaluation and reformulation; maintenance procedure revisions; and maintenance training and safety program changes. Even with respect to certain cleaning operation housekeeping measures and spray gun cleaning provisions--for which 90-day and 180-day compliance schedules, respectively, have apparently been considered by the EPA--the airlines still will be required to identify, test, budget for, and procure new equipment and materials, such as closed spray gun cleaning systems and solvent containers that meet NESHAP requirements. The commenter stated that modified waste disposal and work practice procedures relating to solvent usage and storage will have to be devised and implemented; workers will need to be taught new spray gun cleaning and handling methods; and new rules will have to be developed and enforced to ensure workplace compliance with applicable health, fire, and safety codes. The commenter believes that employee behavior modifications cannot effectively be accomplished within 3- to 6-month timeframes, particularly considering the collective

bargaining requirements many airlines must satisfy in order to implement workplace procedural changes.

Two commenters (IV-D-27, IV-D-29) stated that the EPA is correct in recognizing the need for the full 3-year period for facilities to come into compliance with the multitude of new requirements proposed in the rule, especially given the nature of testing and qualification necessary for hand-wipe cleaning solvents, primers, topcoats, and chemical milling maskants.

The commenters provided several reasons why the aerospace industry will need the full 3-year period for implementation of the many time-consuming compliance measures to meet the new Aerospace NESHAP standards. First, many of the compliance requirements are most effectively and efficiently met through the reformulation of materials which, in turn, is dependent on successful technical development by material manufacturers. The commenters claimed that in order to meet the stringent qualification requirements inherent to aerospace products, the reformulated materials must undergo a reiterative process of testing and improvement and retesting before they can meet the necessary specifications. The commenters noted that one major aerospace firm has tested 240 types of low-VOC coatings with 6 having been proved successful. Moreover, the average period for full qualification (receipt of sample to full engineering and manufacturing qualification) is 5 to 10 years. The commenters proposed that the same concerns are experienced in qualifying new cleaning solvents. These solvents present additional implementation problems associated with thousands of different application needs and because qualification testing cannot possibly cover every use. The commenters claimed that emission reductions gained by the new solvents could be offset by the additional cleaning or coating operations required when the solvent fails to work properly, not to mention the expense and time impact on production flows.

Second, facilities may be required to undergo physical changes as well as procure new materials. The commenters noted that closed containers for flush cleaning may require significant

facility changes and the spray gun standards may require new equipment in some areas.

Third, the Aerospace NESHAP will require many changes in procedure at facilities. The commenters claimed that sources will have to ensure that all materials perform adequately (e.g., bags/containers may be permeable to new cleaning solvents). They also noted that workers will be required to learn and follow new procedures which will take extra time and effort over their normal work assignments.

Fourth, it will be impossible to meet the waste handling and storage requirements within the 90-day period after promulgation. The commenters believe that 90 days is insufficient to obtain a clear regulatory interpretation of what is needed, design and construct the necessary "closed" system, and implement any procedural changes necessary to the cleaning operation.

One of the commenters suggested that the EPA provide assistance to help sources meet the 3-year compliance deadline. The commenter stated that assistance could be through technical information exchanges, research on alternative emission reduction measures, electronic bulletin boards, meetings, and/or publications.

Finally, both commenters pointed out that the proposal preamble discussion correctly identifies the substantial administrative impacts of requiring multiple compliance dates for a single NESHAP at a single source. According to these commenters and commenter IV-D-37, incorporating these requirements into title V operating permits is a major concern to both agencies and the industry. The commenters claimed that varied compliance dates could necessitate several reopenings of a source's operating permit (or amendments to its permit application) as each new requirement came into effect. They believe that imposing such an increased workload on the title V permit program in its startup days would serve no useful purpose, particularly since the reopening of a permit will be a lengthy and resource intensive enterprise, taking up to 18 months per revision.

Commenter IV-D-38 recommended that the prohibition on HAP strippers be implemented over a longer period of time (e.g., 5 to 7 years). The commenter believes that this action by the Agency would allow for a more orderly transition to non-HAP technologies.

Response: The Aerospace NESHAP standards were proposed in the Federal Register on June 6, 1994 (59 FR 29216). A subsequent FR notice (59 FR 60101) was published on November 22, 1994 in order to request comment on several amendments to the original proposal. The second comment period ended on January 6, 1995. The Agency then considered the comments received and made revisions to the rule. An intensive review by several offices of the EPA and other Government entities ensued, followed by further revisions and ultimately finalization of the rule. The final NESHAP was promulgated in accordance with this schedule, in the most timely manner possible.

Section 112(i)(3) of the Act requires the Administrator to establish a compliance date for existing sources which shall provide for compliance as expeditiously as practicable, but in no event later than 3 years after the effective date (promulgation) of the standards. In addition, the Administrator (or a State with a program approved by the EPA under title V) may issue a permit that grants up to a 1-year extension to comply with the standards if an additional period is necessary for the installation of controls.

The general compliance requirement of 3 years that was included in proposed §63.749(a) is a direct reflection of this statutory requirement. The EPA is restrained from extending the time limit on this requirement; further, the Agency believes that the 3-year period is reasonable for the emission control standards and practices called for in this regulation. At the same time, it does not appear appropriate to specify any shorter compliance periods for specific standards. The EPA recognizes that the industry will need to institute new programs and develop new operational standards, purchase equipment, and educate personnel for each of the standards within the regulation.

Therefore, compliance periods of 90 days, 180 days, or 1 year are not considered appropriate. States or local districts, however, are free to specify shorter compliance periods under their own regulations.

The EPA agrees with the comments that EPA outreach efforts, technical assistance, and various forms of encouragement and education should be available to sources and agencies attempting to implement these regulatory requirements. The Agency will be cooperating with these entities after promulgation in developing resources to answer these needs.

Comment: Three commenters (IV-D-30, IV-D-35, IV-D-38) stated that many of the government organizations that depend on the Federal funding cycle may not be able to respond quickly enough to meet the standards within 3 years.

Commenter IV-D-30 stated that the technical requirements for materials used in space operations typically are rigorous. According to the commenter, the requirements of specific materials may dictate that it is not possible to identify and qualify replacements in this time period, or at all. The commenter believes that some consideration should be made for compliance extensions or waivers in such cases.

Commenter IV-D-38 stated that, in light of extended military funding cycles, it is likely that several facilities will not be able to install MACT depainting technologies involving media blasting in time to comply with the proposed standard. The commenter noted that military construction cycles are planned 5 to 7 years in advance. As a result, the commenter believes that military facilities that have not already received Congressional authorization for depainting projects would be unlikely to be able to comply with the MACT standard.

Commenter IV-D-35 stated that under Federal fiscal law, the military is required to follow detailed and lengthy procedures when obligating appropriated funds, and environmental compliance funding is no exception. The commenter pointed out that major construction projects typically require a minimum of a 5- to 7-

year budget cycle once the requirements are known, and operating funds require a 3-year budget cycle. The commenter claimed that unless an expedited method for obligating funds is found, it will be difficult for the military to meet the compliance schedule.

The commenter noted that the military has unique funding constraints; unlike commercial enterprises, the military must adhere to Federal laws when obligating appropriated funds (See 31 U.S. C 1301, 1341, 1342, 1350, and 1351). These laws place limitations on expenditures based on purpose, amount, and when funds can be spent. For example, there are separate expenditure accounts for military personnel, operations and maintenance, procurement, research and development, real property maintenance, and MILCON. The commenter pointed out that failure to follow the law can cause a violation of the Antideficiency Act (31 U.S.C 1301) and lead to criminal and civil liability for those involved.

The commenter acknowledged that many aspects of the proposed rule will require affected sources to invest in MACT technology. The commenter stated that in cases where a construction project costs more than $300,000, the military must use MILCON funds appropriated in accordance with established MILCON funding cycles. The commenter noted that projects costing less than $300,000 are normally financed from an O&M account and approved at the base or command level. Also, the budgetary cycle for minor military construction projects is shorter than the 5 to 7 years for MILCON projects. However, even if funds can be appropriated within 3 years, the commenter claimed that actual completion of the compliance projects would take longer.

According to the commenter, the EPA's determination that it apparently lacks the authority to defer compliance to the Clean Air Act, compounds the problem for the military. The commenter noted that, by court order, the EPA must no later than July 1995 issue the Aerospace NESHAP rule and that compliance shall not be later than July 1998, assuming a July 1995 promulgation date. The commenter stated that, barring an extension under section 112(i)(B) or an exemption under section 118(b), any anticipated

MILCON requirements to comply with the Aerospace NESHAP must be submitted to Congress for approval in the FY97 program (allowing for construction lead time). The commenter suggested that the key to the preparation of such MILCON documents is the final form of the Aerospace rule. The commenter pointed out that since this rule will not be issued until mid-1995, installations will not be able to identify their requirements in time to make the FY97 or the FY98 Congressional budget deadlines. The military budget process takes an average of 5 years or more once a requirement is determined, which is out of phase with the EPA's mandated NESHAP implementation timelines.

The commenter stated that, following promulgation of the rule, the military will do its best to quickly build a budget request for adequate compliance funding. The commenter suggested that the EPA could provide valuable assistance by helping the military determine exactly what projects will meet the rule requirements. The commenter noted that technical assistance and coordination would save time and money in terms of selecting the right technology for a given activity. The commenter claimed that the EPA should be aware of the costs associated with the standards it sets in the NESHAP. According to the commenter, as the cost of certain activities escalates the more likely it is that MILCON funding will be required to comply. The commenter believes this will push back ultimate compliance due to the delays in obtaining those funds.

The commenter claimed that a strict 3-year implementation schedule for incorporating new control technologies places DoD in the untenable position of having to choose between delaying critical mission maintenance or violating the Clean Air Act. The commenter noted that failure to comply with the NESHAP schedule can potentially result in either shutdown of operations at locations in need of MILCON funding or cause a violation of section 112(i)(3) and the facility's title V operating permit. The commenter stated that the military may have to delay maintenance or contract with others to do it, which could severely impact safety and military readiness. The commenter

suggested that at a minimum, costs will increase dramatically and disruption to operations will occur. The commenter pointed out that the near-term MILCON requirements for the DoD are conservatively estimated in excess of $1.2 billion if the final regulation remains unchanged.

The commenter stated that the EPA can reduce the effect of the MILCON funding issue by adopting their recommendations, particularly those related to maintenance painting, mechanical sanding, touch up and repair, flexible primer and CARC topcoat, emission averaging, and recordkeeping and reporting. The commenter believes that early and committed cooperation between the EPA and the military will reduce, but not eliminate, the potential for missed deadlines. The commenter, therefore, recommended that the EPA make an effort to relax compliance schedules to mirror the military budget cycle. The commenter concluded that the DoD will need the full 3 years of implementation time allowed and the 1-year time extension available under section 112(i)(3)(B).

Response: The EPA is aware of the military funding cycle and has kept the military informed at every stage of the regulation development. Therefore, the EPA believes that it has given DoD a sufficient notice and time for compliance.

Comment: Commenter IV-D-11 (a State agency) believes that the alternative compliance dates for certain pollution prevention and housekeeping measures represent a sufficient time allowance for sources to comply, but are not reasonable considering the delegation procedures set out in subpart E of part 63. This agency will have to follow procedures set forth in the State rulemaking process in order to gain delegation. The commenter stated that, if the EPA does set forth those deadlines for compliance with portions of the rule, the EPA must commit to enforcement of those portions in the interim time between promulgation and the time delegation takes effect.

Response: [This is a policy question which will be addressed in the final document.]

10.2 COMPLIANCE EXTENSIONS

Comment: Commenter IV-D-14 suggested a case-by-case extension determination for sources encountering difficulties with the 3-year compliance deadline. The commenter believes that technical assistance and training should be provided on the basic provisions and requirements of this NESHAP for the affected sources. The commenter suggested distributing information on new and established products and equipment that meet the provisions of the NESHAP.

Commenter IV-D-31 stated that, in cases where no compliant coatings are immediately available for a particular application (which will be very rare with the current proposed emission limitations), sources should be able to apply for an extension of up to 3 years after the promulgation date, a procedure that should be the exception, not the rule. The commenter claimed that these requests should be routinely granted only when technology-forcing substitutions going substantially beyond the standards are being pursued. This commenter recommended that the EPA specify that extensions will be process- and material-specific. The commenter believes this will minimize the tendency to seek broad across-the-board extensions and will instead limit them to genuinely extraordinary situations.

The same commenter felt that the EPA may not allow for compliance extensions through State inaction, and that allowing an extension without State action on a relevant request would be grossly unfair to the public. The allowance of a fourth year for compliance is an extraordinary measure and ought not to be routinely granted.

The commenter also objected to allowing sources an additional 30 days to respond to a denial of a compliance extension. Thus, they felt that the final rule should not require mandatory reconsideration of supplemental information. However, if the final rule contains this provision, the public should be given a right to consideration of the supplementary information submitted after a requested extension is granted.

Response: [This is a policy question which will be addressed in the final document.]

11.0 TEST METHODS AND PROCEDURES

11.1 USE OF MANUFACTURER'S DATA

Comment: Commenter IV-D-35 pointed out that the proposed NESHAP requires compliance determinations based upon sampling and testing, instead of reliance upon data supplied by manufacturers and suppliers, and places the burden of proof of vapor pressure, VOC content, and HAP content compliance on the affected facility by forcing them to perform their own analysis.

Seven commenters (IV-D-27, IV-D-29, IV-D-30, IV-D-31, IV-D-32, IV-D-35, IV-D-43) stated that the EPA should specify that manufacturers of coatings and solvents are required to supply information for the VOC and HAP content and the vapor pressure. Commenter IV-D-31 stated that the manufacturers of these products are legitimately considered part of the aerospace industry for the purposes of the regulation and, therefore, the EPA may legitimately regulate them to this extent under this rule. Commenter IV-D-35 pointed out that California districts have imposed labeling requirements on manufacturers in order to obtain this information. Commenter IV-D-31 recommended that manufacturers be held liable if a material does not meet the content specifications as stated by the manufacturer. Commenter IV-D-43 stated that the manufacturers should list the test method used to determine the content or vapor pressure on the Material Safety Data Sheet (MSDS).

Commenter IV-D-27 advanced the following arguments in favor of manufacturer labeling: (1) the VOC content, HAP content, and solvent vapor pressures are most reliably determined when calculated by the manufacturer, based on the formula for the product; (2) the test methods recommended by the EPA were not

developed for low-VOC or water-based coatings, and the result is non-reproducible data when tested at the lower limits of the method; and (3) testing by the end user is expensive and time-consuming.

Commenter IV-D-31 recommended periodic testing of the coatings to verify the composition and accurate labeling. The commenter stated that the EPA can either require this of the coating manufacturer or of the aerospace companies. According to the commenter, if this is not done the rule will lack any specific obligation to insure that compliance actually occurs.

Three commenters (IV-D-27, IV-D-30, IV-D-35) noted that obtaining formulation data from the MSDS is very difficult. Four commenters (IV-D-10, IV-D-27, IV-D-30, IV-D-35) noted that the precise amounts of components are rarely given on the MSDS. Specifically, two commenters (IV-D-35, IV-D-27) stated that, at best, users have a MSDS which lists selected chemicals and a concentration range. Commenter IV-D-35 pointed out that the user will know all components only if they independently perform analyses of each product (a time-consuming and costly process) or the EPA mandates that manufacturers provide said information. This commenter (p. 1-5-2) also stated that MSDSs are readily available sources of information on commercially available materials (single or multiple component) and should be used to determine compliance. The commenter claimed that since manufacturer's data are acceptable for determining compliance with §63.744(b)(1) and Table 3 of §63.744(b), it should be acceptable to determine compliance for all hand-wipe solvents. The commenter also suggested that MSDSs be used to determine the HAP and VOC content of strippers and aerospace coatings.

Four commenters (IV-D-29, IV-D-35, IV-D-30, IV-D-27) stated that requiring manufacturers to fully label their products would relieve the burden faced by individual facilities by eliminating redundant and expensive testing. Commenter IV-D-27 added that small users, such as subcontractors to larger aerospace manufacturers, do not have laboratories to conduct VOC and HAP content or solvent vapor pressure tests.

Two commenters (IV-D-29, IV-D-32) supported the EPA's proposal to allow facilities to obtain organic HAP content from manufacturer's data, and recommended that this provision be extended and clarified. Specifically, the commenters opposed wording that would require owners and operators who cannot determine organic HAP content from the manufacturer's data to "submit an alternative procedure for determining the organic HAP content for approval by the Administrator" (§63.750). The commenters stated that users of these products must be able to rely on manufacturers' data with a degree of certainty and should not be required to provide data themselves. Commenter IV-D-29 recommended that proposed §63.746(b)(1) be amended to require no organic HAP emissions "based on manufacturers' data."

According to this commenter, even if valid and practical test methods existed to determine the VOC and HAP content of these materials at the user level, it would still be unreasonable to focus compliance determinations on users rather than manufacturers. The commenter claimed that as the proposed regulation was written, users will be at enforcement risk from the results of an invalid test method. The commenter believes that in many cases, the chemical constituents of these materials cannot be reverse engineered by a user's chemists.

Three commenters (IV-D-10, IV-D-29, IV-D-35) suggested that end users do not have knowledge of all components in the cleaning solvent because manufacturers typically classify such information as proprietary.

Commenter IV-D-30 stated that companies could negotiate a proprietary agreement with the vendor to obtain the (potentially) proprietary formulation from which HAP content could be calculated. For a large operation, this could result in a company having to safeguard a large amount of proprietary information for various vendor companies. The commenter believes this is an unreasonable burden, and therefore recommended that manufacturers be required to label their products.

Commenter IV-D-30 stated for many multi-component cleaners, particularly those which the vendor considers proprietary, it may

be impossible or economically infeasible to determine the vapor pressure for each lot of material. In such cases, the commenter stated that the aerospace organization may have to rely on the material manufacturer for vapor pressure information. The commenter believes that it is unreasonable to hold the aerospace organization accountable for a material characteristic that the user has no control over or has no way of confirming independently.

Two commenters (IV-D-30, IV-D-35) suggested that the EPA consider other compliance options, including for example, developing a qualification procedure that could be used voluntarily by manufacturers and suppliers to certify their solvents and coatings. Commenter IV-D-35 believes the qualification procedure would allow the aerospace industry and the user community to reference the EPA voluntary product certification procedures as a part of their material procurement specifications.

Commenter IV-D-10 requested that the EPA allow a verbal composition claim by the manufacturer regarding ingredient breakdown percentages. The commenter sought clarification on whether verbally supplied vendor information can be utilized by a facility for compliance determinations.

Two commenters (IV-D-27, IV-D-29) noted that in order to determine compliance with the various standards, the EPA proposed to rely on both source testing conducted by the individual companies subject to the rule and data provided by manufacturers. The commenters believe that many of the test methods proposed for determining compliance with the emission limitations contained in the Aerospace NESHAP are either technically invalid, cannot practicably be applied at the user level, or are simply undefined. The commenters claimed that the problem is compounded by the EPA's failure to consistently define a rule for the use of manufacturer's data or to specify the weight such data will be given in compliance determinations.

Commenter IV-D-29 pointed out that in the special case of hand-wipe solvents, additional considerations demonstrate even

more conclusively the need to place the responsibility on the manufacturer. The commenter stated that many of the manufacturers and formulators of these blends determine the vapor pressures of the individual components from their suppliers or from engineering references and use the mole fractions and Raoult's Law to determine the overall vapor pressure of the solvent blend. According to the commenter, the manufacturers do not attempt direct measurement of vapor pressure of the overall solvent blend because of the problems associated with multi-component blends. The commenter believes that because the manufacturer already has this information on the components, the manufacturer should be responsible for certifying the composite vapor pressure of the blend to the user and/or regulatory agency. The commenter pointed out that this information is already required under the OSHA Hazard Communication Standard. (29 CFR §1900.1200.) Further, MSDS's are required to contain, as part of the hazard determination, the "[p]hysical and chemical characteristics of the hazardous chemical (such as vapor pressure, flash point)." (29 CFR §1910.1200(g)(2)(ii)). The commenter also noted that manufacturers are required to "ensure that the information recorded accurately reflects that scientific evidence used in making the hazard determination." (Id. §1910.1200(g)(5)).

Commenter IV-D-27 recommended that the following definition for "compliant material" be added to the proposed rule:

> "<u>Compliant material</u> means a material certified by the coating manufacturer to be compliant with the applicable VOC and/or HAP content requirements of this regulation."

Commenter IV-D-35 recommended that proposed §63.750(a) be revised to read as follows:

> "Composition determination. Compliance with the hand-wipe cleaning solvent approved composition list specified in §63.744(b) for hand-wipe cleaning solvents shall be determined from manufacturer's data provided from the MSDS for single component or commercially available multiple component cleaning solvents. The data must identify all

non-proprietary components of the cleaning solvent in percentages normally identified by an MSDS and demonstrate that one of the approved composition definitions is met."

In another part of their comments, the same commenter suggested a different revision for §63.750(a) as follows:

"Composition determination. Compliance with the hand-wipe cleaning solvent approved composition list specified in §63.744(b)(1) for hand-wipe cleaning solvents shall be demonstrated using data supplied by the manufacturer of the cleaning solvent. ~~The data must identify all components of the cleaning solvent and demonstrate that one of the approved composition definitions is met.~~ Data considered acceptable include: identification of all components of the cleaning solvent; manufacturer's letter certifying the product complies with the composition list; or manufacturer's product data sheet stating the product complies with the composition list."

The commenter also recommended that proposed §63.750(b) be revised to read as follows to allow use of manufacturer's data for commercial blends and in determining the composition of solvents blended in-house:

"(b) Vapor Pressure Determination. The composite vapor pressure of cleaning solvents used in a cleaning operation subject to this subpart shall be determined as follows (for water dilutable hand-wipe solvents, the concentrated or as-received vapor pressure shall be used):

(1) For single component and for commercially available multiple component hand-wipe cleaning solvents, the vapor pressure shall be determined by using the MSDS or other manufacturer's supplied data.

(2) The composite vapor pressure of a hand-wipe solvent blended in-house (diluting hand-wipe solvent with water is excluded) by a cleaning operation subject to this part or chemicals for which manufacturer's data is not available, shall be determined by the owner or operator submitting an

alternative procedure for determining the vapor pressure to the administrator for approval."

This commenter also recommended that proposed §63.750(e)(3)(i) be revised to read as follows in order to require that compliance be determined by using manufacturers' data or MSDS during enforcement and inspections:

"Compliance in calculating G_1 during enforcement inspections shall be based upon the VOC content obtained using manufacturer's data or the MSDS."

The commenter also recommended the deletion of §63.750(e)(3)(ii), and the revision of §63.750(j) to read as follows:

"(j) Organic HAP content of chemical strippers. The organic HAP content of chemical strippers used in depainting operations subject to §63.746(b)(1) shall be determined from manufacturer's formulation data. If the organic HAP content cannot be determined from the manufacturer's data, or the MSDS, then the owner or operator shall submit an alternative procedure for determining the organic HAP content for approval by the Administrator or use a stripper for which HAP content can be determined."

Commenter IV-F-1 manufactures a HAP-free terpene solvent blend for cleaning applications, which has a vapor pressure of 1-2 mm Hg and a VOC content of 850 g/liter. The commenter stated that since VOC emissions are often not calculated correctly, it is very important to look at vapor pressure as well as VOC content. The commenter requested that they not be asked to disclose the composition of the solvent blends due to the amount of R & D that has gone into them.

Response: Under the NESHAP standard setting process, the EPA establishes requirements for practices that will reduce HAP emissions from a specific source category. These requirements will have little or no environmental effect if they are not enforceable. In order to ensure that these aerospace requirements can be enforced by the appropriate control agencies,

they are designed to apply to owners and operators of the major source facilities where affected operations are being conducted.

Clearly, most of the liquid cleaners used in the aerospace industry are developed and manufactured by commercial enterprises that specialize in these products. These firms will be aware of the new requirements and will need in many cases to reformulate their products in accord with the standards. Solvent manufacturers that cannot produce effective, compliant solvent blends and also certify to customers the makeup of these blends will find it impossible to compete in this "new market." Similarly, aerospace companies are unlikely to patronize suppliers that do not provide reliable assurances that their products satisfy the necessary restrictions on constituents and physical properties.

The EPA believes that affected facilities should only have to perform this testing in order to verify a manufacturer's analysis of a new product or at its discretion to periodically verify that the nominal analysis for an existing product is being maintained. The Agency does not foresee this as an excessive burden on the industry.

11.2 VAPOR PRESSURE

Comment: Two commenters (IV-D-29, IV-D-30) stated that regarding the calculation of the composite vapor pressure of a material, it appears that the rule applies to all ingredients including water, exempt compounds, and non-HAP. The commenters believe this requirement is unnecessarily restrictive and pointed out that a non-HAP, exempt, single component solvent, such as an HFC, could not be used for non-exempt cleaning operations if its vapor pressure exceeds 45 mm Hg. Commenter IV-D-29 felt that including water and exempt compounds is contrary to the intent of the regulation and of section 112 of the Act. Commenter IV-D-35 stated that diluting a cleaning solvent with water should be exempt from vapor pressure requirements, as water poses no environmental hazard.

Commenter IV-D-35 stated that if a facility mixes a multiple component solvent in-house, they should be allowed to calculate

the vapor pressure from the components of the mixture without use of a gas chromatography or other approved ASTM test.
The commenter stated that standard engineering reference texts may be used to determine the vapor pressure of a single component solvent but that users of blended hand-wipe solvents may not use manufacturer's data or reference texts to show that the wipe solvent meets the vapor pressure requirements of the proposed rule.

Commenter IV-D-29 felt that the test method for vapor pressure determination, gas chromatography per ASTM E 260-85, is not an appropriate method for many materials that would comply with the proposed regulation. The commenter felt that if a user (or a regulating agency) could calculate a wide range of vapor pressures using standard engineering sources, it is clear that great confusion (and potential legal battles) will occur when trying to define whether a solvent blend meets the 45 mm Hg limit. The commenter stated that manufacturers often consider the constituents of their materials to be proprietary information, making vapor pressure calculations difficult. The commenter believes that manufacturers would be more likely to provide the vapor pressure of the blended solvent.

Commenter IV-D-29 stated that the cost of equipment and necessary testing to ensure compliance with the vapor pressure standard would be high. The commenter suggested that the initial equipment costs for an automated gas chromatography system would be approximately $30,000, and claimed that many small component suppliers and subcontractors do not have the equipment or the trained personnel to perform such analyses. According to the commenter, the present cost for running a single sample per ASTM E 260 at an outside laboratory is approximately $175 or more, depending on the complexity of the blend. The commenter proposed that if each aerospace facility (the EPA has estimated that there are 2,800) has only one blended solvent and runs only one sample annually at $175, the annual cost is $490,000. The commenter believes that the regulation as written would require thousands

of aerospace facilities to perform redundant testing of these materials, multiplying these costs greatly.

Finally, the commenter understood that the use of an isoteniscope to determine vapor pressure was recommended by one manufacturer. The commenter stated that this method is highly complex and extremely costly to facilitate, as evidenced by the very few laboratories in the U.S. capable of performing this test. The commenter pointed out that ASTM has not established the precision for this test because of the lack of participating laboratories.

The commenter recommended the following revision to address the issues raised above on compliant materials:

"§63.750 Test methods and procedures.

(b) Vapor pressure determination. The composite vapor pressure of hand-wipe cleaning solvents used in a cleaning operation subject to this subpart shall be determined ~~as follows~~ using data supplied by the manufacturer:"

The commenter recommended the deletion of §63.750(b)(1) and (b)(2).

Response: With regard to the use of gas chromatography, the EPA believes it is an appropriate method and necessary in order to verify the actual organic composition of blended solvent mixtures. As pointed out in the comments, the exact composition of cleaners is often not divulged by manufacturers. Also, there can be numerous values in standard references for vapor pressure data due to various test methods used, etc. The EPA has concluded that GC analysis is the only verifiable means of determining compliance with the vapor pressure limits for approved manufactured cleaning solvents. For solvent blends mixed in-house, the EPA agrees that GC analysis should not be necessary if the facility is aware of all the constituents that have gone into the mixture. Therefore, the final rule allows a facility to use manufacturers' data or standard reference texts to calculate the composite vapor pressure.

The composite vapor pressure limit for hand-wipe solvents is intended to apply to the entire solvent blend. However, the EPA

does not intend to require solvents that contain no HAP or VOC to be regulated by the standard. Therefore, in order to clarify the applicability of the standard, §63.744(b) has been revised by adding the following provision:

> "Cleaning solvent solutions that contain no HAP or VOC are exempt from the requirements in paragraphs (b)(1), (b)(2), and (b)(3)."

This revision relieves facilities of the requirement to conduct testing on solvents that contain no HAP or VOC. In addition, the EPA has added the composite vapor pressure calculation to the final rule (§63.750(b)(2)). The calculation exempts water, non-HAP, and non-VOC compounds from the vapor pressure determination.

The EPA agrees that vapor pressure testing using an isoteniscope has not been fully established at this time (and may have accuracy limitations), and the Agency is not prescribing this method.

Comment: Commenter IV-D-30 recommended the use of the vapor pressure calculation currently being used by SCAQMD and proposed for use in the Ventura APCD. The commenter enclosed a copy of SCAQMD's Rule 1171 for consideration.

Commenter IV-D-29 stated that the specified test method parameters and conditions (gas chromatography system, column packing and length, sample size, temperature, detector, etc.) leave many factors to be defined by the chemist/analyst performing the test. The commenter believes that it is likely that manufacturers, users, and regulators will obtain somewhat different results because each analyst defines these factors differently. The commenter also claimed that the method is inaccurate for complex blends containing materials such as naphtha or mineral spirits, as well as for blends containing water that do not meet the definition of an aqueous cleaner (which would remove them from the testing requirements). The commenter also noted that attempting to analyze blends containing detergents and surfactants, common constituents which act to enhance performance, may ruin the column and will cause excessive downtime of the gas chromatography system. The commenter pointed

out that GC analysis requires comparison of the sample with high-purity standards of each of the constituents. The commenter stated that unless a complete list of all constituents is available to the tester, it is extremely difficult to identify the constituents so that these standards can be obtained. Without these standards, it is impossible to quantify the individual components and, thus, the individual mole fractions required for the overall vapor pressure calculation. The commenter also noted that lack of standards increases the likelihood of misidentification and/or incorrect quantification of components. Further, composite vapor pressure can be incorrectly calculated since standard engineering texts list varying vapor pressures for a single component.

Commenter IV-D-43 noted that proposed §63.750(b)(2) required vapor pressure to be determined by ASTM E 260-85. The commenter stated that ASTM E 260-85 is a standard practice for packed column gas chromatography (GC) and it serves as a general guide to the application of GC with packed columns and as a reference for the writing and reporting of GC methods. The commenter pointed out that ASTM E 260-85 is not, however, a test method and it does not specify the procedures or conditions to be followed to conduct an analysis. The commenter believes that this could lead to the use of various methods that specify a variety of conditions and procedures that will result in values that are not identical. The commenter, therefore, recommended that a method similar to AQMD Method 304-91 be specified to quantify the amount of each organic compound in the blend.

Response: The EPA has not experienced the problem of detergents causing the difficulty in GC equipment described by commenter IV-D-29. Detergents and surfactants are not expected to volatilize and reach the analytical column.

It is not possible to write one detailed method to cover all of the compounds that may be present, and so the regulation cites the most current version of the general GC method (written as ASTM E 260-**).

In addition, the EPA has adopted the calculation for composite vapor pressure listed in SCAQMD's Rule 1171. This calculation has been added to §63.750(b)(2).

Comment: Commenter IV-D-46 stated that if vapor pressure control is instituted for non-HAP chemical strippers, it should be based on a calculated value. The commenter claimed that there is no theoretically sound, accurate method of determining the vapor pressure of complex mixtures. The commenter pointed out that the usual method, using an isoteniscope, is reliable only for pure liquids. Furthermore, the commenter stated that to obtain reliable results, it is indispensable that all dissolved gases from the atmosphere be removed, which can only be done by repeated boiling of the liquid under vacuum. The commenter noted that this process unavoidably changes the composition of a mixture by depleting it of the more volatile components, which gives an unavoidable error to the result, biasing it toward the low side. The commenter, therefore, recommended that Raoult's Law be used for vapor pressure determination. The commenter noted that this would be consistent with SCAQMD's Rule 1124.

Response: The depainting provisions of §63.746 do not specify a vapor pressure limit for non-HAP chemical stripper depainting operations. However, the commenter's statements do apply to the requirements for hand-wipe cleaning solvents. §63.740(b)(2) does require the vapor pressure determination for a solvent blend to be made by the use of Raoult's Law.

Comment: Commenter IV-D-34, along with two other companies, has determined that non-ideal gases and complex dissimilar species of materials, such as those formed in azeotropes, do not conform consistently with Raoult's Law. The commenter stated that ASTM D 2879-92 seems to be a more reliable method for solvents with vapor pressures to 1 mm Hg. The commenter submitted their two solvents to a lab utilizing ASTM D 2879-92. The commenter stated that the test was relatively inexpensive and was performed in a timely manner. The test results indicated that the solvents meet the requirements in the NESHAP. The commenter pointed out that the vapor pressure for one solvent was

1.54 using Raoult's Law and 1.1 when the ASTM test was used. The commenter stated that although the difference between calculated and tested results in this case is small, if a blend were on the borderline, the ASTM method would probably give an accurate and definitive true vapor pressure.

Response: ASTM D 2879-92 is a standard test method for vapor pressure determination using an isoteniscope. As discussed earlier, the EPA is not specifying this method at this time because its precision and the relationship of its results to other methods is not fully understood. In addition, this method requires the removal of all dissolved gases through boiling under vacuum, which depletes volatile components and biases the results low. Therefore, use of Raoult's Law to calculate the vapor pressure of mixtures is currently the best method available for this determination.

11.3 VOC/HAP CONTENT DETERMINATION

11.3.1 Topcoats and Primers

Comment: Five commenters (IV-D-2, IV-D-23, IV-D-27, IV-D-29, IV-D-35) stated that they strongly support the use of manufacturer's data in determining VOC content.

Two commenters (IV-D-23, IV-D-2) were concerned that technical difficulties associated with EPA Method 24 in accurately analyzing the VOC content of water-based systems have the potential for making enforcement difficult because of overestimates of the VOC content of coatings and maskants. The commenters, therefore, recommended that the rule allow users of water-based coatings and maskants to rely on a certification by the manufacturer that the material will meet the requirements of the regulation if mixed in accordance with the manufacturer's specifications. The commenters stated that to make this approach enforceable, each facility must be required to keep copies of each certification and document that all regulated coating and maskants are mixed per specification.

Three commenters (IV-D-27, IV-D-29, IV-D-39) believe that manufacturers' data are in general more accurate than Method 24, particularly with respect to low solids or waterborne coatings,

and are more consistently replicable. However, the commenters noted, making Method 24 ultimately determinative effectively undercuts flexibility. In effect, commenter IV-D-39 suggested that it makes use of manufacturer's data "at your own risk." Commenter IV-D-29 stated that users would essentially be forced into a Method 24 testing program in self-defense. Commenter IV-D-27 recommended that the manufacturer label and certify that coatings are compliant. Commenter IV-D-39 recommended amending the language of the proposed rule so that:

> "... if there is found to be a difference in the VOC content as determined from the manufacturer's data and that determined using Method 24, <u>the regulating entity will obtain the manufacturer's data and determine whether the "as supplied" VOC number was appropriately calculated by the manufacturer (or if any diluent was added subsequently, whether the "as applied" number was appropriately calculated by the source.) If the manufacturer or the source can satisfactorily demonstrate that the VOC content is appropriately reflected by manufacturer's data, then the regulating entity shall determine that no violation exists.</u>"

The commenter also noted that since the VOC limit and the MACT limit for HAP are proposed to be identical, the use of either formulation data or Method 24 would be appropriate for determination of HAP. (According to the commenter, if the HAP and VOC levels are identical, then determining VOC should allow a manufacturer to determine the volatile HAPs present in the formulation, since volatile HAPs would always be equal to or less than VOC.) The commenter stated that adding preamble language such as the following might address this issue (with appropriate language in the actual rule as well):

> "Test methods and procedures have been identified for compliance with the organic HAP and VOC content levels. Method 24 in appendix A to 40 CFR part 60 would be used to determine the VOC content of each primer and topcoat as applied. Alternatively, manufacturer's data may be used to determine the VOC content of these coatings <u>as supplied.</u>

However, in the event of any inconsistency between manufacturer's data and Method 24 test results, the Method 24 test results will take precedence. At this time, there is no approved test method or procedure for determining the organic HAP content of coatings, manufacturers of coatings may utilize appropriate methodology, such as formulation data, or laboratory analysis, to establish the organic HAP content of coatings, as supplied. Alternatively, since the proposed VOC BACM limits are identical to the organic HAP limits contained in this proposal, a coatings manufacturer may determine the VOC content of the coating as a surrogate for volatile organic HAPs, recognizing that the organic HAP portion of the coating will, in many cases, be lower than the number which will be established for VOC content by used Method 24. The facility may rely on the coating manufacturer's data to determine the organic HAP content level of each coating. The total organic HAP weight fraction and density of each coating as received would be determined using the manufacturer's data. The volume of each primer and topcoat used would be determined using user company records. If diluent solvents or other ingredients are added to a primer or topcoat prior to application, then the total organic HAP and VOC weight fractions, density, and volume must be adjusted appropriately to account for such additions, utilizing EPA form ###, or other appropriate method. These values would be required for each 24-hour period; however, only changes in formulation would require redetermination of total organic HAP and VOC weight fractions and density."

Commenter IV-D-29 recommended the following revisions to address the issues raised above on compliant materials:

"§63.750(e)(1) Determine the VOC content water weight fraction (if applicable), and density of each formulation as applied (less water and exempt solvents) using ~~Method 24 or~~ manufacturer's data."

"§63.750(f)(1)(iii) Determine the VOC content of each primer and topcoat formulation as applied (less water and exempt solvents) using ~~Method 24 or from~~ manufacturer's data."

The commenter recommended that §63.750(e)(3)(i) and (ii) be deleted. The commenter also recommended that §63.750(f)(5)(i), (ii), and (iii) be deleted, as well as §63.750(o)(2)(i) and (ii). Additionally, the commenter recommended the deletion of §63.750(p)(4)(i), (ii), and (iii). (These provisions give preference to Method 24 results in enforcement inspections.)

Response: The EPA believes that use of Method 24 provides consistent, reliable results when determining the VOC content of primers and topcoats. The Agency must have a method that it can utilize for enforcement purposes and a method that can be used by all sources. Therefore, the rule provisions referring to Method 24 results taking precedence in enforcement actions have been retained in the final rule.

Comment: Commenter IV-D-43 stated that in proposed §63.750(e)(2), equation No. 7, the volume of exempted solvent in 1 gallon of coating (V_{xi}) should be subtracted from the denominator. Thus, the denominator should read ($1-V_{Wi}-V_{xi}$).

Response: The EPA agrees with the commenter, and has made the suggested change.

Comment: Commenter IV-D-27 recommended the following revision to proposed §63.750(d)(1)(ii)(B):

"(d)(1)(ii)(B) If a change in formulation takes place ~~or a change in ingredients added to the coating, including the ratio of coating to diluent solvent,~~ that is greater than plus/minus 10 percent by weight prior to its application, ~~either or which results in a more than minimal effect on the organic HAP content of the coating,~~ then the total organic HAP weight fraction of the coating must be redetermined."

The commenter believes that having to calculate each change of diluent is extremely onerous and adds no environmental benefit. According to the commenter, a range of plus/minus 10 percent by weight change in coating formulation would reduce this

burden while formulation changes outside this range would require a redetermination.

Response: The EPA has considered whether the allowable change in formulation before a HAP content redetermination is necessary should be quantified, and believes that specifying a quantitative range would be impractical. It is unclear whether the 10 percent figure would be applied only to the amount of diluent solvent or to some other quantity. The Agency considers the proposed wording (despite the unquantified term "minimal") to constitute a better control on the coating composition than the wording suggested by the commenter.

Comment: Commenter IV-D-12 referred to proposed §63.745(d)(2) which specifies that compliance with the proposed HAP and VOC content levels can be accomplished using any combination of primers or topcoats such that the daily volume-weighted average content of the combination complies with the specified levels. The commenter pointed out that they have a similar provision in their State rule (7.27-16.7(c)(3): when one or more of the uncontrolled coating formulations used exceeds the VOC content limit, the daily weighted average VOC content of all the coatings used is calculated, and the average must be below the applicable VOC content level).

Commenter IV-D-50 suggested that the averaging method to comply with the HAP/VOC limitations be based on a greater time period than 1 day. The commenter supported the concept of averaging within coating categories to achieve the proposed coating limitations. The commenter stated that much of their business involves repairing one entire aircraft's worth of ship set and, as a result, for days and sometimes weeks they may use the same customer-specified coating system. According to the commenter, if the coating specified for a set of parts exceeds the proposed limits based upon the proposed 1-day average method, they must refuse the work or install controls.

The commenter suggested that if the averaging was based upon a longer period of time (for example, on a monthly or preferably an annual basis), they could take advantage of the fact that

other customer-specified coating systems used in that month or year period would be below the proposed limits. As currently proposed, the commenter believes that the averaging methods provide practically no flexibility as far as their operations are concerned.

Commenter IV-D-27 recommended the following revisions to proposed §63.750(d):

> "(d) Organic HAP content level determination - averaged primers and topcoats. For those uncontrolled primers and topcoats that are averaged together within their respective coating category in order to comply with the primer and topcoat organic HAP content levels specified in §63.745(b), the following procedure shall be used to determine the daily volume-weighted average mass of organic HAP emitted per volume of coating (less water) as applied. <u>The volume-weighted average can be determined monthly if less than 10 gallons of primer and topcoat are used per day.</u>"

<u>Response</u>: In the proposed rule, the EPA specified an averaging period of 1 day because longer-term usage of the higher VOC coatings (such as described by commenter IV-D-50) has the potential to create exceedances of the ozone national ambient air quality standards (NAAQS), which are expressed in terms of daily averages. In order to provide facilities with additional flexibility, the EPA has changed the averaging period to monthly or as determined by the permitting authority. The EPA believes that this change will potentially benefit facilities located in attainment areas. In addition, this revision will also allow permitting authorities to retain the 1-day averaging period if it is necessary in order to protect the NAAQS.

<u>Comment</u>: Commenter IV-D-30 noted that the proposed rule would require the operator to submit an alternate procedure for determining HAP content for approval by the EPA if the organic HAP content of a primer, topcoat, or stripper were unavailable from the manufacturer's formulation data. The commenter believes this could result, depending on the method proposed, in widely varying analytical data. According to the commenter, this

imposes an unreasonable burden on the user, particularly small companies or organizations. The commenter recommended that the EPA specify a method for determining organic HAP content.

Response: The EPA included the provision that requires a facility to submit an alternative procedure for approval because all manufacturers may not supply the needed information. The EPA will carefully consider any method or documentation submitted for approval. However, the EPA does not anticipate that any such methods or documentation will be received from the industry. Companies that choose to not provide the needed information to their customers will probably be forced out of business by market conditions, especially when the customers must determine parameters that are easily determined by the manufacturer.

11.3.2 Chemical Strippers

Comment: Commenter IV-F-1 stated that Method 24 gives an accurate measure of the volatile content, accounts for the presence of water, and is also recognized as not being applicable to multi-component catalyzed type paints. As far as non-HAP strippers are concerned, the commenter stated that their products contain ingredients that are designed to minimize the evaporation of the solvent during the use of the product. The commenter suggested that if the evaporation of the solvent is forced, as in Method 24, you get a misleading result. The commenter presented data at the public hearing to support their view. According to the commenter, using Method 24 negates the effect of the evaporation control they've built into their products and grossly overstates the solvent emissions.

Response: The EPA has not proposed Method 24 for determination of organic HAP content in chemical strippers. The following procedure was specified in §63.750(j):

> "(j) Organic HAP content of chemical strippers. The organic HAP content of chemical strippers used in depainting operations subject to §63.746(b)(1) shall be determined from manufacturer's formulation data. If the organic HAP content cannot be determined from the manufacturer's data, then the owner or operator shall submit an alternative procedure for

determining the organic HAP content for approval by the Administrator."

Comment: Commenter IV-D-35 recommended that §63.750(k)(3) be revised to read as follows:

"C = annual average quantity (gallons per aircraft) of organic HAP-containing chemical stripper used for spot stripping and decal removal."

The commenter pointed out that the existing definition states the units for "C" in gallons per aircraft for the annual average weight, and the commenter noted that gallons are not a unit of weight.

Response: The definition for the variable "C" has been revised to read:

"C = annual average volume (gallons per aircraft) ..."

11.3.3 Method 24

Comment: Commenter IV-D-29 noted that the EPA has proposed to rely on Method 24 for conclusive determinations of the VOC content in primers, topcoats, and maskants. However, the commenter claimed that they have stated to the EPA on numerous occasions that Method 24 will not reliably perform this function. ASTM Manual 4 (VOC Manual) contains a discussion of the precision of one of the ASTM's on which Method 24 is based. According to the commenter, the manual specifically states:

"For water-reducible coatings, as the solvent content approaches very low values (water content approaches the total volatile content), the indicated precision for VOC (total volatiles minus water content) becomes totally unreliable: calculated negative VOC values are even possible."

The commenter stated that a presentation containing statistically valid data using Method 24 on waterborne maskant was made to the EPA at the October 5-6, 1993 meeting. According to the commenter, the data presented indicated that Method 24 produces widely varying values for VOC (including negative numbers in some cases). The commenter also stated that recent data presented at the August 15, 1994 public hearing, indicate

similar problems with water-reducible primers. The commenter claimed that the primer results indicated poor repeatability within a single laboratory with qualified personnel, as well as poor reproducibility between labs.

In addition, the commenter stated that Method 24 was developed for paints and related coatings and that the precision and bias numbers as published in the associated ASTM's do not appear to be appropriate for materials like chemical milling maskants.

The commenter claimed that the initial cost of equipment for Method 24 analysis would range from $40,000 to $55,000, depending on whether the water content determination is completed using both gas chromatography and Karl Fischer titration. The commenter believes that it takes a trained and knowledgeable person an entire 8-hour day to complete four samples with duplicate runs. According to the commenter, if the pot life of the material is short, two or more trained analysts would be required. According to the commenter, since compliance depends on this method (as the Aerospace NESHAP is currently drafted), regardless of manufacturer's data, users are likely to continue attempting to get consistent results to establish confidence in the material. The commenter believes that repeated testing in an attempt to force consistent results from an inappropriate test method is expensive and not effective in reducing VOC. The commenter pointed out that each time these materials are tested, the test results become one more set of records that must be retained.

The commenter stated that smaller component suppliers lack the personnel, expertise, and equipment to perform these analyses, which cost from $340 to $500 per sample at independent labs. The commenter claimed that the testing would be done on small procurement volumes, which would add (1) relatively large costs per gallon, (2) unnecessary delays prior to being able to use a time/temperature sensitive material, and (3) the associated schedule and inventory cost impacts.

The commenter stated that, if each of the estimated 2,800 aerospace facilities had only one primer, topcoat, or maskant, and only ran one sample annually at $340 to $500, the annual cost to industry would be between $952,000 and $1,400,00. The commenter pointed out that the cost would have to be multiplied many times if redundant testing to establish confidence was necessary or if facilities had more than one primer, topcoat, or maskant, plus the probable intent of the Aerospace NESHAP that such testing be done on each batch of material received. Thus, according to the commenter, the use of Method 24 will lead to serious problems in accurately determining VOC content, will provide no useable information, and will lead to vigorously contested enforcement actions because of its unreliability. The commenter believes that the more the industry shifts toward water-reducible coatings and maskants, the worse these problems will become.

Commenter IV-D-27 claimed that Method 24 is known to produce errors in a VOC determination of waterborne maskants and primers. The commenter noted that it is stated in the Method 24 sampling manual that Method 24 has produced widely varying values for VOC and, in some cases, negative numbers. The commenter also stated that they have not been successful in locating the EPA certified Method 24 labs. The commenter believes that reliance on Method 24 should be deleted.

Response: The regulatory agencies need a standard means to check the composition of maskants and other coatings, as applied. Method 24 is the best currently available compliance method for determining VOC in low-VOC solvent content (high water content or waterborne) coatings. The inherent imprecision of indirectly determining the VOC content of such coatings by this methodology necessitates an adjustment of the analytical results. Such adjustments must be based on confidence limits calculated from the precision statement established for Method 24's constituent ASTM methods. The precision adjustment is incorporated in Method 24.

The EPA does not currently certify laboratories; therefore, there are no labs "certified" by the EPA to perform Method 24.

Comment: Commenter IV-D-43 stated that the proposed rule would require the organic HAP level determination to be derived from manufacturer's data, but according to the commenter most manufacturer's material safety sheets do not indicate how the density of the material is determined. The commenter, therefore, recommended that the most recent version of ASTM D-1475 be used to determine the density of the material.

Response: The proposed and the final rule list HAP limits to two significant figures. The EPA believes that this level of precision can easily be determined by several methods and therefore will allow manufacturers to use the method of their choice. Information collected by the EPA indicates that manufacturers have the capability to report the density to a higher degree of precision than two significant figures.

11.4 METHOD 309 - CARBON ADSORPTION CONTROL EFFICIENCY

Comment: Two commenters (IV-D-8, IV-D-26) requested an extension for the comment period on proposed Method 309, with a separate Federal Register notice specifically for the method.

Commenter IV-D-8 believes that Method 309 has the potential to affect a number of other industries besides the aerospace manufacturing sector; hence, a separate Federal Register notice specifically for Method 309 should be published with an appropriate comment period for others who undoubtedly have missed this information due to the category it was published under.

Commenter IV-D-26 stated that proposal of Method 309 through the aerospace NESHAP proposed rule is inappropriate due to its inclusion in a regulation almost totally unrelated to the great majority of carbon adsorber system users. As a result, the commenter claimed that these users have been disadvantaged in reviewing and commenting on the proposed method.

Commenter IV-D-33 stated that section 5.0 of Method 309 provides an empirical equation that is apparently the result of a multi-variate step-wise regression on a large body of data on carbon adsorber performance. The commenter pointed out that no

information is provided to establish how the equation was developed. According to the commenter, if the equation is applied to a type of carbon adsorber not addressed during the empirical equation development, it could give incorrect results. The commenter, therefore, requested an opportunity to review the data utilized to develop the section 5.0 empirical equation and make further comments as appropriate.

The commenter also stated that Method 309 is extremely complicated and would benefit from clarification of the procedures. The commenter recommended adding a flowchart and a summary sheet for all variables and units.

Commenter IV-D-75 believes that the appropriate length of the rolling material balance should be short enough to closely approximate the continuous compliance (i.e. emission rate) that the low VOC option provides. According to the commenter, if the timeframe is allowed to be for a long period of time, periods of non-compliance would be difficult to detect since they would be "averaged" across many days or weeks.

Commenter IV-D-9 expressed concern that the requirement for complex mass balance calculations to determine the overall control efficiency of carbon adsorption specified in §63.750(g) may discourage the use of a technology which already has been applied successfully at a number of aerospace manufacturing and rework facilities. The commenter suggested that a method for the calculation of overall control efficiency as a product of capture and control device efficiencies similar to that described in §63.750(h) should be sufficient to show compliance with the standards. The commenter believes that the latter approach would ease the burden on owners/operators of facilities choosing carbon adsorption to comply with the standards, and thus would be less prejudicial to the use of adsorption.

Commenter IV-D-80 stated that based upon their discussions with companies that currently use carbon adsorbers, suppliers of such equipment, and EPA Region VI personnel, there are many carbon adsorber systems that are unsuited to tracking based on a short, periodic basis or calculation based on quantity of solvent

recovered as Method 309 requires. The commenter claimed that the method was developed as a generic method for carbon adsorber-type, single phase, on-site recovery systems and cannot be expected to adequately address all possible configurations that occur in industry.

The commenter stated that Method 309 is not appropriate for a system where the capture solvent is sent to the control device (carbon adsorber) on site but the solvent is not desorbed on site. The commenter stated that this is the case when the loaded carbon is incinerated and the energy is recovered, or when the loaded carbon is sent off-site for regeneration and solvent recovery. The commenter pointed out that these types of systems do not readily lend themselves to a material balance calculated on the quantity of solvent recovered. In addition, the commenter stated that Method 309 fails to consider working and breathing losses from solvent holding tanks.

The commenter pointed out that at one aerospace facility, a permit efficiency of 90 percent has been met with a source test at the time of permit issuance combined with use of continuous monitors to measure inlet and exit hydrocarbon content of the air flows. The commenter stated that calculations at this same site using a material balance approach show capture efficiencies ranging from 84.2 to 104.8 percent depending on the time period used and the choice of solvent purchased versus solvent used.

The commenter believes that no aerospace company is currently using a system similar to the type of system envisioned by Method 309 or using a rolling material balance to keep track of the efficiency of their carbon adsorber system. The commenter stated that the methods currently used in the aerospace industry, and most other industries, are: 1) operation and maintenance according to the manufacturer's instructions, 2) periodic monitoring of the effluent air stream to assure that solvent breakthrough has not occurred, 3) maintaining solvent throughput below a calculate threshold value, and 4) a combination of (1) to (3).

The commenter believes that Method 309 does not meet the objective of universal applicability and, for this reason, the commenter suggested that the EPA adopt a flexible approach that relies on the good sense of local agencies to solve local problems.

Two commenters (IV-D-80, IV-D-83) believe that Method 309 is not appropriate for all systems using carbon adsorbers. The commenters recommended that the operator of the carbon adsorber be provided with the following options to calculate the overall efficiency:

1. the mass balance calculations specified in Section 60.433(b), (c), or (d), as appropriate, with the rolling material balance period computed using appendix A to part 63, Method 309, with the performance averaging period of Section 60.433 equal to the rolling material balance period of Method 309; and the control efficiency equal to 100 minus the emission percentage computed in Section 60.433 (b), (c), or (d), as appropriate;
2. calculation based on measurement of flow and concentration into and out of the carbon adsorber control device combined with a preventative and scheduled maintenance program based on the manufacturer's recommendations and operation of the control device in accordance with the manufacturer's operating instructions;
3. calculation based on the carbon adsorber control device manufacturer's statement of efficiency combined with a preventative and scheduled maintenance program based on the manufacturer's recommendations and operation of the control device in accordance with the manufacturer's operating instructions; or
4. calculation approved by the regulatory agency having principal authority for enforcement of this part.

The commenters suggested a flexible approach that relies more heavily on local agency involvement and oversight, and

claimed that the proposed rolling material balance period is an unworkable approach.

Commenter IV-D-29 stated that the developers of Method 309 intended that it be an option for determining compliance averaging periods for carbon adsorber type recovery systems. The commenter also claimed that Method 309 was not expected to address all possible configurations that occur in industry. Therefore, the commenter believes that Method 309 should be used only as an option to determine compliance averaging periods in lieu of an alternative approved by the operating permit authority. The commenter pointed out that Method 309 was developed using a mathematical model, Monte Carlo statistical techniques, and curve fitting and that only limited testing of the equations against actual field conditions was conducted for functioning operations. The commenter believes that it is clear that Method 309 is not well suited for recovery systems that are monitored continuously or are sampled at infrequent intervals.

The commenter claimed that there is inadequate linkage between Method 309 and the determination of control efficiencies for carbon adsorber units. Additionally, the commenter believes that if Method 309 is to be linked to §60.433, the rule should be clarified.

The commenter, therefore, recommended the following revisions to appendix A to part 63, Method 309:

"1.0 <u>Applicability</u>

This method determines the length of the rolling material balance period used in the liquid-liquid material balance test method to measure the overall performance of volatile organic compound (VOC) emission control systems <u>that recover solvents.</u> The rolling balance period obtained from this method is source-specific, taking into account the particular configuration and operating parameters of the emission source (process) and its emission control system. <u>If experience indicated that the rolling material balance period computed under this method does not accurately represent the actual operation of the solvent recovery</u>

control device, the operator of the device may use a more appropriate period by demonstration to the regulatory authority the suitableness of the proposed alternative period. The demonstration shall be based on actual operation of the device and supported by appropriate data and calculations.

2.0 Summary of Method

Physical properties and usage are determined for the solvent(s) used in the process, and configuration and operating parameters are identified for the emission source and its emission control system. This information is used to calculate the concentration of VOC in the outlet air of the capture unit, amount of VOC absorbed on the carbon, maximum VOC loading on the carbon, unmeasured solvent holding capacity of the solvent recovery system, and unmeasured solvent holding capacity of the process unit. These values are then used to calculate the rolling material balance period.

It is the intent of the Method that the rolling material balance period be calculated just once. However, if there is a significant change in operations or equipment that causes the computed period to be inappropriate, the operator may recompute the period and the recompute period may be applied retroactively for a period not to exceed 30 operating days."

Commenter IV-D-26 recommended that Method 309 be withdrawn or, at a minimum, be substantially revised. The commenter claimed that review of the method revealed a number of flaws in the statistical treatment and inconsistencies and difficulties in its application. The commenter suggested that the results obtained from the method appear to have little, if any, relationship to realistic operating conditions. According to the commenter, if adopted, use of the method would result in the calculation of noncompliance for numerous facilities whose air pollution control performance greatly exceeds regulatory

requirements. Because of these problems, the commenter believes that the results of Method 309 would be totally meaningless.

Commenter IV-D-26 requested that the EPA provide documentation demonstrating that the proposed method provides an accurate representation of compliance periods for carbon adsorbers throughout a wide range of actual operating conditions. The commenter stated that to date, the EPA has provided no background information regarding the basis of the method, nor has the EPA documented that the model is consistent with actual carbon adsorber performance data. According to the commenter, actual operating data previously supplied to the EPA indicate that the proposed method does not provide a realistic compliance period.

The commenter stated that the EPA has provided no documentation or rationale to support the development of proposed Method 309 or to impose new, shorter-term rolling material balance periods on facilities using carbon adsorption systems, and that the Federal Register notice proposal for Method 309 contains no basis or justification for its proposed adoption.

Commenter IV-D-26 noted that the new source performance standards (NSPS) for publication rotogravure, promulgated in 1982 as 40 CFR 60 subpart QQ, acknowledged the difficulty of demonstrating compliance for carbon adsorber systems over the short-term, and adopted instead a 30-day mass balance. The commenter stated that there has been no fundamental change in the design or operation of solvent recovery systems since that time, so the need to adopt a method to establish a shorter-term rolling average (or a rolling average at all) is questionable.

Commenter IV-D-26 stated that the use of proposed Method 309 has the potential to impose additional, more stringent control requirements on subject facilities because the shorter compliance period will effectively raise the level of control required of a facility due to increasing larger statistical variations resulting from shorter periods than the monthly standards set forth in the NSPS for publication rotogravure.

The commenter stated that the EPA must realize that these short-term variations will not be fully accounted for by the proposed method and that, as new MACT are developed, current performance data for facilities using carbon adsorption systems are not based on the proposed Method 309 calculations. As such, the commenter pointed out, the baseline determination for MACT currently being established will be invalid and will represent a level of control higher than that which could be consistently achieved using the compliance period calculated with proposed Method 309.

Commenter IV-D-26 reviewed their lengthy history of communications with the EPA concerning length of period of the rolling material balance for compliance determinations. One item referred to by the commenter was a document they submitted to the EPA on March 5, 1992 that, according to the commenter, clearly demonstrated that need for a long-term compliance period. The commenter pointed out that the data showed that a facility averaging 87.6 percent overall control efficiency over a 3-month period of relatively low production would show a range of 72.0 to 98.2 percent overall control based on a 28-day rolling average, 44.6 to 130.3 percent control based on a 14-day rolling period, and -1009.4 to 621.3 percent using a 7-day rolling average. The commenter also noted that for a 4-month period of higher production (average daily input of 11,370 gallons vs. 6,355 gallons), the overall recovery was 86.4 percent, with the ranges for 28-, 14-, and 7-day rolling periods of 83.9 to 90.0 percent, 82.8 to 94.5 percent, and 79.4 to 108.8 percent, respectively. According to the commenter, since a method for calculating a rolling period had not yet been proposed, it was impossible to determine what rolling period would be recommended. However, the results of these data, according to the commenter, clearly showed that anything short of the 30-day NSPS compliance period would produce erroneous results, falsely indicating noncompliance for a facility operating well above its required efficiency.

Commenter IV-D-26 stated that proposed Method 309 is unable to accurately predict the required compliance period based on

actual facility variables, and it appears the model was based on steady-state operations, with no consideration given to the day-to-day variation in operations. The commenter provided an example which the commenter claimed indicated that the actual annual performance of the carbon adsorption system was greater than that required, but when the averaging rolling period was calculated for a facility using Method 309, the calculated efficiencies over the rolling period indicated non-compliance. The commenter used a second example to claim that the calculated rolling period is much shorter than necessary to consistently show compliance with required overall control, despite the fact the facility was operating 6 percentage points above the required level.

The commenter provided data for 27 publication rotogravure facilities which recorded the monthly control efficiency over a 1-year period to demonstrate the magnitude of statistical variations. The commenter's data showed a monthly variation in control efficiency ranging from 1.8 to 10.0 percent. The commenter stated that, while not all of the variation could be attributed to statistical factors alone, this magnitude of variation is typical of that routinely encountered with a NSPS 30-day mass balance. The commenter pointed out that, if proposed Method 309 had been used for these facilities, the annual average would not change, but the best and worst values would be expected to change considerably.

According to the commenter, if these same facilities were subject to the same 84 percent requirements, but on a 3 to 5 day period, they will in effect be required to demonstrate a higher average level of control, probably 90 percent or greater, to accommodate the short-term variations normally experienced. Therefore, the commenter concluded, the EPA must consider the impact of the proposed method on facilities now complying with monthly demonstrations.

Commenter IV-D-26 stated that the major assumption of the method is that the maximum solvent input into the recovery system (with small contributions from unmeasured solvent quantities) can

be used to define the rolling period. The commenter claimed that this assumption is flawed for several reasons, as summarized below.

1. The method fails to provide a consistent compliance period for systems of different design capacity. The commenter stated that in an ideal situation, with no solvent in unmeasured capacity and continuous steady-state operation, the mass balance of a carbon adsorption system should be measurable in a consistent and accurate manner over a short compliance period, regardless of the system throughput, and yet the method shows a very strong dependence of the compliance period (N_{RBP}) on the maximum throughput (Q_{SP}). For this idealized case, if all quantities of solvent can be measured accurately and consistently, there is no reason for N_{RBP} to have any dependence on Q_{SP}. According to the commenter, the fact that the model shows such a marked dependency clearly points out that the underlying assumptions and techniques used in developing the proposed method are flawed, since adsorption systems do not always operate ideally.
2. The dependence of N_{RBP} on Q_{SP} is maintained for situations where a percentage of the solvent is in unmeasured capacity. For systems with equal percentages of unmeasured solvent capacity, the calculation of N_{RBP} may vary from 1 to 30 days simply based on Q_{SP}. The commenter pointed out that simply varying the maximum solvent use over the range of 35,000 to 45,000 gallons per day changes the rolling period from 1 to 30 days. Again, the commenter stated that a model that is so dependent on this single term cannot provide an accurate assessment of the anticipated performance.
3. The maximum daily solvent usage is not adequately defined. Without an adequate definition, this term may be interpreted to represent the maximum material input

to the process units, the maximum solvent captured for control by the carbon adsorption system, the design capacity of the carbon adsorption system, or some other parameter. The definition of this term will have a very significant impact on the calculated results, since N_{RBP} is very dependent on it.

A further complication occurs when one considers the actual design and operation of carbon adsorption systems. For example, a facility with multiple adsorbers may not fully utilize the full system capacity if production drops below certain levels. Where less than all of the adsorbers are being used, it is unclear if Q_{SP} would be based on the maximum capacity of the system or the operating capacity. Similarly, if a significant portion of the process equipment at a facility is shut down due to seasonal variations in production, the maximum throughput will be significantly less than if the whole facility is in operation. The choice in such a situation could result in a change in the calculated rolling average period from 1 to 30 days.

A similar situation occurs for a facility that operates two or more separate solvent recovery systems to control a single process. If all of the adsorbers are considered a single system the value of Q_{SP} for the total facility will be significantly different than if the systems are considered individually. Again, the choice of Q_{SP} could result in a change in the calculated rolling average period from 1 to 30 days, despite the fact that the adsorbers control the same process and the mass balance for the facility is based on the combined recovery, rather than the individual portions.

4. Day-to-day fluctuations of actual solvent input rates may vary by an order of magnitude or more. Average or daily input rates will obviously be below (frequently

significantly below) the maximum input rate. Since the calculation is based only on maximum input, these day-to-day variations are not factored into the calculation. Thus, for two systems with the same design capacity, the system with lower average throughput and the same percentage of the average in unmeasured capacity would be subject to a shorter rolling period. Since the method considers only Q_{SP}, V_P and V_R, it cannot differentiate between a system operating at 100 percent capacity and one operating at a significantly lower rate. With no change in the total quantity of unmeasured capacity or maximum throughput, the average throughput does not affect the calculations.

5. The calculation of C_O and, therefore, V_A, is based on the maximum daily input and either the maximum or average air flow. The method is unclear as to the definition of G_{CU}. In actuality, C_O and G_{CU} may vary considerably, based on the process operation parameters, which will affect V_A and the calculation of N_{RBP}.

6. The method responds differently to the same throughput numbers, depending upon the distribution of unmeasured capacity. The commenter provided an example of the extreme sensitivity of the calculation to the distribution of unmeasured capacity.

The commenter stated that the EPA does not appear to have considered the margin between the required level of control and the actual performance of a carbon adsorption system in developing this method and that such a failure in Method 309 is a serious fault in the method that invalidates its usefulness. The commenter concluded that disparity between the predicted compliance period from proposed Method 309 and the variation in calculated values based on actual data is due to inadequacies in the model. The commenter pointed out that the model, based on only three parameters, does not accurately predict the variation

in calculated efficiencies. Otherwise, according to the commenter, operators of carbon adsorption systems will be subject to violations merely because of the inadequacies of the method used to determine the compliance period.

The commenter also stated that, if the method calculates a compliance period shorter than actual process conditions would necessitate, a very significant potential exists that the recovery efficiencies calculated during the prescribed rolling average period would routinely indicate violations of control requirements. Such perceived violations would expose a facility to self-reporting requirements, fines and penalties, legal expenses, and adverse publicity, even though the average efficiency determined by a more appropriate method, such as the 30-day NSPS protocol, would show full compliance. Statistical variation alone, according to the commenter, would result in the lower performing facility having difficulty demonstrating compliance over the same rolling period as the higher performing facility. Further, this problem is aggravated as higher control requirements are mandated.

The commenter stated that, with the extensive recordkeeping, monitoring, and reporting requirements facilities must currently comply with, requirements to operate pollution control devices at all times processes are in operation, and the economic benefits a facility receives from operating a carbon adsorption system at maximum efficiency, routine verification of system performance via the 30-day NSPS protocol is a more than adequate demonstration of ongoing compliance.

The commenter provided five tables of data, examples in the text of the letter, and seven attachments as supporting documentation.

Commenter IV-D-26 stated that G_{CU} and Q_{SP} need to be clearly defined since they play a crucial role in calculating the rolling period. Similarly, the commenter stated that the term V_P is defined in such a way as to leave it open for interpretation, which may significantly impact the calculation.

Commenter IV-D-54 stated that in equation 3, calculation of VOC adsorbed on carbon, the "Y" term, as listed, does not include a constant "b_o". The commenter, therefore, recommended that the following equation be used:

$$Y = b_o + \sum_{j=1}^{3} (b_j X$$

The commenter stated that the inclusion of b_o is very significant in determining the balancing period. According to the commenter, when the equation on page 296 was used (without b_o), their balancing period increased by 163 percent.

Commenter IV-D-54 noted that the description in Section 4.2.3, Unmeasured Process Holding Capacity for Solvent, apparently conflicts with the V_P definition in Section 3.0. The commenter suggested that this may be a moot point since the upper limit is controlled by 10 percent of Q_{SP} which is significantly less than the solvent holding capacity can be.

This commenter pointed out that the units listed on Worksheet A, Line 3, Solvent Liquid Density, should be lb/gal and not lb/lb_{mole}. They also pointed out that the method does not describe the frequency at which the calculation must be performed or updated. The commenter stated that changes in the input parameters can be dynamic and may change the outcome of the equation drastically. The commenter indicated that the equation assumes some steady state which is rare in a tape manufacturing facility.

Commenter IV-D-55 stated that there are several inherent problems associated with proposed Method 309. The commenter provided the following list of items:

1. Since solvent properties in some systems will vary on a daily basis depending on production, solvent molecular weight and density would have to be calculated on a daily basis to obtain accurate balances. The commenter stated that this would increase already excessive and complex calculations and recordkeeping requirements.

2. Capture system air flow rates vary based on how many (or few) emission sources are being handled at any one time by the carbon adsorption system.
3. The maximum VOC concentration in the outlet air stream will also vary dramatically from day-to-day depending on production. Not only do the coatings vary in VOC content, but the line speed at which a particular product is run will vary. Both of these variables can significantly affect VOC concentration in the solvent-laden air stream.
4. There are many different types of carbons on the market, some of which vary considerably in adsorption capacity. Also, the virgin carbon will have a higher adsorption capacity than reconditioned carbon. The commenter, therefore, recommended that a standardized test be used to measure the adsorptive capacity of the carbon.

Finally, the commenter stated that much of Method 309 assumes a relatively static, non-changing process and does not account for the many variables found day-to-day in the paper coating business. The commenter believes that the steady-state assumptions undermine some of the accuracy of the method. At a minimum, the commenter recommended that the Agency allow individual applicants to propose alternate methodologies for calculating material balances in carbon adsorption systems.

Commenter IV-D-29 noted that proposed §63.750(g) references 40 CFR §60.433 for determining the overall control efficiency of carbon adsorbers. The commenter pointed out that section 60.433 is in subpart QQ, which is the NSPS for rotogravure printing. The commenter stated that some working changes should be made to make the calculation methods cited in that section more generally applicable. Specifically, the commenter believes that §60.431 and §60.433 should be revised by replacing every reference to "ink and related coating" and "ink" with "coating material." The commenter also pointed out that sections 60.433(b), (c), and (d) contain the calculation method to be used when determining the

control efficiency of carbon adsorbers. However, the commenter stated, these latter sections contain equations for estimating "the average VOC emission percentage" rather than "overall control efficiency." The commenter suggested that §63.750(g) be modified to include the conversion between these two terms.

Response: The EPA has withdrawn Method 309 until further review and analysis of the method can be accomplished.

Comment: Commenter IV-D-55 stated that there is no perfect method for calculating material balances for carbon adsorbers, but there are other approaches than Method 309 that the commenter feels present fewer variables and more practicality. The commenter suggested an alternative method to determine the solvent recovery efficiency that is more practical than Method 309 for facilities that operate on a 5-day week schedule, rather than a continuous, 24-hour per day, 7-day per week cycle. The commenter pointed out that, in a 5-day per week operation, recovery efficiencies (1) appear to be low the first day of startup because of solvent retention in the carbon beds, (2) generally stabilize for the next 3 days, and (3) often exceed 100 percent the last day because of the extended steam cycle. Over the course of a week, however, an accurate solvent efficiency can be determined.

Using solvent recovery at a paper coating facility as an example, the commenter stated that the input to the solvent recovery system can be calculated easily and accurately from the weight and volume of VOC "as applied" based on the area of the substrate and manufacturer's data, or Method 24 or 24A test results. The emissions would be routed to a carbon adsorption system. The amount of solvent recovered can be easily measured using a liquid flow meter, which would be placed in the system after the recovered solvent/water mix (for steam purged carbon adsorption systems) has gone through a decanter or separator tank to separate the solvent and water mixture. The commenter suggested that a reasonable solvent recovery efficiency could be calculated on a daily basis by comparing the recovered volume of solvent to the calculated volume of solvent applied at the

coating line. The commenter acknowledged that there are some problems with calculating a daily efficiency in this manner. The commenter also noted that there are problems associated with calculating efficiency for multiple bed systems, new systems, systems with new carbon, and systems that do not operate continuously.

The commenter pointed out that their alternative method calculates an overall capture and recovery efficiency. Any fugitive losses or other losses from the point where the coating is applied and throughout the system to the point where the solvent recovered is included in the efficiency calculation. The commenter believes that their method for determining a liquid/liquid material balance would be more appropriate and accurate for those systems not operating continuously.

Commenter IV-D-29 believes that the EPA's proposed procedure for determining the removal efficiency of carbon adsorbers in §63.750(g) contains a number of errors in the calculation method and has overstated the applicability of Method 309 to some processes.

The commenter suggested that the Aerospace NESHAP also fails to take into account the expanding options in, and alternatives to, carbon adsorbers. The commenter stated that not all carbon adsorbers used by the aerospace industry involve solvent recovery. The commenter also stated that many, if not most, users of carbon adsorbers use the spent carbon for energy recovery and reload the unit with fresh carbon. The commenter believes that the proposed regulation fails to address these situations. Therefore, the commenter recommended that control devices that have a theoretical capability to recover captured VOC's be given the option to determine their overall control efficiency by direct air sampling methods (i.e., using methods in §63.750(h)) or other alternatives approved by regulatory agencies delegated authority to enforce part 70 or 71 air permits.

The commenter, therefore, recommended the following revisions to part 63 in order to incorporate the comments listed above:

"§63.745(c)(2) Each control device shall reduce the operation's HAP and VOC emissions to the atmosphere by 81 percent or greater, taking into account capture and destruction efficiencies, as determined using the procedures in §63.750(g) when a carbon adsorber <u>or other control device that may collect and recover volatile organic compounds</u> is used and in §63.750(h) when other <u>control devices are</u> used.
..."

"§63.747(d)(2) Each control device shall reduce the operation's HAP and VOC emissions to the atmosphere by 81 percent or greater, taking into account capture and destruction efficiencies, as determined using the procedures in §63.750(h) when a carbon adsorber <u>or other control device that may collect and recover volatile organic compounds</u> is used and in §63.750(h) when other <u>control devices are</u> used.
..."

"§63.749(d)(1) <u>Performance test periods.</u> For compliant coatings, each 30 day period is considered a performance test. For compliant and noncompliant maskants that are averaged together, each <u>30 day</u> period is considered a performance test. When using a control device three one-hour runs <u>or each rolling material balance period, as allowed in §63.750(g),</u> constitute the test period for the initial and any subsequent performance test.
..."

"§63.749(g)(1) <u>Performance test periods.</u> For compliant maskants, each <u>90</u> day period is considered a performance test. For compliant and noncompliant maskants that are averaged together, each <u>30 day</u> period is considered a performance test. When using a control device, three one-hour runs <u>or each rolling material balance period, as allowed in §63.750(g),</u> constitute the test period for the initial and any subsequent performance test.
..."

"§63.750(g) <u>Overall control efficiency - carbon adsorber.</u> Calculate the overall control efficiency of a carbon

adsorber or other control device that may collect and recover volatile organic compounds used in complying with this subpart using one of the following methods:

(1) The mass balance calculation specified in §60.433(b), (c), or (d) for estimating the average VOC emission percentage in conjunction with the following equation:

Overall Control Efficiency (%)

= 100 - average VOC emission (%)

The material averaging period shall be 30 days or the rolling material balance period determined by Method 309:

(2) Using other methods specified in §63.750(h):

(3) Calculations based on measurement of flow and concentration into and out of the control device combined with a preventative and scheduled maintenance program based on the manufacturer's or user's recommendations:

(4) Use of efficiency statement from control device manufacturer combined with a preventative and scheduled maintenance program based on the manufacturer's recommendations and operation of the control device in accordance with the manufacturer's or user's operating instruction; or

(5) Use any other method that receives prior approval from the part 70 or 71 permitting authority.

..."

"§63.753(c)(1)(iv) If a carbon adsorber is used, each performance test period when the overall control efficiency is calculated to be less than 81 percent.

..."

"§63.753(e)(1)(iii)(B) If a carbon adsorber is used, each performance test period when the overall control efficiency is calculated to be less than 81 percent; and

..."

Response: As stated above, the EPA has withdrawn Method 309 and will continue to investigate ways to simplify the determination of carbon adsorber efficiency. The EPA has added extensive monitoring, compliance, and test method requirements to

the final rule to address all of the possible carbon adsorber control system configurations. In addition, definitions have been added to the final rule to explain the terms contained in the new language. The revisions incorporated in the final rule are based on the language contained in Subpart EE--National Emission Standards for Magnetic Tape Manufacturing Operations that pertains to carbon adsorbers.

11.5 METHOD 18 - ALTERNATIVE CONTROL DEVICE EFFICIENCY

Comment: Commenter IV-D-29 noted that §63.750(h) of the proposed rule specified the procedure for determining the overall control efficiency for control devices other than carbon adsorbers. The commenter believes that the title to this paragraph should be changed to differentiate it from control efficiency determinations for inorganic HAP in §63.750(1). The commenter therefore recommended that all references in §63.750(h) to "overall control efficiency" be changed to "overall VOC and/or organic HAP control efficiency."

Response: The EPA agrees that the suggested change clarifies the applicability of this rule paragraph, and has incorporated the change into the title of the paragraph.

Comment: Commenter IV-D-29 believes a new paragraph should be added to §63.750(h)(2) to allow use of alternative methods. To provide this flexibility for alternative methods, the following provision was suggested by the commenter:

> "§63.750(h)(2)(v). Use any other method that receives prior approval of the Agency, or delegated authority."

Response: As stated in §63.750(h)(2)(iii) of the proposed rule and retained in the final rule, methods or data that have been validated according to the applicable procedures in Method 301 are acceptable as alternatives to the required Method 18. Since this provision allowing alternative approaches is already in the rule, the new provision suggested by the commenter has not been incorporated.

Comment: Commenter IV-D-29 pointed out that Method 18 does not exclude exempted solvents when used for determining TOC. The commenter believes that this is inconsistent with the language in

§63.745(c)(2) and §63.747(d)(2). The commenter stated that although control efficiencies for VOC and exempt solvents are often nearly the same for a given control method, this will not always be true. The commenter believes that such an exclusion would also simplify the choice of the gas chromatographic column(s) used and related calibrations. According to the commenter, it is desirable that an option be added to exclude solvents exempted from the VOC determination by adding the phrase "or total VOCs" after reference to "TOC minus methane and ethane" in §63.750(h)(2).

Response: The EPA agrees that a facility should have the option of excluding exempt compounds from the VOC determination. However, it is unlikely that any exempt compounds other than methane and ethane would be found. Therefore, it is not considered necessary to add the suggested phrase to §63.750(h)(2).

Comment: Commenter IV-D-29 suggested the following changes to make §63.750(h) more generally applicable for control devices that remove pollutants by destruction or physical removal from the air stream:

§63.750(h)(1): Redefine R_k as "R_k = destruction or removal efficiency";

§63.750(h)(2)(iv) and (iv)(A): Replace "destruction efficiency" with "destruction or removal efficiency".

§63.750(h)(2)(iv)(C): Redefine R as "R = destruction or removal efficiency of control device, expressed as a percentage."

Response: The EPA agrees that the suggested revisions make §63.750(h) more generally applicable, and has incorporated these changes into the final rule.

Comment: Commenter IV-D-57 believes that the proposed process for gaining approval of non-listed control techniques is restrictive for companies of all sizes. The commenter stated that the approval process will delay the introduction of new approaches and new technologies, and will thereby add further cost and diminish competitiveness. The commenter, therefore,

recommended the adoption of a performance-based approach that does not require a lengthy and complicated review and approval procedure.

Response: The proposed rule did not restrict the type of control devices that could be used, nor was a "list" of acceptable equipment provided. Proposed §63.745(c) and §63.747(c) prescribed an 81 percent reduction in organic HAP and VOC emissions, and allowed the use of both carbon adsorption and other types of systems. The final rule also includes a new provision in §63.746 allowing a control device to be used in conjunction with chemical strippers that contain HAPs. Again, this requirement does not restrict the type of controls to be used.

Comment: Commenter IV-D-29 noted that Method 18 must be used when determining the destruction efficiency of these control devices. According to the commenter, Method 18 incorporates a contested capture efficiency test method.

The commenter noted that Method 18 references a test method to determine capture efficiency that appears in the Chicago area FIP (40 CFR §52.741). This capture efficiency test method requires the construction of a temporary total enclosure ("TTE") for capture efficiency testing if an emission source cannot meet the requirements of a "permanent total enclosure." The commenter claimed that this procedure is expensive, cumbersome, often inaccurate, and may even pose a safety problem. The commenter also claimed that the EPA's capture efficiency test method is even disputed within the Agency. The commenter pointed out that in late 1992, the EPA announced that it was suspending the applicability of this test to investigate alternatives. The commenter stated that the results of this EPA study were to have been issued by the early part of 1994, but the revisions proposed so far do not address the main areas of contention. Meanwhile, to the best of the commenter's knowledge, the test is still suspended. The commenter claimed that the method for measuring capture efficiency in the Chicago FIP has several major problems in its current form. The commenter believes that even this

approach is unlikely to yield accurate results since it does not adequately account for fugitive leaks that may not be readily monitored (or identified). The commenter also pointed out that it also requires the shutdown of other source operations occurring within the building or room during a capture efficiency test.

The commenter stated that the construction of a TTE around an area raises some significant safety questions. The commenter believes that the resulting changes in air flow could lead to concentrations of VOCs that violate a PEL and/or the 25 percent of LEL standard set by OSHA. The commenter pointed out that the reference document "Criteria for and Verification of a Permanent or Temporary Total Enclosure" dismisses such unsafe conditions as the result of poor TTE design. However, the commenter believes that a hazardous situation is still likely to occur in two situations: (1) temporarily upon startup, while flow rates out of the booth are adjusted prior to the collection of data, and (2) when the TTE design parameters lead to poor mixing in the booth. The commenter claimed that this can result in pockets of high concentration that remain after steady state has been achieved.

The commenter stated that the accuracy of the procedure is highly questionable. According to the commenter, it seems that the TTE would have its own leaks and may severely alter the ventilation normally present by creating short-circuiting air streams from the "natural draft openings" (NDO's) to the vent. The commenter claims that the latter effect can dramatically change the total mass of VOC delivered to the control device versus the vent being used to simulate the fugitive emission amount. The commenter stated that there is a quality assurance measurement requirement to determine VOC concentrations into the control device with and without the TTE; however, such a quality control condition is valid only for continuous processes.

The commenter pointed out that the reference document requires testing to make sure concentrations delivered to the control device do not vary by more than 10 percent as measured with and without the TTE. The commenter stated that this is

expensive and could potentially lead to building several TTE's before one can pass this test. The commenter also claimed that the method's value for batch processes is also questionable. The commenter suggested that the EPA, in adopting the concept of TTE, has avoided more direct approaches that will be less costly and at least as accurate as the TTE concept.

The commenter pointed out that the current test method requires three 8-hour sampling runs, and stated that this is inappropriate for most intermittent, batch type operations (the usual case for the aerospace industry). The commenter pointed out that aerospace manufacturers often conduct several different types of operations in the same booth. Therefore, the commenter believes that it could take several weeks to accumulate enough data at a given vent to constitute three consistent 8-hour sampling runs. The commenter noted that on December 29, 1992, the EPA proposed to change this requirement to data collection during three production cycles, but not to be less than 3 hours per sampling run. The commenter stated that the proposed rule does not completely address the problem of variable batch processes carried out at an emission point.

Finally, the commenter believes that the restriction on the total size of NDO's to 5 percent of the total enclosure surface area in order to qualify as a TTE or a permanent total enclosure, as well as requirements on NDO spacing from the source of emissions, appear to be arbitrary and may be physically impossible to employ. Specifically, the commenter stated that these design standards are not adequately correlated with air stream velocities within the enclosure (e.g., the maximum NDO area allowed should decrease and the spacing of NDO's from point of release should increase as the release velocity of pollutants from the point of emission within the enclosure increases).

The commenter suggested that §63.750(h)(3) be changed based on the commenter's belief that the FIP provisions contain errors. The following revisions to §63.750 were recommended:

"§63.750(h)(3) Determine the capture efficiency of each control device to which organic HAP and VOC emissions from

coating operations are vented. Capture efficiency shall be determined by one of the following methods.

..."

"§63.750(h)(3)(i) A capture efficiency shall be assumed to be 100 percent if the collection system for a control device is determined to be a Permanent Total Enclosure using Procedure T - Criteria for and Verification of a Permanent or Temporary Total Enclosure; or

..."

"§63.750(h)(3)(ii) Capture efficiency shall be determined using analytic procedures to determine mass of pollutants being delivered to a control device using inlet mass rate (E_1), as calculated in paragraph (2), in conjunction with a mass balance to determine total releases of the pollutant to the atmosphere (E_{tot}). Capture efficiency is determined using the following equation:

$$Capture\ efficiency = 1 - \frac{E_{tot}}{E_1 - E_{dp}}$$

where E_0 is the background concentration of the monitored pollutant(s);

..."

"§63.750(h)(3)(ii)(B) The length of each sampling run shall be the duration of each production activity, but not to exceed 8 hours.

..."

"§63.750(h)(3)(ii)(C) E_0 shall be either measured at inlets to collection device during a production run or determined by measuring concentrations at the inlet of the control device while the process is not operating; the latter option applies only if it can be demonstrated that background concentrations do not vary significantly during a sampling run. In either case, the methods for measuring E_0 shall be consistent with methods in paragraph (2).

..."

"§63.750(h)(3)(ii)(D) E_o can be set at zero if the capture efficiency of similar pollutants is based on measurements of a compound(s) emitted by the process that is not present in measurable concentrations in the surrounding ambient air when the process is not operating.

..."

"§63.750(h)(4) Use test procedures involving building/room enclosures or the construction of a temporary total enclosure as specified in 52.741(a)(4)(iii); or

..."

"§63.750(h)(5) Use any other method or data, including direct measurement of fugitive concentrations and air flows by a monitoring grid, that receives prior approval of the Agency or delegated authority."

Response: Method 18 does not reference any capture efficiency test method. The method requiring the construction of a TTE if a permanent total enclosure is not already in place is designated as Method 204. Method 204 has been found in several tests to be very precise when performed according to all of the procedures in the method. Also, the EPA believes the method to be safe when performed according to these procedures.

In order to ensure that concentrations entering the control device are not unduly affected by the presence of the TTE, the concentration with and without the TTE should not vary by more than 10 percent. In order to accomplish this, adjustments to the TTE can be made without the expense of constructing a new one.

The method does indeed require three 3-hour sampling runs, and not three 8-hour runs as the commenter contends.

The EPA has reviewed the suggested regulatory language and is not prepared to approve the commenter's approach. New capture efficiency testing guidance is being released that allows traditional liquid/gas (L/G) mass balances as long as the data meet the acceptability criteria outlined in the guidance document.

Comment: Commenter IV-D-43 stated that, to determine the capture efficiency, the procedures in §52.741 of 40 CFR part 52

specify the use of total enclosures. The commenter believes this is cost-prohibitive for existing sources where total enclosures must be constructed. The commenter, therefore, recommended approval of low-cost alternative procedures as allowed in §52.741(a)(4)(iii) of 40 CFR part 52. The commenter stated that their staff has developed a suitable alternative procedure, which is currently being reviewed by EPA/OAQPS. The commenter believes that the timely approval of this procedure is critical to the practical enforcement of capture efficiency provisions.

Response: The EPA's OAQPS is neither approving nor disapproving the alternative procedure that has been submitted for review by this control district. As mentioned in the previous response, the EPA's latest guidance does allow alternatives to the TTE procedures as long as data submitted for compliance meet the criteria outlined in the guidance document.

11.6 METHOD 5 - PARTICULATE CONTROL EFFICIENCY DETERMINATION

Comment: Commenter IV-D-27 supported the use of a manufacturer's certification of efficiency for the purpose of compliance demonstrations for the 99 percent control efficiency requirement for depainting operations. The commenter recommended the following revision to §63.750(l):

> "(l) Particulate filter efficiency - depainting operation. Each owner or operator seeking to comply with the particulate filter control efficiency specified in §63.746(d)(2) for depainting operations that generate airborne particulate emissions that contain inorganic HAP shall determine the control efficiency of each particulate filter system in accordance with Method 5 and associated Methods 1 through 4 of part 60, Appendix A. or rely on manufacturers efficiency specifications in conjunction with the pressure drop monitoring requirements per 63.745(f)(3). Retesting shall be required whenever the type ~~or supplier~~ of ~~the~~ filter media is changed, or whenever modifications are made to the emission collection system."

Commenter IV-D-37 stated that the EPA should adopt the same standard for depainting filters as proposed for control of

inorganic HAP from primer and topcoat operations; i.e., a general description of the control device combined with monitoring requirements. However, should the Agency adopt filter manufacturer claims as a basis for establishing a MACT standard, the test procedures proposed in §63.750(1) should then be amended accordingly to permit facilities to rely on filter manufacturer efficiency representations as a method for demonstrating conclusively that properly installed and functioning filters meet the 99 percent control level.

Response: The proposed rule has been revised to eliminate the requirement to use Method 5 to verify compliance with the 99 percent standard. The final rule contains workplace standards instead of Method 5 testing (see Section 7).

Comment: According to commenter IV-D-35, Method 5 is neither cost effective nor accurate for determining initial compliance for particulate filter efficiency in a depainting operation.

In addition, commenter IV-D-27 claimed that a Method 5 test can cost from $7,000 to $9,000 and typically more for a large aircraft hanger. The testing cost may be a minor burden for the large aircraft manufacturing facility where only one hanger may exist. The commenter stated that they have many small four feet by four feet booths where depainting operations may occur. The commenter believes that, for these small booths, the operator should have the option of relying on the manufacturer's efficiency data coupled with pressure drop reading requirements.

Commenter IV-D-35 stated that an additional issue for the government is sole source procurement from filter manufacturers. The commenter suggested it is possible that each time the filters are replaced, testing would be required (due to a new supplier), based on the government's legal requirements for procurement. Finally, the commenter claimed that the cost of testing by Method 5 would be $30,000 to $40,000 for a large depainting hangar. The commenter claimed that this cost is excessive, considering that the test method has not been validated for this type of source.

Commenter IV-D-27 believes that the requirement to retest whenever the type or supplier of filter media is changed would incur excessive cost and delays in production. The commenter claimed that the efficiency of a given filter would not change simply because the supplier changed, but the efficiency could change if the type of filter was changed.

Response: As discussed in the previous response, the requirement in proposed §63.750(l) to use Method 5 for determining control efficiency has been deleted. In the final rule, the standards for topcoat and primer application operations and depainting operations contain specific workplace practices that must be followed. These requirements are designed to ensure that the filter system will control inorganic HAP as intended and that the owner operates and maintains the system according to a specific operating and maintenance plan. The EPA is investigating approaches that would reduce the filter testing requirements at facilities.

Comment: Commenter IV-D-20 stated that they are subject to several air toxic regulations and initially followed regulatory guidelines which recommend that emission inventories of air toxics be based on engineering assumptions and conservative emission factors in the absence of specific source test data. This commenter did perform source testing, and claimed that the results demonstrate a significant difference between emissions calculated using the source test results and emissions based on the traditional mass balance using Agency suggested methods. According to the commenter, source testing indicated that 22 percent of paint overspray drops out of the air onto the floor. However, in the mass balance emission calculation method, regulatory agencies did not allow credit for dropout rates in the absence of test data. The commenter stated that an 82 to 96 percent reduction in emissions was demonstrated upon utilization of source test reports and emission factors.

Commenter IV-D-35 commissioned an EPA Method 5 test to study the validity of the method and the 99 percent control efficiency requirement for depainting operations. The study collected data

on the particulate loading on both sides of one control device for the particulate emissions from a PMB booth at a military base. The study was conducted during the depainting of an A-10 aircraft on August 10-12, 1994 in a facility with filter canisters. The PMB facility consisted of a large hangar from which exhaust gases were removed, passed through two parallel dry filter systems, and recirculated to the building. Triplicate determinations of the removal efficiency of the canisters were 93, 85, and 74 percent. The commenter noted that the properties measured at the inlet of the filter showed a linear relationship to the rate of generation of particles, while the rate of emissions at the outlet was essentially constant, independent of the rate of input. The commenter concluded that linearity indicated that a low loading to the filter produces a lower removal efficiency. According to the commenter, since the emissions remain relatively constant, a process which has lower particulate emissions is penalized. The commenter provided a summary of the data collected during three Method 5 sampling runs, and a summary of the calculated collection efficiencies for the dry filter system of each of the three runs.

The commenter also pointed out that there were insufficient data to determine if a correlation exists between particulate control efficiency and inorganic HAP control efficiency for a depaint process.

Commenter IV-D-52 was concerned about the feasibility of using EPA Method 5 and associated Methods 1 through 4 to determine particulate control efficiency in a large enclosure or blasting hanger. The commenter pointed out that, for some equipment configurations, it may be difficult or impossible to collect a meaningful upstream particulate sample to establish control efficiency. The commenter recommended that the EPA allow the reviewing agency to accept alternate methods, including a design review, to demonstrate compliance with this requirement.

Two commenters (IV-D-29, IV-D-35) recommended that §63.750(l) be deleted from the rule.

According to commenter IV-D-29, even if particulate filter efficiency were appropriate, the test method relied on is not. The commenter claimed that Method 5 was designed for particulate grain loading out of a stack or duct, and does not measure for input into a control system. Two commenters (IV-D-29, IV-D-43) stated that Method 5 could not be used to determine control efficiency in a depainting hangar with a filter bank. Specifically, commenter IV-D-29 stated that testing could not be conducted if the hangar has a large inducted inlet. Commenter IV-D-43 stated that inlet testing is not feasible. Commenter IV-D-43 recommended that the EPA allow the local districts to:

1. Accept manufacturers' certified efficiency for the filter, or
2. Limit the mass emission rate from the exhaust stack to below a certain concentration level (grains/dscfm) or a de minimis amount such as 1 pound per day.

In addition, commenter IV-D-29 stated that manufacturers' claims are rarely substantiated by Method 5.

Response: The EPA deleted the Method 5 testing requirement because no data were available from the industry. In addition, the efficiencies reported on the section 114 information collection requests were based on manufacturer's claims and not test data. Information obtained by the EPA indicated that the manufacturer's did not use a standard test to quantify the claimed filter efficiencies.

As mentioned in the previous response, the EPA is currently investigating a number of options with respect to implementing controls on the emissions from coating and depainting operations. Test methods are being developed which will allow filter manufacturers to qualify their filters as EPA-approved. The Agency would then require affected sources to use EPA-approved filters in the control devices used to capture the particulate emissions from spray coating operations. The EPA plans to issue a supplemental proposal to the NESHAP that will solicit public comments on a provision that the Agency deems to be enforceable and guarantees the public's safety.

11.7 TRANSFER EFFICIENCY FOR COATING OPERATIONS

Comment: Commenter IV-D-11 stated that the requirements for the proposed alternative application method are sufficient to ensure that an owner/operator not bias the test results, provided that detailed recordkeeping is maintained during the initial 90-day test period and during the alternative application method test period. The commenter recommended that recordkeeping data include, but not be limited to: a wet or dry film thickness for both test periods, coating solids content data if wet film testing is utilized, and emissions monitoring data for both test periods. According to the commenter, these data would determine if equivalent dried film thicknesses were applied. The commenter pointed out that if detailed recordkeeping were not done, it would be difficult to determine the validity of the testing procedures and the results.

Commenter IV-D-35 provided information pertaining to transfer efficiency test measurements. The commenter noted that this document underscores the differences in the proposed EPA method and that adopted by the SCAQMD and the Bay area. The commenter pointed out that the EPA added the requirement that "the dry film thickness for the non-approved gun must be the same as for the approved gun and that the test be conducted over a 90-day period for each gun." The commenter suggested that when considering the fact that HVLP does not provide the same low film thickness when using some paints as other non-approved guns, it becomes important to establish the required film thickness necessary to satisfy the performance specification associated with the desired finish product. Therefore, the commenter recommended that the EPA delete the requirement that both guns meet that same dry film thickness as the HVLP. According to the commenter, if 1 mil thickness will meet the specification using the alternative coating gun, there is no need to require 2 mils just because the HVLP applies the coating too thick. The commenter suggested that the conditions of an alternative test method can, if required, be incorporated in an operating condition in the owner's or operator's operating permit to assure

that the same conditions are adhered to as were used during the test.

Commenter IV-D-35 recommended that the EPA consider adopting a national standard to test by, i.e. ASTM, or developing one. The commenter stated that the test must incorporate, as a part of the standard, the amount of paint applied per surface area coated. The commenter suggested that failure to publish a workable and practical alternative coating test method will prevent DoD and industry from adopting new or equivalent technologies that could surpass the transfer efficiency of HVLP, etc.

Commenter IV-D-11 stated that they do not routinely require transfer efficiency testing, but usually specify what types of application equipment are acceptable in rules or permits.

Commenter IV-D-43 stated that they, along with another source, are co-sponsoring a project to establish a test method protocol for transfer efficiency. The commenter believes that the establishment of the test protocol will aid the manufacturers of spray equipment to test and certify their equipment for sale. The commenter also believes this will eliminate the need for individual facilities to test and certify their spray guns to demonstrate equivalent transfer efficiency. The commenter recommended the following:

1. The establishment of a minimum required transfer efficiency, 65 percent or greater.
2. Provide provisions to allow the use of other spray equipment, if the material sprayed, such as adhesives, has a viscosity of 200 centipoise or greater.

Commenter IV-D-52 recommended that the EPA adopt a test method for transfer efficiency that would shift the burden of demonstrating equivalent performance from the facility operator to the equipment manufacturer.

Three commenters (IV-D-29, IV-D-30, IV-D-49) recommended that the EPA revise the rule which requires that emissions levels from the alternative application method be determined from production conditions.

Commenter IV-D-29 noted that if a facility uses an application method other than electrostatic spray or HVLP methods, the regulation requires that alternative coating applications must achieve equivalent results to HVLP or electrostatic methods. The commenter believes that the EPA's rule as proposed in §63.750(i) does not provide flexible enough procedures to make the comparison.

Two commenters (IV-D-29, IV-D-30) suggested that testing accuracy would be better in a laboratory setting.

Commenter IV-D-29 stated that production simulation in a laboratory could duplicate production conditions such as temperature, humidity, general part configuration, airflow, etc., providing not only an accurate portrayal of typical production conditions, but consistent between the two types of equipment being compared.

Commenter IV-D-49 stated that requiring comparisons with HVLP spray equipment results is an unacceptable capital cost to owners who wish to install a new facility utilizing new technology. The commenter recommended that the EPA allow emissions comparison evaluations for new technology to be conducted on a somewhat smaller scale.

Commenter IV-D-30 added that small scale testing would avoid the potentially high costs of implementing a production-scale system.

Two commenters (IV-D-29, IV-D-35) believe that the 90-day test period for alternative application methods needs to be revised.

According to commenter IV-D-29, a 90-day test using HVLP or electrostatic procedures, followed by a similar period using the alternative equipment, is not appropriate in every case. The commenter stated that some paint booths may not see the same part more than once every year or two, and others may see the same parts every day or every week. Thus, any universal trial period would not provide a representative sampling of parts in all situations.

Commenter IV-D-35 stated that the 90-day test period is excessive because the DoD rarely has work orders, particularly at rework facilities, that extend beyond 90 days.

The commenter, therefore, recommended that the EPA require the minimum amount of time necessary to prove an alternative coating transfer efficiency. The commenter suggested that the regulation be rewritten to require the test protocol to be repeated 6-10 times for each gun, without specifying a time limit or period for testing. The commenter believes that such tests typically could be accomplished in a timeframe of 3-4 days. The commenter also believes that a timeframe of 3-4 days would provide enough statistical data to provide a range of values for both guns being evaluated.

Commenter IV-D-29 recommended the following language:

"§63.750 Test methods and procedures...

(i)(1) Alternative application method - primer and topcoats. Each owner or operator seeking to use an alternative application method (as allowed in §63.745(e)(1)(vii) in complying with the standards for primers and topcoats shall use either the procedures specified in paragraphs (i)(2)(i) or (i)(2)(ii) of this section to determine the organic HAP and VOC emission levels of the alternative application technique as compared to either HVLP or electrostatic spray application methods. ..."

"(2)(i) The total organic HAP and VOC emissions shall be determined for an appropriate initial period not to exceed a maximum of 90 days. During this initial period, only HVLP or electrostatic application methods may be used. The emissions shall be determined based on the volumes, organic HAP contents (less water), and VOC contents (less water and exempt solvents) of the coatings as applied. Upon implementation of the alternative application method, use the alternative application method on actual production parts or assemblies for a period of time sufficient to coat an equivalent amount of parts and assemblies with coatings

identical to those used in the initial period. The actual organic HAP and VOC emissions shall be calculated for this post-implementation period.

(ii) Test the proposed application method against either HVLP or electrostatic in a laboratory or pilot production area, using parts and coatings representative of the process(es) where the alternative method is to be used. The lab test will use the same part configuration(s) and the same number of parts for both the proposed method and the HVLP or electrostatic.

(iii) Whenever the approach in either subparagraph (i)(2)(i) or (i)(2)(ii) is used, t he operator shall calculate both the organic HAP and VOC emission reduction using equation 13:

Eq. 13 $$P = \frac{E_b - E_a}{E_b} \times 10$$

where

P = organic HAP or VOC emission reduction, percent.

E_b = organic HAP or VOC emissions, in pounds, before the alternative application technique was implemented, as determined under paragraph (i)(2)(i) of this section.

E_a = organic HAP or VOC emissions, in pounds, after the alternative application technique was implemented, as determined under paragraph (i)(2)(i) of this section.

..."

"(3) Each owner or operator seeking to demonstrate that an alternative application method achieves emission reductions equivalent to HVLP or electrostatic application methods shall comply with the following:

(i) Each coating must be applied such that the dried film thickness is within the range specified by the applicable specification(s) for the aerospace vehicle or component being coated.

(ii) If no such dried film thickness specification(s) exists, then the owner or operator must ensure that the dried film thickness applied during the period when HVLP or electrostatic equipment is used is equivalent to the dried film thickness applied during the alternative application method test period for similar aerospace vehicles or components.

(iii) Failure to comply with these dried film thickness requirements will invalidate the test results obtained under paragraph (i)(2)(i) of this section."

Response: It would be difficult, but not necessarily impossible, to conduct this type of spray gun comparison in a laboratory setting. The lab setting would have to simulate the production environment in terms of equipment, parts to be coated, coatings used, and process parameters such as air flows and temperatures, which might affect the emissions.

It might be a good idea for the facility to conduct a laboratory study with a smaller application system before installing a production scale system in the plant. However, there is a chance that the results of the lab study may not correlate with the results of full scale production trials.

In addition, the final rule has deleted the 90-day testing requirement. The EPA revised this provision to add flexibility to the rule. The revised provision specifies that HAP and VOC emissions shall be determined for an initial 30-day period, the period of time required to apply coating to five completely assembled aircraft, or a time period approved by the permitting agency.

Comment: Four commenters (IV-D-29, IV-D-33, IV-D-35, IV-D-52) stated that the EPA referred to the SCAQMD's initiative in conjunction with CARB to develop a test protocol to measure the transfer efficiency of spray application equipment. Commenter IV-D-33 expects the protocol to be completed in 1995 and encouraged the EPA to use it to develop a spray equipment certification program. The commenter believes that an equipment certification program would:

1. allow spray technologies to be objectively compared,
2. shift the burden of demonstrating transfer efficiencies from the operator to the manufacturer, and
3. simplify enforcement.

The commenter offered to provide assistance and technical support in the development of such a program.

Commenter IV-D-35 noted that the test protocol would represent an alternative method of qualifying application equipment for use under the proposed standard. In response to the EPA's request for comment from those familiar with the test protocol for transfer efficiency, the commenter conferred with the prime contractor under contract to the SCAQMD providing the laboratory testing. The contractor's response to this inquiry provided a comparison between the CARB/SCAQMD project and the proposed Aerospace NESHAP. The commenter believes that it is important that the EPA take the differences in the application of the CARB/SCAQMD transfer efficiency test protocol and the aerospace production line tests into consideration when setting a standard for the aerospace industry.

The commenter pointed out that the CARB/SCAQMD study would test spray guns under simulated production conditions, whereas the aerospace rule would test under normal operating conditions. Also, the CARB/SCAQMD project would use very well-defined coatings, whereas in the aerospace rule, facility coatings would be used. The commenter also noted that the CARB/SCAQMD project would apply coatings using automated equipment, whereas painters would apply the coatings in the aerospace production line tests. The commenter suggested that the transfer efficiency will vary from painter to painter, so overall efficiency will be affected due to the many painters involved. The commenter claimed that under the CARB/SCAQMD approach, experimental errors will be minimized due to the lack of painter involvement. In contrast, the commenter claimed that the difference in spray painters cannot be avoided under the aerospace production line tests. The commenter also pointed out that laboratory conditions can be controlled under the CARB/SCAQMD study effort and environmental

conditions cannot be controlled in the aerospace line tests. Also, the commenter suggested that the CARB/SCAQMD protocol is intended to allow ratings for individual model spray guns and not simply generic types (e.g., HVLP, electrostatic, etc.); in contrast, the EPA protocol would be used for a specific gun model for a specific coating, under a unique scenario. The commenter claimed that the EPA approach is not as cost-effective as the CARB/SCAQMD approach. According to the commenter, the key issue under the aerospace production line approach would be the difference in spray painter application techniques and the total emissions that result from the painting operations. The commenter stated that in the CARB/SCAQMD approach, the dry film thickness is taken into account, along with the size of the total spray envelope. Also, the aerospace line production approach involves three-dimensional parts, whereas the CARB/SCAQMD approach targets flat panels.

Response: [Response to be added after discussion with Emission Measurement Branch.]

11.8 HAP CONTENT DETERMINATION - ALTERNATIVE PROCEDURE

Comment: Commenter IV-D-30 noted that the proposed rule would require the operator to submit an alternate procedure for determining HAP content for approval by the EPA if the organic HAP content of a primer, topcoat, or stripper is unavailable from the manufacturers' formulation data. The commenter believes this could result, depending on the method proposed, in widely varying analytical data. According to the commenter, this imposes an unreasonable burden upon the user, particularly small companies or organizations. The commenter recommended that the EPA specify a method for determining organic HAP content.

Commenter IV-D-29 stated that requiring a user to determine the HAP content of materials where the manufacturer fails to do so is inappropriate. The commenter pointed out that no test methods are specified for the user to make such a determination. In addition, commenter IV-D-32 recommended that explicit language be added allowing owners/operators to rely solely on

manufacturer's data. The commenter also recommended that these provisions be extended to chemical strippers.

Commenter IV-D-27 believes that asking the user to determine the chemical components of a stripper is unreasonable. The commenter stated that in many cases the constituents in a stripper are proprietary and cannot be reverse engineered to determine quantities. According to the commenter, when components are identified in the MSDS or by the vendor, precise quantities are not typically revealed and at times are in ranges. The commenter believes that the vendor should be responsible for determining that their products are in compliance with the provisions in the Aerospace NESHAP. According to the commenter, from a cost savings view, the vendor would absorb and pass on the cost of laboratory testing eliminating numerous aerospace companies from performing duplicative tests.

Commenter IV-D-27 recommended the following revision to §63.750(j):

> "(j) Organic HAP content of chemical strippers. The organic HAP content of chemical strippers used in depainting operations subject to §63.746(b)(1) shall be determined from manufacturer's formulation data. <u>The manufacturer must certify the HAP content when used according to the manufacturer's instructions.</u> ~~If the organic HAP content can not be determined from the manufacturer's data, then the owner or operator shall submit an alternative procedure for determining the organic HAP content for approval by the Administrator.~~"

<u>Response</u>: As previously discussed in Section 11.1, this rule requirement will have the effect of causing coating manufacturers to analyze coatings in accordance with the specified methodologies and to make these analyses available to coating users.

The EPA included the provision which requires a facility to submit an alternative procedure for approval because all manufacturer's may not supply the needed information. The EPA will carefully consider any method or documentation submitted for

approval. However, the EPA does not anticipate that any such methods or documentation will be received from the industry. Coating vendors that choose to not provide the needed information to their customers will probably find that demand for their products is severely reduced, especially when the customers must determine parameters that could be easily determined by the coating manufacturer.

11.9 GENERAL COMMENTS

Comment: A commenter stated that the regulation as proposed requires the use of an outdated test method (ASTM E 260-85) for vapor pressure determination. According to the commenter, the proposed method would violate current MIL-STD-100 requirements, which state that current revisions of ASTMs must be used. The commenter pointed out that ASTM test methods are generally revised when deficiencies are found in the earlier version of the test method, or because improvements can be made to that earlier version. The commenter claimed that it is customary to specify an ASTM method without a version number or to say, "the current version of" ASTM E XXX, rather than to lock in a particular version, even if that version is current at the time.

Response: As discussed in Section 11.2, the final rule includes the commenter's recommendations and refers to ASTM methods as "most current version of ASTM E 260-**."

12.0 MONITORING REQUIREMENTS

12.1 PRESSURE DROP PARAMETER FOR PARTICULATE FILTERS

Comment: Two commenters (IV-D-14, IV-D-33) believe that pressure drop is an appropriate parameter for compliance determinations for dry particulate filter system performance. Four commenters (IV-D-11, IV-D-35, IV-D-42, IV-D-05) expressed the opinion that pressure drop is not an appropriate parameter for compliance determinations.

Commenter IV-D-14 pointed out that with any piece of technical equipment there will be variations in the limitations of an effectively run piece of control equipment. If there is a concern about the possibility of a wide range of variations, the commenter suggested that a survey be conducted to relate the variations in pressure drop to the effectiveness of the filter so that conclusions can be drawn as to what types of dry particulate filters, waterwash systems, and maximum/minimum pressure drops would be acceptable for a typical well-maintained system.

Commenter IV-D-37 claimed that filter pressure drop is not a completely reliable and precise indicator of control performance relative to operations in the short term.

Commenter IV-D-11 stated that pressure drop is not a valid compliance tool for dry filter systems since filter performance is based on the particulate cake thickness and because of variability among manufacturers' specifications.

Commenter IV-D-11 noted that baghouses and cartridge filter units used in controlling abrasive blasting emissions are equipped with automatic mechanical or pneumatic cleaning devices, and action is initiated from a cycle-timer or from pressure drop. Therefore, the commenter stated, a pressure drop limit would be

appropriate since most of these units come equipped with a pressure drop indicator such as a magnehelic or photohelic gage. The commenter stated that there is some variation in acceptable pressure drops among different filter media, but the normal high and low limits are approximately 6 inches water gauge (W.G.) and 2 inches W.G., respectively.

Commenter IV-D-42 believes that the use of pressure drop as a monitored parameter may result in different levels of compliance depending on the manufacturer, as suggested by the EPA. According to the commenter, it is not clear, however, what efficiency is sought or attained by this requirement. The commenter said that they do not have an alternative to suggest at this time.

Two commenters (IV-D-5, IV-D-35) noted that pressure drop can be used as an indication that maintenance is needed.

According to two commenters (IV-D-5, IV-D-11), particulate control devices generally become more efficient as the cake builds up on the face of the dry filter media. Commenter IV-D-11 stated that if the cake thickness and the associated pressure drop become too great, there is a problem with the media being pulled from the frame and the overspray passing around the edge of the filter. The commenter stated that this usually occurs at pressure drops much higher than the manufacturer recommends. Commenter IV-D-35 pointed out that it is important that the enclosure, booth, or hangar be designed to handle the maximum flow of paint spray as an initial condition of permitting. If not, the commenter claimed, the airborne inorganic HAP will flow outside the airstream to the filters, resulting in ineffective capture.

Commenter IV-D-5 stated that pressure drop does not necessarily indicate anything about the amount of particulate (inorganic HAP) on the exit side of the filter. The commenter also stated that in a blasting operation, the particle size of the blasted material containing the HAP will have a Gaussian distribution and the filter may trap the large and intermediate

size particles but allow the small particles to pass through, especially when the pressure drop is low.

Additionally, commenter IV-D-35 pointed out that appropriate pressure drop data are generated by the filter manufacturer, not the booth manufacturer. The commenter, therefore, recommended that the filter manufacturer be cited in the NESHAP to specify the proper reference for particulate filter efficiency data.

Four commenters (IV-D-27, IV-D-29, IV-D-35, IV-F-1.2) stated that a pressure drop measurement across a waterwash spray booth is not an indicator of a change in particle removal efficiency.

Commenter IV-D-29 stated that a major waterwash booth manufacturer advised them that application of a differential pressure gauge is inappropriate for waterwash systems. This is because a wet booth relies upon the scrubbing action of the air stream passing through the water curtain to accomplish particulate removal, rather than passing through fixed media. The commenter stated that because the water curtain does not exist as a fixed medium, there is no opportunity to measure differential pressure across the water curtain.

The commenter claimed that, since the waterwash booth systems rely on the scrubbing action of the water curtain for particulate removal, monitoring of particulate removal efficiency should be done by visual monitoring of the water curtain, if possible.

The commenter pointed out that within the broad category of all waterwash booths used in the aerospace industry, there is a significant variation in the design of the units. The commenter claimed that in some of these units, the water curtain is not visible without physical disassembly of the booth. Consequently, visual monitoring of the water curtain cannot be required for all waterwash systems. For these cases, the commenter claimed that consistent particulate removal efficiency can only be assured through implementation of the manufacturer's maintenance instructions.

Commenter IV-D-11 stated that waterwash systems can achieve very high paint overspray control efficiencies as long as the

equipment and water are properly maintained. According to the commenter, proper maintenance of the circulating pumps, water makeup system, spray nozzles, and other equipment has a profound effect on the system efficiency. The commenter stated that the preferred indicator of system performance is the water circulation rate or pressure based on a properly operating baseline. The commenter noted that circulating water chemistry has a large effect on system performance. The commenter also stated that the amount of suspended solids and the level of additives in solution to control flocculation are indicators of system performance. The commenter, therefore, recommended that the measurement of these factors to establish compliance be included in the final rule.

Commenter IV-F-1 believes that gaps in the water curtain are highly correlated to the control efficiency. The commenter noted that most paint booth permits have some kind of requirement or permit condition which states that a facility may not have gaps in the water curtain.

Response: The EPA has revised the rule to specify that topcoat and primer operations and depainting operations that use dry particulate filters to control inorganic HAP emissions shall provide for continuous monitoring of the pressure drop across the filter. In addition, the filter must be operated in the pressure drop range specified by the filter manufacturer. The EPA believes that the filter manufacturer should provide the pressure drop parameters that indicate maximization of their product's performance.

The EPA acknowledges that pressure drop is not an acceptable monitoring parameter for waterwash particulate removal devices. Therefore, a provision has been added to the final rule to require the inspection of the water curtain on these devices.

The EPA is also requiring that dry particulate filtering devices and waterwash booths be operated according to the manufacturer's specifications. This includes scheduled maintenance procedures. The devices must be shut down when the pressure drop exceeds the specifications of the device

manufacturer or the filter manufacturer or when the water curtain fails the visual continuity check or exceeds the specified water flow rate limits.

The standards have been revised to reflect the changes above and additional changes concerning the operation and control efficiency have also been incorporated. The EPA has revised the rule as follows:

> "63.745(g)(3) If the pressure drop across the dry particulate filter system, as recorded pursuant to §63.752(d)(1), is outside the limit(s) specified by the filter manufacturer or in locally prepared operating procedures, shut down the operation immediately and take corrective action. If the water path in the waterwash system fails the visual continuity/flow characteristics check, or the water flow rate recorded pursuant to §63.752(d)(2) exceeds the limit(s) specified by the booth manufacturer or in locally prepared operating procedures, or the booth manufacturer's or locally prepared maintenance procedures for the filter or waterwash system have not been performed as scheduled, shut down the operation immediately and take corrective action. The operation shall not be resumed until the pressure drop or water flow rate is returned within the specified limit(s)."

A similar provision has been added to the depainting operations standard (63.746(b)(4)(v)).

> "§63.751(c) <u>Dry particulate filter, HEPA filter, and waterwash systems - primer and topcoat application operations</u>.
>
> (1) Each owner or operator using a dry particulate filter system or a HEPA filter system to meet the requirements of §63.745(g)(2) shall continuously monitor the pressure drop across the system.
>
> (2) Each owner or operator using a waterwash system to meet the requirements of §63.745(g)(2) shall continuously monitor the water flow rate through the system."

A similar provision has been added to the monitoring requirements for particulate filters and waterwash booths used to control emissions from depainting operations (§63.751(d)). In addition, the recordkeeping requirements have been revised to reflect the changes in the standards noted above.

12.2 ALTERNATIVE MONITORING REQUIREMENTS

Comment: Commenter IV-D-44 stated that batch plant monitoring cannot be adequately demonstrated with traditional monitoring schemes and, therefore, special monitoring is required. The commenter illustrated this concern by describing the difficulty they had with using continuous temperature monitoring of a condenser on a batch reactor, where the readings did not provide an accurate indication of compliance. The commenter, therefore, recommended that proposed §63.751(e) be revised to read as follows:

> "63.751(e)(2)(i) Alternative monitoring requirements when the affected source in infrequently operated; or for batch type operations.
>
> 63.751(e)(4)(ii) The application shall contain a description of the proposed alternative monitoring system and information justifying the owner's or operator's request for an alternative monitoring method, such as the technical or economic infeasibility, or the impracticality, of the affected source using the required method such as for batch operations."

Response: Batch type operations may be conducted at facilities any number of times per day, month, or year. As such, the EPA has proposed the use of an alternative monitoring procedure to allow facilities an opportunity to apply for an exemption to the proposed standard. The proposed and final rules specifically allow a facility to apply for consideration when an "affected source is infrequently operated." The EPA believes the standards allow a facility to request alternatives to the monitoring requirements for many operations, including batch type operations, if the facility deems an exclusion is needed.

12.3 CATALYTIC OXIDATION

Comment: Commenter IV-D-4 concurred with the EPA's conclusion that catalytic oxidation is an available alternative control strategy. The commenter stated that catalytic oxidation (incineration) technology is a proven, effective technology that is being used commercially in a wide range of industrial applications as an effective VOC control, and will prove to be just as effective in controlling HAP from several of the emission sources covered by the proposed rule. The commenter stated that a properly designed catalytic oxidizer can achieve 98-99 percent destruction efficiency.

Commenter IV-D-12 believes that it is excessive to require verification of the temperature sensor calibration every 3 months for incinerators (oxidizers). According to the commenter, recalibration of temperature sensors, after initial calibration, should be necessary only if mechanical damage occurs or if there are indications of incomplete destruction of contaminants. The commenter noted that, in New Jersey, CEM's for CO and O_2 are normally required for all thermal oxidizers to provide a direct indication of incomplete combustion.

The commenter referred to the proposed requirement that temperature differential across the bed of a catalytic oxidizer be used as a minimum standard, based on a performance test. According to the commenter, the use of this temperature differential may lead to a false indication of a permit violation. The commenter pointed out that the temperature difference that occurs between the entrance and exit of the catalyst bed is a function of the type and amount of contaminant being oxidized in the chamber and that, since these are usually variable in day-to-day operations, false indications of a violation may be frequent, especially if the test is performed at maximum load, as is commonly specified. The commenter believes that the use of CEM's, either continuously or periodically, is a better option. For smaller oxidizers, the commenter suggested that allowing the use of lower cost portable total hydrocarbon monitors (instead of a full certified CEM) may be appropriate.

Finally, the commenter suggested that a focused certification could be developed for monitors used as an indicator of control device malfunction, rather than an indicator of exact emission levels.

Commenter IV-D-29 stated that, because monitoring temperature gives a good indication of incinerator efficiency, they support the requirements in this section for continuous monitoring of temperature as a surrogate to determining destruction efficiency as no other direct method is necessary.

Commenter IV-D-30 suggested that other non-continuous, lower-cost techniques might be adequate for this purpose and should be considered. Specifically, the commenter requested that devices other than continuous strip chart recorders, such as computers, be allowed. The commenter also recommended the use of the term "recording device" in place of "recorder."

As a matter of clarity, commenter IV-D-29 preferred that non-catalytic incinerators be referred to as "thermal incinerators." The commenter noted that this is consistent with the wording used in other EPA documents.

The commenter suggested the following language changes in §63.751(b):

"§63.751(b) (1) All temperature monitoring equipment shall be installed, calibrated, maintained, and operated according to manufacturer's specifications. <u>All</u> temperature sensors <u>should be replaced, or have their calibrations verified, every 3 months.</u>

§63.751(b)(2) Where <u>thermal incinerator</u> is used, a thermocouple equipped with a continuous recorder shall be installed and continuously operated in the firebox or in the ductwork immediately downstream of the firebox in a position before any substantial heat exchange occurs.

§63.751(b)(4) For each <u>thermal incinerator</u>, each owner or operator shall establish during each performance test, including the initial performance test, the minimum combustion temperature as a site-specific operating parameter. This minimum combustion temperature is the

operating parameter value that demonstrates compliance with §63.745(c)(2) and §63.747(d)(2).

Response: The EPA has determined that continuous emission monitors (CEM's) are effective in determining the destruction efficiency of incinerators and will allow the use of CEM's as an alternative to the required calibration every 3 months. The EPA has revised the rule as follows:

"§63.751(b)(8) All temperature monitoring equipment shall be installed, calibrated, maintained, and operated according to manufacturer's specifications. Every 3 months, facilities shall replace the temperature sensors or have the temperature sensors recalibrated. As an alternative, a facility may use a continuous emission monitoring system (CEMS) to verify that there has been no change in the destruction efficiency and effluent composition of the incinerator."

12.4 CONTINUOUS MONITORING REQUIREMENT FOR PARTICULATE FILTERS

Comment: Four commenters (IV-D-11, IV-D-35, IV-D-37, IV-D-50) recommended that the pressure drop be monitored once per shift instead of continuously. Commenter IV-D-29 recommended daily monitoring. Commenter IV-D-27 suggested deletion of the word "continuously" from the rule. Two commenters (IV-D-14, IV-D-33) supported the continuous monitoring requirement for dry particulate filters.

Commenter IV-D-43 recommended that the regulation provide local districts the flexibility to propose alternate monitoring requirements.

Commenter IV-D-50 stated that pressure drop through the particulate control device is a parameter that changes very slowly and does not require continuous monitoring.

Commenter IV-D-35 stated that continuous monitoring would require installation of costly, "real-time" monitoring equipment. The commenter indicated that they currently have visual "sight glass" pressure drop indicators on their filtration sufficient to ensure proper equipment operation. Additionally, the commenter suggested that this recommendation is consistent with the

pressure drop recordkeeping requirements identified in §63.752(d).

According to commenter IV-D-27, the EPA defines continuous monitoring as measuring emissions or parameters on an extremely frequent basis and then averaging those results over some period of time (Federal Register, October 22, 1993, p. 54657). The commenter then noted that proposed §63.752(d) requires a daily reading of the pressure drop. The commenter believes that this could be interpreted to mean extremely frequent readings that would be averaged to obtain the daily reading. The commenter claimed that industry would be required to purchase, install, and maintain costly continuous recorders, such as strip charts, for the ability to continuously monitor.

Commenter IV-D-37 believes that the "continuously monitored" requirement is unreasonable. The commenter pointed out that dedicating a second employee to the operation for the sole purpose of monitoring filter pressure drop--in effect, doubling the labor costs for painting and depainting--is disproportionate to the risk of harm resulting from inorganic HAP emissions in the event that filter efficiency should decrease slightly during a given painting or depainting operation.

Commenter IV-D-5 recommended that inorganic HAP emissions be monitored leaving the filter. Commenter IV-D-27 believes a separate section should be created addressing "waterwash spray booths."

Three commenters (IV-D-27, IV-D-29, IV-D-35) recommended visual inspection of the water curtain as a monitoring requirement. Commenter IV-D-35 suggested that this is a normal condition incorporated into State/local permits. Two commenters (IV-D-14, IV-D-35) recommended that visual inspections be recorded once per shift and commenter IV-D-29 recommended that visual inspections be recorded daily. Commenter IV-D-37 stated that recording the pressure drop once per shift is a reasonable industrial practice, would correspond to the recordkeeping requirements of proposed §63.752(d) and §63.752(e)(5), and thus

serve as a routine checklist to ensure that filters are serviceable.

Commenter IV-D-29 recommended that the EPA allow the industry to either (1) perform a daily visual inspection of the water path for continuity/flow characteristics, or (2) where visual inspections are not applicable, adopt either of the following as the means of demonstrating compliance for waterwash booths: (a) daily monitoring of water flow meter readings, or (b) the booth manufacturer's maintenance procedures.

Commenter IV-D-35 recommended that §63.745(f)(3) be revised to read as follows:

> "Monitor once per shift the pressure drop across the particulate filter. Visual inspection of the water curtain once per shift during operation of waterwash may be used as a surrogate for pressure drop measurements indicating the need for waterwash control services."

Commenter IV-D-29 recommended that §63.745(f)(3) be revised as follows:

> "(3) ~~Continuously monitor the pressure drop across the particulate filter or waterwash.~~ Each owner or operator using particulate filters shall daily monitor the pressure drop across the particulate filter. Each owner or operator using a waterwash system shall either (1) perform a daily visual inspection of the water path for continuity/flow characteristics, or (2) where visual inspections are not applicable, (a) monitor water flow meter readings daily, or (b) adopt the booth manufacturer's maintenance procedures."

Commenter IV-D-27 recommended that §63.745(f)(3) be revised as follows:

> "(3) ~~Continuously~~ monitor the pressure drop across the particulate filter ~~or waterwash~~. For water curtains, visually verify the water curtain is on and achieves an even water distribution."

Commenter IV-D-27 recommended that §63.745(f)(4) be revised as follows:

"(4) If the pressure drop across the particulate filter or the water flow rate of the water curtain as recorded pursuant to §63.752(d) is outside the normal operating limit(s) specified by the manufacturer, or the facilities operating limits, shut down the operation immediately and take corrective action. The operation shall not be resumed until the pressure drop or flow rate is returned to the limit(s) specified by the manufacturer or the facilities operating limits."

Depainting:

Commenter IV-D-27 recommended the following revision to §63.746(d)(3):

"(d)(3) ~~Continuously~~ monitor the pressure drop across the particulate filter."

Commenter IV-D-35 recommended that §63.746(d)(3) be revised to read as follows:

"Monitor once per shift the pressure drop across the particulate filter."

Monitoring:

Commenter IV-D-27 recommended the following revision for §63.751(c):

"(c) Particulate filters ~~and waterwash spray booths~~ - primer and topcoat application operations. Each owner or operator using particulate filters ~~or waterwash spray booths~~ in accordance with the requirements of §63.745(f)(3) shall ~~continuously~~ monitor the pressure drop across the particulate filter ~~or waterwash~~."

Commenter IV-D-35 recommended that §63.751(c) be revised to read as follows:

"(c) Particulate filters - primer and topcoat application operations. Each owner or operator using particulate filters in accordance with the requirements of §63.745(f)(3) shall once per shift monitor and record the pressure drop across the particulate filter."

Commenter IV-D-29 recommended that the use of waterwash be allowed for particulate control. The commenter stated that

pressure drop is not an appropriate measure for waterwash booths, and suggested the following revisions:

"§63.751(c) Particulate filters and waterwash spray booths - primer and topcoat operation. Each owner or operator using particulate filters in accordance with the requirements of §63.745(f)(3) shall daily monitor the pressure drop across the particulate filters. Each owner or operator using a waterwash system shall either (1) perform a daily visual inspection of the water path for continuity/flow characteristics, or (2) where visual inspections are not applicable, (a) monitor water flow meter readings daily, or (b) adopt the booth manufacturer's maintenance procedures. ..."

"§63.751(d) Particulate filters and waterwash spray booths - depainting operation. Each owner or operator using particulate filters in accordance with the requirements of §63.746(d)(3) shall daily monitor the pressure drop across the particulate filters. Each owner or operator using a waterwash system shall either (1) perform a daily visual inspection of the water path for continuity/flow characteristics, or (2) where visual inspections are not applicable, (a) monitor water flow meter readings daily, or (b) adopt the booth manufacturer's maintenance procedures."

Commenter IV-D-27 recommended the following revision for §63.751(d):

"(d) Particulate filters - depainting operation. Each owner or operator using particulate filters in accordance with the requirements of §63.746(d)(3) shall ~~continuously~~ monitor the pressure drop across the particulate filters."

Commenter IV-D-35 recommended that §63.751(d) be revised to read as follows:

"Particulate filters - depainting operation. Each owner or operator using particulate filters in accordance with the requirements of §63.746(d)(3) shall once per shift monitor and record the pressure drop across the particulate filters."

Commenter IV-D-29 believes that revisions are necessary in the recordkeeping requirements for the inorganic HAP control equipment. The commenter recommended the following revision for §63.752(d):

"§63.752(d) Primer and topcoat operations - Inorganic HAP emissions.

(1) For particulate filters. Each owner or operator seeking to comply with §63.745(f) for control of inorganic HAP emissions from primer and topcoat applications shall record the actual pressure drop across the filters once each day during which coating operations occur. This log shall include the acceptable limit(s) of the pressure drop as specified by manufacturer or certified by the operator.

(2) For waterwash booths each owner or operator seeking to comply with §63.745(f) for control or inorganic HAP emissions from primer and topcoat applications shall record the results of either the visual inspection of the water path's continuity/flow characteristics during which coating operations occur or where visual inspections are not applicable the (a) daily water flow meter readings or (b) maintain a record of any maintenance conducted pursuant to the booth manufacturer's maintenance procedures."

Commenter IV-D-29 recommended deleting §63.752(e)(5)(ii) and revising §63.752(e)(5)(i) as follows:

"(5)(i) Inorganic HAP emissions. For particulate filters. The actual pressure drop across the filter once per ~~shift~~ day in which the depainting process is in operation. This log shall include the acceptable limit(s) of the pressure drop as specified by manufacturer. For waterwash booths, the results of either the visual inspection of the water path's continuity/flow characteristics one per day during which the depainting process is in operation or where visual inspections are not applicable the (a) daily water flow meter readings or (b) record of any maintenance conducted pursuant to the booth manufacturer's maintenance procedures."

Response: The EPA does not intend for facilities to record the monitored parameter "continuously." The monitored parameter must be recorded once per shift. A mechanical monitoring device, such as a bell, alarm, whistle, etc. may be installed to notify the supervisor in the event of emissions system failure. In no way should this requirement be construed as meaning that a person or monitoring device must continuously record the parameter.

12.5 REDUCTION OF MONITORING DATA

Comment: Commenter IV-D-35 stated that the EPA's intention in the "reduction of monitoring data," §63.751(f)(1), is not clear. The commenter asked if it is the EPA's intent that raw data need not be recorded, even when the raw data are used to determine a "reduced" parameter that is required to be recorded.

Response: The EPA requires that all data necessary for a facility to determine compliance with the rule must be recorded, including the raw data used in the calculations. The data must be recorded, at a minimum, in the same number of significant digits as specified in the reporting standard for the parameter. The parameter may be recorded in more significant figures than is specified in the reporting standard. However, when the parameter is reported, the data must again be in the same number of significant figures specified in the rule for that parameter.

12.6 GENERAL COMMENTS

Comment: Commenter IV-D-43 recommended that, in order to ensure continuous compliance with the overall control efficiency requirements, control devices should meet the requirements in the enhanced monitoring program (EMP) regulation proposed by the EPA.

Response: The EPA believes that the final rule contains a sufficient number of compliance issues for facilities, and that the monitoring requirements provide adequate safeguards to ensure that compliance with the standards will be continuously achieved.

Additional monitors on control devices would add to the compliance costs in the areas of material and personnel without an attendant further decrease in emissions or increase in enforceability. For these reasons, enhanced monitoring provisions are not being specified under this NESHAP.

13.0 RECORDKEEPING AND REPORTING REQUIREMENTS

13.1 GENERAL COMMENTS

Comment: Commenter IV-D-12 stated that recordkeeping should be kept to a minimum. The commenter recommended that the EPA prepare model reporting forms each type of operation (e.g., solvents used in hand-wipe cleaning, solvents used for exempt hand-wipe cleaning, leaks from enclosed spray gun cleaning, depainting operations). The commenter believes that this will provide a useful tool, reveal ways in which the reporting requirements could be simplified, and assist State and affected sources in the implementation of the reporting requirements.

Response: The EPA has attempted to specify records only for instances where they are necessary as a tool for the Agency in enforcing the standards. The EPA will work with the industry and local permitting agencies to determine if standardized forms are necessary and if the forms can be designed to include all potential facility situations.

Comment: Two commenters (IV-D-33, IV-D-43) stated that they commend and support the reduced recordkeeping and reporting requirements in the proposed NESHAP. Commenter IV-D-33 believes that the reduced requirements provide a valuable incentive to utilize materials and processes that minimize toxic air emissions.

Commenter IV-D-34 stated that reporting requirements in the aerospace NESHAP should be kept as is or made more stringent. The commenter stated that their visits and compilation of comments from numerous companies throughout the U.S. indicate that without some form of inducement such as the recordkeeping requirements, the change to environmentally friendly technology

will move at a slow or no pace. The commenter pointed out that one company in Texas as well as several military installations are currently complying with recordkeeping requirements; therefore, the commenter feels the argument for not requiring or reducing requirements for recordkeeping is a moot point.

Commenter IV-D-31 recommended that all supervisors be required to record all violations of the housekeeping standards and report them. The commenter also recommended that, if supervisors witness no violations and receive no reports of any from subordinates, they must certify each reporting period that no violations occurred of which they were aware. The commenter believes the Act requires no less.

Four commenters (IV-D-27, IV-D-29, IV-D-35, IV-D-37) believe that the recordkeeping and reporting requirements are burdensome, often duplicative, do not contribute to the protection of the environment, and, in some instances, have no practical utility.

Commenter IV-D-29 believes that the recordkeeping and reporting requirements violate the Paperwork Reduction Act (PRA). The commenter pointed out that the PRA is intended to minimize the Federal paperwork burden imposed on individuals, businesses, and others as a result of information collection requests issued by Federal agencies (44 U.S.C. §3501). The commenter noted that an "information collection request" is defined in the Act to include regulations, application forms, questionnaires, and other recordkeeping or reporting requirements (44 U.S.C. §3502(11)).

The commenter stated that the PRA adopts a two-pronged approach to reduce the burden created by information collection requests. The first prong relies upon self-evaluation by the agency seeking information. The commenter stated that the Act requires that each agency review its proposed regulations and other information requests to ensure that the information being sought is not available from some other source within the Federal government. The commenter also added that agencies are directed to evaluate their proposed information collection requests to make certain that the burden on persons who will be reporting is

reduced "to the extent practicable and appropriate." (44 U.S.C. §3507(a)).

According to the commenter, the second prong relies on the Office of Management and Budget (OMB) to review proposed information collection requests to ensure that the requests are consistent with the purposes of the Act. The commenter stated that OMB is directed to evaluate each information collection request proposed by an agency to determine whether the collection of information "is necessary for the proper performance of the functions of the agency" and whether the information will have "practical utility" (44 U.S.C. §3508). The commenter also noted that the Act provides that "[t]o the extent, if any, that [OMB] determines that the collection of information by an agency is unnecessary, for any reason, the agency may not engage in the collection of the information." The commenter claimed that in this proposed rule, the EPA cannot meet its burden for important parts of recordkeeping and reporting requirements that accompany the proposed control standards.

Commenter IV-D-32 recommended that an explicit exclusion from all recordkeeping and reporting requirements for activities using solvents at laboratories or in research and development and quality assurance activities be included. According to the commenter, these are minor sources that do not have significant emissions.

Commenter IV-D-37 stated that employees at airline maintenance facilities may be required to perform dozens of maintenance activities throughout the hanger area, utilizing multiple maintenance processes and chemicals. The commenter claimed that daily recordkeeping requirements, in particular, would be enormously expensive and would effectively transform the duties of skilled mechanics into those of data recorders. The commenter recommended that wherever possible, the rule allow for facility-wide recordkeeping based on inventory withdrawal records.

Commenter IV-D-35 recommended that the duplication of recordkeeping requirements, such as annual or semiannual reports

of change in coatings or formulations used, be eliminated. According to the commenter, if other regulations (e.g., title V operating permits) require similar information, then the requirement should be deleted from the proposed aerospace rule. The commenter believes that this recommendation is consistent with the CAAA emission standards (section 112(d)(2)) requiring the Administrator to establish such standards "taking into consideration the cost of achieving such emissions reduction requirements..." and as also defined under section 112(f), which also requires the Administrator to take "into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect" when establishing requirements and setting standards.

Commenter IV-D-29 stated that in certain cases, the EPA goes beyond the reporting requirements for title V operating permits which only require semiannual reports of monitoring parameters and instances of non-compliance.

Commenter IV-D-49 recommended that the EPA review §63.752(b)(1)(i), (b)(3), and (c)(2) to determine if the section contains excessive reporting requirements. The commenter claimed that the semiannual reporting requirement in §63.752(b)(1) on new cleaning solvents containing no HAP appears to be unnecessary since the purpose of the regulation is to control HAP. The commenter also stated that the requirement to keep monthly records of volumes of compliant solvents in §63.752(b)(3) and compliant coatings in §63.752(c)(2) may be excessive. The commenter recommended that the EPA consider whether annual compliance certification would be sufficient for a source using compliant solvents and coatings.

Three commenters (IV-D-27, IV-D-29, IV-D-35) believe that semiannual reporting is unduly burdensome and only annual reports should be required. Commenter IV-D-27 claimed that when compliant coatings are used, an annual listing of the coatings and their respective HAP and VOC content and monthly records for averaging should give the EPA the information required to determine compliance.

Commenter IV-D-35 stated that when a facility is using compliant material, less stringent recordkeeping, if any, should be required. The commenter recommended that the EPA require reliance on the manufacturer's certification of compliant materials and the supplier's labeling to the maximum extent, relieving the burden faced by individual facilities from redundant and expensive testing. The commenter claimed that once compliance is established, daily and monthly recordkeeping should not be required. The commenter pointed out that procurement records could be used to establish maximum usage rates or actual shop logs if absolutely necessary. The commenter recommended annual reporting when compliant coatings and cleaning solvents are used.

The commenter also recommended that the daily compliance recordkeeping requirement for primers and topcoats be eliminated. The commenter also stated that the depainting and maskant operational recordkeeping requirements should be eliminated. In addition, the hazardous waste storage and handling recordkeeping provisions should be eliminated because they are duplicative.

Response: Recordkeeping and reporting requirements associated with research and development activities and quality control for cleaning solvents, topcoats, primers, and chemical milling maskants have been deleted from the final rule. In addition, cleaning solvents that contain no HAP or VOC are exempted from the standard and therefore, exempted from the recordkeeping and reporting requirements.

In the proposed rule, daily records were required for the volumes of non-compliant cleaning solvents used in exempt operations, as well as of the HAP and VOC contents of "averaged" primers, topcoats, and chemical milling maskants. The EPA believes that these records are not excessive and that they are necessary to determine compliance with the standards and to monitor the usage of non-compliant materials. However, in order to add flexibility to the rule and to address attainment areas, the EPA has changed the daily averaging requirement to monthly averaging periods or as determined by the permitting agency. In

no case will the averaging period exceed 30 days. The EPA will require that the recordkeeping associated with averaging be recorded on a monthly basis, regardless of whether or not the permitting agency requires the facility to use shorter averaging periods. The EPA believes that this revision will reduce the amount of time required for recordkeeping and still ensure that the environment is protected. Additional records are required over the minimum time periods needed to determine compliance. The frequency for reports has been based on the general semiannual reporting frequency specified in the General Provisions.

The final rule was submitted to OMB for review. The Agency does not wish to cause a facility to needlessly duplicate information that may already be required in an operating permit required under the EPA's part 70 (title V) permit program. §63.753(a)(2) allows such a permit to be submitted in lieu of the initial notifications required under §63.9(b)(2) of the General Provisions, provided that the same information is contained in the permit application as required by §63.9(b)(2). There may be additional information required to be reported under the NESHAP that a facility has already compiled for other reasons. The EPA has no objection to a facility including this information (assuming that the format is compatible) in the reports or records that are needed to assure compliance with this NESHAP.

13.2 NOTIFICATION OF COMPLIANCE STATUS

Comment: Commenter IV-D-31 recommended that a facility's initial notification (General Provisions, §63.9(b)) be required within 3 months of promulgation. The commenter claimed that determining whether a facility is covered by this rule is not complicated. The commenter believes initial notification within 3 months will allow the permitting agencies and the public an opportunity to work with affected sources.

Additionally, commenter IV-D-31 recommended that the notification of compliance status be filed with a permit application within 6 months after promulgation in order to allow for compliance within 1 year, in most cases. The commenter

claimed that extensions of the 3-year limit should only be available if compliant coatings are unavailable for a given application and control devices cannot be installed in their stead.

The commenter also recommended that the notice of compliance status indicate clearly whether or not the source plans to use averaging for each line along with the types and quantities of coatings they plan to use.

Commenter IV-D-33 stated that sources should provide copies of notifications or other required communications to both the EPA and the applicable State or local control agency. According to the commenter, since authorized State and local control agencies will be receiving copies of each notification from these sources when the applicable title V permit is approved, it is consistent to keep control agencies apprised of notifications prior to final approval of title V permit programs. The commenter also stated that sources should not be required to send the EPA copies of each notification after a State title V permit has been approved.

Response: Under the General Provisions to part 63 (§63.9(h)(2)(ii)), each notification of compliance status (NCS) is required to be submitted within 60 days following the completion of a specified compliance demonstration activity (such as a performance test). The proposed NESHAP, in §63.753(a)(1), required a NCS that included information on whether the source has operated within the specified ranges of its designated operating parameters. This report was due no later than 12 months prior to the final compliance date (3 years), or within 2 years after promulgation.

The EPA agrees that this notification (submitted at the 2-year point) should inform the Agency of the facility's plan with respect to its use of coatings. Therefore, §63.753(a)(1) has been revised to require this additional information to be included.

The Agency will not require, under this NESHAP, that required reports also be sent to State and local control agencies. Agencies to which enforcement authority has not been

delegated by the EPA may arrange with their regional EPA office to procure such reports. Even after permit programs have been approved under part 70 (title V), the EPA needs to continue receiving the part 63 (NESHAP) reports in order to monitor the performance of affected sources as well as the States' success in implementing this regulation.

Comment: Commenter IV-D-29 requested confirmation of their understanding that under this rule and the General Provisions, reports that are prepared under State and local regulations and that contain essentially the same information as required in the Aerospace NESHAP will also meet the reporting requirements contained in the NESHAP.

Response: As discussed above, proposed §63.753(a)(2) has been retained in the final rule and does allow operating permit information prepared under part 70, as well as other information that is similar and in a compatible format, to be submitted as part of the required NESHAP submittals.

13.3 RETENTION OF RECORDS

Comment: Commenter IV-D-33 pointed out that the proposed rule requires records to be retained for 5 years. The commenter stated that the local agencies in California inspect facilities more frequently than the EPA (for example, most sources in California are inspected annually). The commenter believes that flexibility should be provided to States and local agencies to allow alternative periods of record retention based upon inspection frequency. The commenter, therefore, recommended that the rule be modified to require records to be retained for 2 years or until the next inspection, whichever is longer.

Response: The 5-year record retention period reflects the holding period included in the General Provisions, §63.10(b)(1). The EPA does not believe that a shorter period would be justified for the aerospace source category. Further, the occurrence of an inspection at a facility is not considered an appropriate point in time to discard records.

13.4 REPORTING PERIOD

Comment: Commenter IV-D-23 noted that the proposed rule calls for semiannual reporting of monitoring results only if violations of the standard occurred during the 6-month monitoring period, while part 70 permitting requirements specify that monitoring reports must be submitted at least every 6 months, regardless of whether violations occurred. The commenter recommended that the EPA ensure that these requirements are consistent.

Commenter IV-D-12 suggested that the EPA clearly specify in the regulation the timeframe (e.g., immediately, monthly, semiannually) required for reporting non-compliance, when a source deviates from the operating standards or from allowable.

Commenter IV-D-31 stated that the reporting frequency is inadequate. Specifically, the commenter claimed that reporting cannot be annual under any circumstances because annual reporting may make administrative enforcement of violations impossible. The commenter suggested quarterly reporting, with semiannual reporting available as a reward for 2 years of compliance with all applicable emission limitations at a facility. The commenter noted that annual reporting is inconsistent with the other reporting obligations of facilities and an insufficient basis for enforcement. Further, the commenter believes that requiring a source to submit records every 3 months (or 6 months for those with clear compliance records) is not a great burden since records must be kept on a frequent basis.

Commenter IV-D-35 recommended the deletion of proposed §63.753(d)(2)(ii), which requires annual reports. The commenter believes that this is a duplicate requirement of the compliance reports required by a title V permit. The commenter stated that compliance reports for this NESHAP are not necessary.

Response: Proposed §63.753(c)(1)(iii) and (v) required only that each exceedance of the established operating parameter(s) be reported in semiannual reports. Under §70.6(a)(3)(iii)(A) and under §63.10(e)(3) of the General Provisions, semiannual reports on monitoring system results are also required. §63.10(e)(3)(C)

requires quarterly reports only if "excess emissions" are experienced. The EPA has decided to revise this provision as proposed so that it will be consistent with the General Provisions. In the final rule, §63.753(c) requires semiannual reports of operating parameter data from control devices used in primer and topcoat application operations. Also reported on a semiannual basis will the facility's statement that its operations have been in compliance over the previous 6 months. This requirement is in addition to the reports that provide specific information on HAP and VOC flow through the facility and on control system performance. The EPA believes that these semiannual reports are appropriate. Further, as stated previously, statements and information submitted under part 70 operating permits may be submitted or included where the information required in this NESHAP has already been compiled.

13.5 RCRA AND NON-RCRA WASTE

Comment: Commenter IV-D-11 supported the EPA proposal to require separate lists for those wastes that are subject to RCRA and those which are subject to the proposed rule as an aid to monitoring and compliance.

Four commenters (IV-D-27, IV-D-29, IV-D-35, IV-D-35) stated that the recordkeeping and reporting requirements for waste handling and storage operations duplicate existing RCRA regulations. Specifically, two of the commenters (IV-D-27, IV-D-29) stated that §63.752(g) and §63.753(f) are duplicative of 40 CFR §262.40(c) and 40 CFR §262.41-44 and would result in duplicative proof of compliance. The commenters pointed out that having duplicative requirements under RCRA and the CAA could subject the generator to multiple violations of the regulations for a single reporting or recordkeeping error. Commenter IV-D-29 supported the provision in §63.741(e) which proposes to exclude all wastes regulated under subtitle C of RCRA from a handling and storage requirement. Two commenters (IV-D-27, IV-D-29) believe that the independent reporting requirement for the RCRA status of waste could not be defended under the Paperwork Reduction Act.

Commenter IV-D-10 stated that this NESHAP is not intended as an enforcement mechanism for RCRA.

Additionally, two commenters (IV-D-29, IV-D-35) stated that the proposed overlap between RCRA and the CAAA adds no environmental protection yet significantly increases the cost of compliance. Commenter IV-D-35 stated that the military estimated that recordkeeping for non-RCRA HAP wastes would raise the costs of all recordkeeping under the rule by an additional 10-15 percent.

The commenter noted that many States, such as California, already regulate non-RCRA HAP waste. The commenter suggested that this rule would either add additional requirements or preempt those already established by the States. Commenter IV-D-29 suggested that the EPA confirm that where a State program has been approved to operate in lieu of the Federal RCRA program, it will be sufficient for a source to determine whether or not its waste is hazardous under that program, without investigating its status under the original superseded Federal regulations.

Commenter IV-D-35 stated that the EPA background documents and section 114 questionnaires did not address the non-RCRA HAP waste issue. Furthermore, the commenter remarked that it is doubtful that the EPA has the factual basis for recommending further regulation of such wastes, or has considered whether it should impose such requirements at all. Commenter IV-D-29 pointed out that the EPA has not shown that the proposed waste stream control measures reflect the average of the best controlled 12 percent of existing sources, and thus represents the MACT floor. Commenter IV-D-35 recommended that the EPA refrain from regulating non-RCRA HAP wastes until it accurately determines the amount of HAP emissions attributable to industry waste and the best approach to limit waste, based on economic analysis.

Commenter IV-D-29 stated that the EPA must provide a de minimis exemption from the waste storage and handling standards for non-volatile HAP and that this exemption must be administered in a reasonable manner. According to the commenter, affected

sources should be able to rely (at their own risk) on general knowledge of the process to determine whether or not specific waste streams exceed the proposed volatility level, just as they are allowed to rely on general knowledge to make the basic judgement of RCRA applicability.

Commenter IV-D-32 recommended that all waste regulations be consolidated in one section of the regulations, preferably the RCRA regulations.

Commenter IV-D-10 stated that annual reports are adequate to demonstrate the compliance status with respect to the handling and storage of waste and that semiannual reports will not enhance industry's compliance.

Commenter IV-D-27 recommended that proposed §63.752(g) and §63.753(f) be deleted.

Two commenters (IV-D-29, IV-D-35) recommended that the EPA eliminate all non-RCRA HAP waste requirements from the rule. The commenters stated that reporting should not be required for non-RCRA waste since recordkeeping is not required under this rule for non-RCRA waste.

Response: As discussed in Section 9.1, the EPA has deleted the provision requiring enclosure of all waste that contains organic HAP. The recordkeeping (§63.752(g)) and reporting (§63.753(f)) requirements related to waste streams have also been deleted to reflect this change in the standards.

13.6 CLEANING OPERATIONS

13.6.1 Exempt Cleaning Operations

Comment: Ten commenters (IV-D-10, IV-D-12, IV-D-27, IV-D-29, IV-D-30, IV-D-32, IV-D-33, IV-D-35, IV-D-49, IV-D-50) stated that the requirements for daily recordkeeping for non-compliant solvent use in exempt cleaning operations is too labor-intensive and burdensome.

Six commenters (IV-D-50, IV-D-35, IV-D-30, IV-D-29, IV-D-27, IV-D-10) stated that requiring the name of the parts and assemblies cleaned and the associated volume of solvent used does not provide any useful information to the owner or to the EPA. Four commenters (IV-D-29, IV-D-35, IV-D-10, IV-D-27) stated that

tracking individual parts only increases expenses without any environmental benefit.

Three commenters (IV-D-27, IV-D-29, IV-D-50) believe that requiring daily records will actually be less accurate than monthly or yearly reporting due to overestimation of solvent usage. Two commenters (IV-D-27, IV-D-29) stated that the most accurate records come from inventory, procurement records, and chemical dock receiving records and waste records on a monthly or annual basis. Commenter IV-D-29 noted that the proposed rule does not require these types of records for any other operations.

Two commenters (IV-D-29, IV-D-30) stated that the EPA may have designed these recordkeeping requirements for non-compliant solvents to provide an incentive for industry to utilize aqueous or lower vapor pressure solvents. Commenter IV-D-29 suggested that an EPA staffer said as much during one of the public meetings on the proposed rule. The commenter pointed out that such a motive, however, would represent an impermissible use of EPA's power to require recordkeeping flatly contradictory to the letter and spirit of the Paperwork Reduction Act.

Commenter IV-D-31 recommended that a record of where non-compliant cleaners are used be required and that this record not be limited to particular types of operations. The commenter believes that this will require that violations be reported, not just compliance. The commenter requested that, in the event that only usage in exempt operations is recorded, the amount left in storage plus the amount used should be required to equal the amount purchased. The commenter then requested that, where this is not the case, a penalty based on a violation throughout the relevant reporting period be assessed and that criminal penalties be attached to any misrepresentation as to how these exempt cleaners are used.

Commenter IV-D-50 believes that a more reasonable approach to the daily recordkeeping requirements would be to require manufacturers and rework facilities to develop procedures consistent with the solvent cleaning regulations. The commenter stated that compliance could be demonstrated by the facility

certifying that the procedures for hand-wipe solvent cleaning were followed during the repainting period. The commenter stated that occasional audits by agency personnel could be used to monitor the procedures and the facilities' compliance with these procedures.

Four commenters (IV-D-27, IV-D-29, IV-D-30, IV-D-32) believe that monthly recordkeeping is sufficient to provide the EPA with the data it needs. In addition, commenter IV-D-29 recommended that §63.752(b)(4) be revised to require records to be kept at point of issue or equipment-specific/by process instead at point of use. Commenter IV-D-32 recommended that facilities be given the option of maintaining these records at either a central distribution point or at the operation. Commenter IV-D-30 recommended that the user be allowed to list parts, subassemblies, and assemblies typical of a particular operation, without the requirement to record actual activities on a daily basis.

Two commenters (IV-D-27, IV-D-29) recommended the following revision to §63.752(b)(4)(i):

"(i) The amount (in gallons) of cleaning solvent used each month, ~~day at each operation~~; and"

Commenter IV-D-27 recommended that §63.752(b)(4)(ii) be deleted as shown below:

"(b)(4) For each cleaning solvent used for the exempt hand-wipe cleaning operations specified in §63.744(e) that does not conform to the vapor pressure or composition requirements of §63.744(b):

~~(ii) The parts, subassemblies, and assemblies which were cleaned."~~

In addition, commenter IV-D-29 recommended the following revision for §63.752(b)(4)(ii):

(ii) The processes set forth in section 63.744(e) where these solvents were utilized.

Commenter IV-D-50 recommended a monthly or annual report of the quantity of solvent used in exempt solvent cleaning operations as a reasonable requirement.

Commenter IV-D-10 stated that the documentation that would be provided for the title V part 70 permit application and the notification of compliance status under this NESHAP are adequate to determine that non-complying solvents are used only in non-exempt operations.

Commenter IV-D-49 recommended that sources should only be required to provide an initial notification to validate their exempt status.

Commenter IV-D-12 recommended that sources only be required to record and report the amount (in gallons) of cleaning solvent used each day, instead of recording and reporting on all of the parts or subassemblies cleaned.

Commenter IV-D-35 recommended the deletion of recordkeeping requirements for exempt cleaning operations.

Commenter IV-D-29 recommended the deletion of recordkeeping requirements for §63.744(e)(11), exempt cleaning operations for research and development, production testing, and laboratory testing.

Two commenters (IV-D-10, IV-D-33) recommended that the data be made available on an annual basis. Commenter IV-D-10 believes that the submission of data should coincide with requirements for RCRA and SARA (i.e., annually). Commenter IV-D-33 stated that solvent usage records should also be supplied to the EPA on an annual basis for flush cleaning operations and spray gun cleaning operations.

Response: The EPA has reviewed these comments and the proposed recordkeeping requirements related to the use of non-compliant solvents used in exempt hand-wipe cleaning operations. The Agency has concluded that the daily requirement is unnecessary, as is the need to identify specific parts that were cleaned with these solvents. The provisions in §63.752(b)(4) have been revised as follows:

> "(4) For each cleaning solvent used for the exempt hand-wipe cleaning operations specified in §63.744(e) that does not conform to the vapor pressure or composition requirements of §63.744(b):

(i) The identity and amount (in gallons) of each cleaning solvent used each month at each operation; and

(ii) A list of the processes set forth in §63.744(e) to which the cleaning operation applies.

13.6.2 Compliant Cleaning Solvents

Comment: Two commenters (IV-D-29, IV-D-35) were concerned about the recordkeeping requirements for compliant cleaning solvents.

Commenter IV-D-35 recommended that §63.752(b)(2)(iii) be revised to read as follows:

"Annual records of the volume of each solvent used, as determined from facility purchasing records or usage records."

The commenter stated that purchase records do not always reflect annual usage and do not necessarily reflect usage by contractors at DoD facilities. The commenter stated that purchase records do not account for the quantity in storage. The commenter, therefore, recommended that each facility operator have the option of determining which records work best for them, thereby minimizing the recordkeeping burden.

Commenter IV-D-29 believes that the annual recordkeeping requirements of §63.752(b)(2) should be extended to solvents that gain compliance by meeting the vapor pressure specification in §63.744(b)(2).

Commenter IV-D-29 stated that semiannual reports for requirements that are not monitoring parameters or noncompliant uses is excessive. As an example, the fact that a compliant solvent is no longer used is not relevant in determining compliance with the requirements.

Likewise, according to the commenter, the requirement to report the use of non-HAP containing solvents (which are not regulated under this rule) is not relevant in determining compliance with this rule.

The commenter claimed that in proposing annual recordkeeping for compliant solvents that meet the composition requirement, the EPA had determined that annual records of the volume of compliant

solvent used is sufficient for the source to document compliance with the aerospace NESHAP and for the EPA to enforce the rule. The commenter stated that the EPA has not demonstrated that additional recordkeeping is needed to document compliance or enforce the rule if the solvents used are compliant by meeting the vapor pressure requirement of §63.744(b)(2). Additionally, the commenter claimed that a 6-month report on new compliant solvents meeting the vapor pressure limitations does not add to the enforceability of the vapor pressure limitations.

The commenter believes that all cleaning solvents that are compliant (i.e., satisfy the MACT floor) should have the same recordkeeping requirements and recommended that §63.752(a) and (b)(1) read as follows:

"§63.752 Recordkeeping requirements.

(a) General. Each owner or operator subject to this subpart shall fulfill all recordkeeping requirements specified in §63.10(a), (b), (d), and (f).

..."

"(b) Cleaning operation. Each owner or operator of a new or existing cleaning operation subject to this subpart shall record the information specified in paragraph (b)(1) through (b)~~(3)~~(5) of this section, as appropriate.

~~(1) The name, HAP content, and documentation showing the organic HAP constituents of each cleaning solvent used at the facility.~~

~~(2)~~(1) For each cleaning solvent used in hand-wipe cleaning operations that complies with the ~~composition~~ requirements specified in §63.744(b)~~(1)~~:

(i) The name of each cleaning solvent used;

(ii) All data and calculations that demonstrate that the cleaning solvent complies with one of the composition requirements; and

(iii) Annual records of the volume of each solvent used, as determined from facility purchasing records.

~~(3) For each cleaning solvent used in hand-wipe cleaning operations that does not comply with the composition requirements in §63.744(b)(1), but does comply with the vapor pressure requirement of §63.744(b)(2)~~"

Response: The EPA agrees with the comment concerning §63.752(b)(2)(iii), and has incorporated the suggested change into the final rule as listed above.

In addition, it was not the EPA's intention to have facilities track every part that is cleaned as a exempt hand-wipe cleaning operation. Therefore, 63.752(b)(4)(ii) has been revised as follows:

"(ii) A list of the processes set forth in §63.744(e) to which the cleaning operation applies."

The Agency also agrees that reports for non-HAP containing solvents are unnecessary and has deleted non-HAP and non-VOC cleaning solvents from the standards (see Section 5.2.1). Finally, §63.753(b)(1)(ii) has been revised as follows:

"(ii) A list of any new cleaning solvents used for hand-wipe cleaning in the previous 6 months and, as appropriate, their composite vapor pressure or notification that they comply with the composition requirements specified in §63.744(b)(1); "

13.6.3 Spray Gun Cleaning

Comment: Commenter IV-D-29 recommended that the reporting language for spray guns be modified to require reporting of only those gun cleaners that leak, have remained in service and have not been repaired within 15 days.

The commenter recommended that §63.753(b)(1)(i), (ii), and (iv) be deleted. The commenter also suggested the following revisions to §63.753(b)(1)(vi):

"(vi) Any instance where a leaking enclosed spray gun cleaner remains unrepaired and in use for more than 15 days."

Response: The EPA agrees with this revision and has incorporated the suggested language change into the final rule.

13.7 PRIMER AND TOPCOAT APPLICATION OPERATIONS

13.7.1 Averaged Topcoats and Primers

Comment: *Four commenters* (IV-D-30, IV-D-29, IV-D-35, IV-D-50) stated that daily records of HAP and VOC content for averaged topcoats and primers would create unreasonable costs and would lead to inaccurate data. Commenter IV-D-50 stated that a daily averaging requirement will mean that every paint booth in a facility will require an exact coating plan for every day of production.

Three commenters (IV-D-29, IV-D-30, IV-D-42) recommended monthly averaging. Specifically, commenter IV-D-42 recommended that an option for determining compliance be based on a monthly (or weekly), as well as a daily basis. Commenter IV-D-29 also recommended that the compliance period in §63.749(d) be changed to monthly. Commenter IV-D-30 added that the mixtures used in facilities typically do not vary on a daily basis and monthly averaging is thus warranted. Commenter IV-D-42 believes that this provision may be unnecessarily burdensome for large facilities with multiple application stations and where different coatings may of necessity be scheduled for application on separate days.

Commenter IV-D-35 concluded that only quarterly records for averaging should be required. According to the commenter, quarterly comes from the title V operating permit requirements. The commenter also stated that monthly is more acceptable than daily recordkeeping. According to the commenter, these records will give the EPA the information that is needed to determine compliance as monthly volume-weighted average gives more accurate information on facility usage and emissions.

Commenter IV-D-35 recommended that §63.752(c)(3)(i) be revised to read as follows:

"For primers and topcoats complying with the organic HAP or VOC content by averaging:

(i) The quarterly volume-weighted average..."

Commenter IV-D-29 recommended that §63.752(c)(3)(i) be revised to read:

"§63.752(c)(3) For primers and topcoats complying with the organic HAP or VOC content by averaging:

(i) The ~~daily~~ monthly volume-weighted average masses..."

Response: The daily averaging period was selected for consistency with the averaging period in the ambient standards for ground-level ozone. Since ozone concentrations are affected through diurnal photochemical reaction cycles by atmospheric VOC, the time periods over which higher VOC emission rates are allowed to occur assumes great importance. If a period longer than 24 hours is selected, the chance of violations of the ambient standards could be increased. Since approximately 95 percent of the affected aerospace facilities will be in ozone nonattainment areas, the EPA wishes to ensure that the averaging approach in the final rule does not contribute to unacceptable ozone increases. However, in order to provide facilities located in attainment areas with additional flexibility, the EPA has changed the averaging requirement from daily demonstrations of compliance to monthly demonstrations of compliance. The permitting agency may require an averaging time period shorter than 30 days and in no case may the averaging time period exceed 30 days. The final rule also specifies that monthly records of the volume-weighted masses must be recorded for each topcoat, primer, and chemical milling maskant used in an averaging scheme. In addition, this added flexibility will give the local and state implementing agencies more autonomy in determining the NESHAP compliance with local and state air quality control programs.

13.7.2 Compliant Topcoats and Primers

Comment: Two commenters (IV-D-29, IV-D-35) stated that monthly recordkeeping of compliant primers and topcoats is burdensome and does not provide the EPA with any useful information.

Commenter IV-D-35 recommended that §63.752(c)(2)(iii) be revised to read as follows:

"(iii) The volume (gallons) of each coating formulation within each coating category used annually or according to the title V operating permit requirement."

Commenter IV-D-29 recommended the following change:

"(iii) The volume (gallons) of each coating formulation within each coating category used ~~each month~~ annually."

Response: The EPA believes that monthly records of compliant coating use should not create an unreasonable burden on facilities, and has retained this time period in the final rule.

Comment: Commenter IV-D-76 requested clarification from the EPA as to whether the proposed reduced recordkeeping for primers having a VOC content of 250 g/l applies to exclusive use or when the primer is used as part of an average. The commenter strongly recommended that no reduction in recordkeeping be allowed when the primer is used in averaging of emissions.

Commenter IV-D-79 supported the reduced recordkeeping requirements for the 250 g/l VOC primer. The commenter stated that the EPA has correctly determined that greater environmental benefits could result from this incentive to use low-VOC coatings than will be gained by more stringent recordkeeping requirements on use of these coatings.

Three commenters (IV-D-80, IV-D-83, IV-D-90) believe that the reduced recordkeeping requirements for the 2.1 lb/gal primer should be extended to all compliant coatings. Commenter IV-D-90 stated that the reduced recordkeeping requirements should apply to any facility using materials that have organic HAP and VOC content below the limits in the proposed rule. The two other commenters stated that if the EPA is willing to forego monthly recordkeeping in the case of a low-VOC waterborne primer and require only annual purchasing records, then the EPA should also delete the recordkeeping requirements for all situations where industry is converting to the use of low VOC or HAP containing coatings; e.g., 2.9 lb/gal for primers or 3.5 lb/gal for topcoats. These commenters believe that annual purchasing records should be required when compliant coatings and solvents are used. The commenters recommended that the EPA adopt a provision which would allow the use of purchase records as the only required form of recordkeeping.

Commenter IV-D-90 recommended an amendment to §63.752(c) which would state that only annual purchasing records and organic HAP and VOC content records need to be maintained by any source that elects to use primers or topcoats with a lower organic HAP and VOC content level than the standard set forth in the proposed rule.

Response: Proposed §63.752(c)(2) required monthly records for primers with a HAP or VOC content greater than 250 g/l, while §63.752(c)(3) required only annual purchase records for primers with a HAP or VOC content less than or equal to 250 g/l. This latter provision was intended to apply only to primers that were not included in a daily-weighted averaging calculation. This has been clarified in the final rule by inserting a new paragraph (c)(4), which applies a separate recordkeeping requirement to primers and topcoats complying with the HAP and VOC content limits by averaging.

The EPA believes that monthly records for compliant coatings, including primers with HAP/VOC contents above 250 g/l, are appropriate.

13.7.3 Emissions Control Devices

Comment: Commenter IV-D-29 stated that semiannual reporting for new particulate control devices is duplicative. The commenter noted that control devices that require monitoring will be required to report exceedances under the language of the rule. Therefore, the commenter recommended that §63.753(c)(vii) be deleted.

Response: The EPA agrees with this comment, and has deleted proposed §63.753(c)(vii).

13.8 DEPAINTING OPERATIONS

Comment: Commenter IV-D-31 claimed that the proposed procedures for verifying compliance with annual limits on HAP-containing depainting solvents are insufficient. The commenter recommended that the EPA require detailed records including the date on which each gallon of depainting material was used, the location on the aircraft, and the name of the aircraft. The commenter stated that these records must be kept

contemporaneously or monitoring compliance will practically be impossible. The commenter noted that manufacturers remain free to avoid this recordkeeping by simply keeping their zero emission depainting system operational, or delaying depainting during failures of the depainting equipment.

Response: The proposed rule, at §63.752(e), prescribed detailed records to be kept on depainting operations, both for chemical strippers and for non-chemical based (dry media) depainting. These recordkeeping requirements are believed to be sufficient, and facilities are not "free to avoid" keeping these records.

Comment: Commenter IV-D-27 stated that the recordkeeping requirements specified in proposed §63.752(e)(5), which relate to the particulate control efficiency of each particulate filter, and all test results, data, and calculations used in determining the control efficiency, need to be revised to take into account the commenter's recommendation that manufacturer's data be acceptable for demonstrating compliance with the particulate control efficiency requirement.

Response: These recordkeeping requirements have been revised to reflect the changed requirements in §63.750(l), which no longer requires the use of Method 5 in determining the control efficiency of particulate filter systems.

Comment: Commenter IV-D-43 stated that most local air districts have established procedures for reporting equipment breakdown and obtaining a variance to operate in violation of the rule requirements for the duration of the variance. The commenter, therefore, recommended that any variances obtained from the local districts be part of the recordkeeping format for depainting operations.

Response: Variances obtained from local air control districts cannot be made a part of the recordkeeping for depainting operations under this NESHAP. The EPA wishes to make application of this regulation consistent and equitable on a national basis (as requested by the industry), which would become

very difficult if the varying criteria of local districts were formalized into the NESHAP requirements.

Comment: Commenter IV-D-27 stated that their limited "spot stripping and decal removal" is on small wings, fins, and stabilizers for missiles, and their past records show that on an annual average basis, per aircraft, they will not use over 55 gallons per facility per year of organic HAP-containing chemical strippers. For operations of this type, keeping chemical stripper use records on a parts basis for hundreds of small parts would provide no benefit. The commenter suggested that the EPA provide a de minimis amount and allow facilities to provide total stripper quantity used per year. This commenter recommended the following revision to §63.750(k)(1):

> "(1) For each chemical stripper used for spot stripping and decal removal, determine for each annual period the total volume as applied using the procedure specified in paragraph (d)(2) of this section. If the total volume applied is less than 50 gallons per year per facility, skip 63.750(k)(2).
>
> (2) Determine the total number of aircraft for which depainting operations began during the annual period as determined from company records."

Response: The EPA has not incorporated the commenter's recommendation because parts are not covered by the standard. In addition, if a facility only used the volume specified by the commenter, the facility would not be classified as a major source. Also, the information collected by the EPA indicates that there are no special performance criteria for chemical strippers that would necessitate that the EPA set de minimis exemptions for low-volume special uses.

Comment: Three commenters (IV-D-27, IV-D-29, IV-D-35) stated that the depainting operation parts and assembly tracking requirement for chemical strippers (§63.752(e)) would not provide any benefit. Two commenters (IV-D-29, IV-D-35) stated that each airplane has 2,000,000 to 4,000,000 parts and that parts may be removed from an aircraft at one location and then shipped to another for repair. Each assembly may contain detailed parts,

and individual listing of each such part would be overly burdensome.

Commenter IV-D-29 also supported annual recordkeeping and recommended the following revisions:

"§63.752(e)(1)(iii): ~~Monthly~~ Annual volumes of each organic-HAP containing chemical stripper.

..."

"63.752(e)(2) For each model of aircraft depainted at the facility, a listing of the ~~parts, subassemblies, and~~ assemblies normally removed from the aircraft before depainting."

Commenter IV-D-35 recommended the deletion of §63.752(e)(2).

Response: The language in the rule and preamble does not require that the number of parts depainted per assembly be recorded. For each model of aircraft depainted at the facility, a listing of the parts, subassemblies, and assemblies normally removed from the aircraft before depainting should be recorded. The name, HAP content, and supporting documentation for each chemical stripper must be recorded in addition to the monthly volume of each organic HAP-containing chemical stripper used.

The EPA continues to believe that monthly records of organic HAP-containing stripper are necessary to track a facility's usage, and has retained this requirement in the final rule.

Comment: Two commenters (IV-D-29, IV-D-35) stated that semiannual reporting requirements that are not monitoring parameters or instances of non-compliance are unduly burdensome. Commenter IV-D-29 recommended that §63.753(d)(1)(ii), (iii), (iv), and (v) be deleted.

Both commenters objected to §63.753(d)(1)(viii), which requires a list of new and discontinued aircraft models depainted over the last 6 months and a list of the parts normally removed for depainting. Commenter IV-D-35 stated that parts removed from the aircraft may or may not be stripped with chemical HAP-containing stripper. Commenter IV-D-29 noted that several assemblies may be removed for depainting during rework, repair, or out of sequence operations. Commenter IV-D-35 also pointed

out that the definition of "new and discontinued aircraft models" has not been adequately delineated. The commenter stated that some models have only one aircraft and the repair cycle on that aircraft is 4 to 6 years. The commenter noted that, although these would not be considered new, they commonly would not have received maintenance in the previous 6-month reporting period. The commenter pointed out that as written, the rule would require the reporting of the parts removed from unique aircraft during each maintenance cycle. The commenter believes that the documentation of chemical usage should be sufficient. Both commenters recommended that §63.753(d)(1)(viii) be deleted from the rule.

Commenter IV-D-35 also suggested that the annual statement of compliance required for §63.753(d)(2)(ii) be deleted. The commenter believes that this requirement is duplicative since annual compliance reports are a requirement of the title V permit.

Response: As discussed in a previous response (see Section 13.4), the EPA believes that the semiannual reporting period suggested in the General Provisions is the appropriate period for most reports required under the aerospace rule. Reports that are less critical have a longer (i.e., annual) reporting interval.

The EPA's intention in §63.753(d)(1)(viii) is to require facilities to maintain a master list of all models of aircraft depainted at the facility and a list of the parts normally removed from the aircraft for depainting. The EPA does not intend for a facility to prepare more than one list per aircraft type. If the facility depaints the same aircraft every reporting period then the same list may be submitted for each report.

The EPA also believes that the semiannual compliance statements are necessary. As previously discussed (see Section 13.1), reports prepared in response to the EPA's part 70 (title V) program may in many cases be submitted to fulfill the reporting requirements of this NESHAP.

13.9 CHEMICAL MILLING MASKANT APPLICATION OPERATIONS

Comment: Commenter IV-D-15 stated that recordkeeping already requires a lot of time. The commenter asked if chemical milling maskant users will be required to keep duplicate records for both the local AQMD and the EPA.

Response: The local AQMD may require certain records that are similar to the NESHAP records. Where the information fulfills the requirements of both local and Federal rules, a single set of records may be deemed to be sufficient. This compatibility decision will be made by the State/local agency.

Comment: Commenter IV-D-29 stated that semiannual reporting of particular requirements in §63.753(e) for maskant operations are unduly burdensome as they are not monitoring parameters or instances of noncompliance. The commenter, therefore, recommended that §63.753(e)(iv) and (v) be deleted.

Response: The EPA believes that reporting the chemical milling maskants and control devices used by a facility is not unduly burdensome and provides the EPA with the information necessary to monitor a facility's compliance. Therefore, these two provisions have been retained.

14.0 BASELINE/ENVIRONMENTAL IMPACT CALCULATIONS

14.1 CLEANING OPERATIONS

Comment: Commenter IV-D-22 stated that virtually none of the new low vapor pressure solvents are listed as hazardous wastes, and rag/solvent assemblies are not characteristic wastes under RCRA since they will not likely have flashpoints above 140°F. Therefore, the commenter believes these wastes may be disposed of in sanitary landfills because they do not need to be managed as hazardous waste under the proposed rule. Additionally, the commenter stated that since rags containing the low vapor pressure solvents are not required to be placed in sealed containers, the rags could be placed in dumpsters and the solvent remaining on the rags would be emitted to the air before they can be disposed of. The commenter stated that it is not good public policy to force the industry into solvents that do not require disposal as hazardous waste.

Response: The cleaning operations standard does not allow facilities to place solvent-laden rags in open disposal areas such as dumpsters. All rags that contain solvent must be stored in closed containers to prevent the release of vapors to the environment. The EPA has not forced the industry into using new low vapor pressure solvents for cleaning. The vapor pressure standards were set using data obtained from the aerospace industry, and represent the present level of control by the best performing 12 percent of the industry.

14.2 DEPAINTING OPERATIONS

14.2.1 Chemical Stripping

Comment: Commenter IV-D-78 stated that there are significant cost reductions in waste treatment when a facility

uses a non-HAP stripper instead of methylene chloride strippers. The commenter suggested that the amount of waste that needs to be hauled away for off-site treatment (incineration) or to landfills is greatly reduced.

According to the commenter, almost all facilities with even minimal treatment capabilities can treat the waste generated through the use of non-HAP strippers. The commenter also stated that the generation of large volumes of rinse water with trace levels of methylene chloride, which must be disposed of off-site, is eliminated.

The commenter suggested that the low volatility of the solvents used in non-HAP strippers minimizes the amount of stripper that evaporates during use or treatment. According to the commenter, the low solubility of non-HAP strippers in water simplifies the treatment process. The commenter claimed that the nonhazardous nature of these solvents eliminates the need for landfill or incineration of all but the stripped paint itself.

Commenter IV-D-46 stated that, based on their knowledge and experience, the bulk of the solvent content in non-HAP strippers is removed by the straining and/or clarifying stage before the wastewater is actually treated. According to the commenter, the small part that remains is essentially 100 percent removed during the alum/polymer treatment that normally follows the straining/clarifying stage, and any trace amounts that might still be present are rapidly degraded by oxidation or biodegradation. The commenter claimed that by the time the waste reaches the aeration stage, there is no solvent portion remaining.

According to commenter IV-D-5, strippers that do not contain methylene chloride usually dissolve the paint, so the remaining material is an integral mixture of the inorganic HAP and the used remover which must all be disposed of as hazardous waste. The commenter stated that the waste associated with the use of methylene chloride strippers is confined to the paint chips only. The commenter also stated that VOC emissions from non-HAP

strippers may be as great as emissions from methylene chloride removers since the non-HAP removers work so slowly.

Commenter IV-D-5 claimed that the statement from the Federal Register, "Rework facilities that presently use a methylene chloride-based paint stripper must dispose of 3,469 tons per year of paint/solvent sludge created by depainting," is false and shows one of the "obvious fallacies" of this study in that it omits data from the depainting and refurbishing industry. The commenter stated that methylene chloride-based paint strippers are not disposed of as a sludge, but are flushed from the paint chips and into the rinse water which can then be treated. According to the commenter, the use of non-HAP removers requires four or five applications of remover, whereas only two applications are normally required for methylene chloride removers. The commenter concluded by stating that this increases water contamination and compounds the already difficult task of having to clean non-HAP wastewater.

Response: Data collected from the industry indicate that many facilities are using depainting methods that release no organic HAP to the atmosphere. Facilities that use non-HAP strippers were determined to be MACT since more than 12 percent of the facilities, of which the EPA has knowledge, release no organic HAP during their depainting operations. Additionally, the EPA added other depainting operations to the standard after the proposal date. Specifically, the standard has been revised to allow the use of HAP-containing strippers with an 81 percent control level for the emissions resulting from the use of these products.

The EPA also has knowledge that both non-HAP and HAP-containing strippers generate waste which is hauled off-site for disposal. Based on the information collected by the EPA, both types of chemical strippers generate a sludge of dissolved paint, paint chips, and stripper which is collected in drums and disposed of. Technologies exist for the treatment of wastewater from both processes, but only one or two facilities in the industry utilize this technology. The EPA believes that carbon

adsorption is a viable control option for the air emissions generated by HAP-containing strippers and has added carbon adsorption as a control option.

Comment: Commenter IV-D-38 stated that the EPA's analysis of non-HAP strippers assumes that significantly lower (by about two-thirds) quantities of wastewater are generated than those associated with the use of HAP strippers. The commenter believes that this assumption is neither consistent with the data submitted by Delta Air Lines, which forms the basis for the Agency's consideration of non-HAP strippers, nor with data submitted by the Paint Remover Manufacturers Association (PRMA).

Commenter IV-D-47 pointed out that, according to the EPA's background material, use of non-HAP strippers will result in increased solid waste generation of approximately 2,220 gal/yr for a small plant and 6,610 gal/yr for a medium plant, which constitutes a 47 percent increase in solid waste. The commenter stated that while the EPA assumes that the contaminated solvent sludge can be treated on-site, it is not clear from the background materials that this practice is, in fact, possible. The commenter also was not clear as to why there would be a decrease in wastewater generation, as the EPA suggests, since use of non-HAP strippers is followed by a water rinse, similar to that used with DCM-based strippers.

Commenter IV-D-5 claimed that the statement in the standard, "the decrease in wastewater nationwide is estimated to be 251 million gallons and 86 million gallons if all affected sources use dry media blasting or chemical strippers that do not contain organic HAP, respectively," is false. The commenter maintained that current paint remover formulas that are non-methylene chloride or non-HAP require an increase in water due to the inability to include soap systems in the formulas that would allow them to rinse as easily as methylene chloride water rinse removers.

Response: The EPA has determined that the wastewater generated by the use of media blasting, non-HAP strippers, and HAP-containing strippers is approximately the same. The aircraft

is rinsed after each of these operations. However, the Agency has collected information that indicates that wastewater generated by non-HAP strippers and plastic media blasting operations can be treated on-site. Wastewater generated from methylene chloride containing strippers must be disposed of in order to prevent the escape of HAP since methylene chloride is very volatile and is readily soluble in water.

Comment: Commenter IV-D-5 stated that the EPA's estimated HAP emissions of 189,000 Mg/yr (208,000 tpy) is grossly in error with the known amounts of methylene chloride used annually by the industry.

Response: No specific data or suggestions for revision were offered by the commenter. Therefore, the EPA believes that its estimate of HAP emissions from depainting, based on collected data, is accurate.

14.2.2 Media Blasting

Comment: Two commenters (IV-D-5, IV-D-38) stated that all aircraft that are media blasted are detergent washed and rinsed after blasting and the rinse water is hazardous due to contamination from heavy metals. Commenter IV-D-38 claimed that in light of considerable quantities of dust generated by the media blasting process, it is very unlikely that the EPA is correct in asserting that wastewater generation would be eliminated with a switch to media blasting. The commenter stated further that there is no reason to assume that media-blasted aircraft would require less rinsing than aircraft stripped with a HAP stripper.

Commenter IV-D-38 claimed that the use of media blasting produces a six-fold or higher increase in the generation of solid waste, compared to a depainting operation using a HAP stripper. The commenter also remarked that the waste from blasting operations is composed of spent media, paint, and other residues that will typically include sufficient levels of metals to be categorized as hazardous.

Commenter IV-D-47 stated that even if the data on media blasting were applicable to commercial facilities, the EPA's

evaluation projects that use of media blasting would result in an increase in solid waste composed of spent blasting media and dry paint chips of 13,280 tons per year on a nationwide basis. The commenter claimed that this means that solid waste generation would be increased 4.4 times over the amount generated by DCM-based strippers. The commenter suggested that this figure may in fact be an underestimate, because the EPA incorrectly assumed that rework facilities using a DCM-based paint stripper currently must dispose of "31,300 tons per year of paint/solvent sludge" (NESHAP proposal background document, p. 1-8). The commenter indicated that in practice, DCM-based stripping produces a much lower volume of paint/solvent sludge. Additionally, the commenter expects energy usage to increase by 51 million kWh/yr if all facilities adopt media blasting as MACT.

Commenter IV-D-5 referenced the statement from the Federal Register, "The increase in energy consumption involved in operating dry media blast systems is estimated to be 51 million kWh per year" and stated that the increased air pollution including both organic and inorganic HAP from the electricity generated must be included in any calculation. The commenter was concerned about the air pollution associated with generating 51 million Kwh per year and stated that these data are needed to do a valid comparison between the environmental impact of using media blasting versus chemical depainting.

Response: The EPA collected extensive information from the industry in order to determine the types of waste generated and treated at aerospace facilities, and the docket contains this information. Furthermore, the EPA does not endorse or require that facilities use media blasting or any other particular method to perform depainting operations; the final rule provides flexibility in allowing several options including DCM use in combination with control equipment.

15.0 BASELINE/ECONOMIC IMPACT CALCULATIONS

15.1 CARBON ADSORPTION SYSTEM

Comment: Commenter IV-D-15 asked how the EPA derived the $500 million estimate of the capital cost for carbon adsorbers for chemical milling operations. The commenter stated that if there are 20 facilities that do chemical milling and assuming none of them has a carbon adsorber in place (according to the commenter, 10 of them are presently using these systems, and the most expensive system built to date cost $2.5 million, including the enclosure and conveyor), then the total capital cost would appear to be $50 million, not $500 million.

Commenter IV-D-19 objected to much of the technical content contained in the August 25, 1993 EPA memorandum, "Cost Analysis for Chemical Milling Maskant." Specifically, the commenter expressed the following concerns:

1. The commenter objected to the cost basis used for the added cost associated with carbon adsorbers. The commenter stated that the actual added cost must include both the carbon adsorber and its associate enclosure, since the enclosure is required to operate an adsorber in MACT mode. The commenter pointed out that the enclosure must be heated and carefully sealed to avoid emissions. The commenter stated that this was omitted from the analysis, and therefore the capital costs were underestimated.
2. The commenter stated that there is a problem with the utilities cost estimate in Table 2 of the memo. The commenter pointed out that in Table 2 the utilities are estimated at $34,200 per year for operating a carbon

adsorber, but in another memo the energy cost is estimated to be 1,303,005 kWh per year. Using a electricity cost of $0.05/kWh, the cost is calculated to be $65,152 per year.

3. The commenter stated that the recovery credit of $141,000 per year is suspect. According to the commenter, reclaimed solvent (perchloroethylene) sells for $2.00 per gallon, so the system must be producing 70,000 gallons of perchloroethylene, even for the small plant, yet this cannot be if the plant only uses 12,000 gallons of maskant.
4. On page 5 of the memo, the commenter stated that the waterborne maskant system being compared is a totally irrelevant case. The commenter stated that the only 1.3 lb HAP per gallon (less water) maskant that is accepted on specifications by the industry is a single-tank system, not a three-tank system, and that only one oven is required, not two. According to the commenter, these mistakes cause the capital costs for the waterborne capital costs to be greatly exaggerated -- instead of $220,400 for a medium plant, the cost that should be used is $87,700 to reflect a single tank, single oven arrangement.
5. On page 7 of the memo, the commenter claimed that a mistake is made when volume solids in solution is used to calculate volume solids dry. The commenter stated that they have taken measurements that show for a solvent based maskant (AC-828) the coverage is 25 ft^2 per gallon and for a waterborne maskant (CAX-200+) the coverage is 37 ft^2 per gallon.

Commenter IV-D-15 stated that they believe that the proposed regulation assumes that the carbon from the adsorber units cannot be recycled. The commenter provided a letter stating that it can be reactivated and reused.

Response: The EPA's analysis indicates that only medium and large, commercial and military OEM facilities use chemical

milling maskants. The total number of facilities, based on the information collected by the EPA, is 58 medium model plants and 13 large model plants.

The cost calculations performed for carbon adsorption systems were performed in accordance with procedures specified in the EPA's OAQPS cost manual. Using the procedure described in the manual, the calculated total installed cost includes pumps, condensers, and associated equipment. The method is widely accepted and can be used to obtain a reasonably acceptable cost estimate for an installed system. The EPA believes that the derived figure is a good estimate.

The utilities calculation was incorrect in the August 25, 1993 memo. The calculation assumed that the facilities operate 24 hours per day, 365 days per year. Using actual data submitted by McDonnell Douglas, which performs maskant operations 3,640 hours/year, the annual electricity usage should be 71,900 kWh per year. At $0.05/kWh, the annual cost is $4,000/yr. When adding the other sources of energy use, cooling water and steam, the overall annual utilities cost should equal approximately $27,900/yr.

Only McDonnell Douglas reported information stating that perchloroethylene was sold back to the maskant vendor. Based on the number of hours that this facility operates and their reported data, the recovery credit should be $28,400/yr, not $141,000 as previously reported.

Additionally, the EPA collected information that indicated that the 1.3 lb/gal HAP-containing waterborne maskant uses a three-tank system, not a one-tank system as suggested by the commenter.

The surface area coverage per gallon of maskant was derived from manufacturer's specifications for solvent based and waterborne maskant. Using the average of the data reported to the EPA, the average was determined for each type of maskant.

The EPA is aware that activated carbon can be recycled. Further, the EPA discovered an error in the calculated usage of

carbon in the initial calculations. The carbon disposal costs should have been $10,000 instead of $47,100.

Therefore, the total annual costs for a medium or large facility should be approximately $169,000/yr. When multiplied by the number of affected sources, 58 medium and 13 large plants, the total annual investment is $11.98 million nationwide.

The total capital investment required per facility is $383,000 for medium facilities and $411,000 for large facilities. The nationwide capital investment should be approximately $27.56 million.

15.2 DEPAINTING OPERATIONS

Comment: Commenter IV-D-5 maintained that the following comment from the proposal preamble in the Federal Register, is false, "The use of chemical strippers that do not contain organic HAP is essentially the same as the baseline solvent stripping operation; therefore, no energy impact will result from their use." The commenter stated that the most promising non-HAP removers require 24 hours or longer dwell time as compared to 1 to 2 hours for methylene chloride removers. According to the commenter, this is an increase in overhead and operating expenses which must be added to the cost of compliance and the commenter suggested that the "baseline energy impact must be multiplied by 12.

Response: Data collected by the EPA indicated that methylene chloride stripping is used to strip planes at rates of 30 minutes to 40 hours per plane. For non-HAP strippers, the rate was reported from 2 hours per plane to 160 hours per plane. Therefore, the time required for stripping appears to be a function of the facility's operational procedures.

Comment: Commenter IV-D-5 stated that the $0.3 million annual cost estimate for blast depainting operations averages to an annual cost of $1,045 per facility and is grossly in error.

Response: The MACT cost analysis for aircraft depainting lists the annual cost of $168,400/yr for small model plants, $266,130/yr for medium model plants, and $1,149,680/yr for large model plants to implement plastic media blasting (II-B-47). Data

collected by the EPA indicate that approximately 5 percent of all aerospace facilities perform depainting operations. Therefore, using 5 percent of the small, medium, and large model plants, there are 27 small plants, 73 medium plants, and 5 large plants performing depainting operations. The total nationwide annual cost associated with MACT implementation for all affected rework facilities is $29.7 million per year.

Comment: Commenter IV-D-5 stated that the baseline cost for methylene chloride depainting was taken from a military rework facility, which is not representative of the depainting and refurbishing industry for two reasons. First, the stripper being used is a military specified remover which is not as efficient as modern strippers and may contain both organic and inorganic HAP. Secondly, labor costs and overhead of the American military are not representative of American industry. The commenter claimed that media blasting processes that are currently used within the depainting and refurbishing industry result in 5 to 10 times the current labor costs of methylene chloride depainting.

The commenter stated that the proposed standard misrepresents the cost of painting aircraft with the assumption that since fewer coats of paint are applied with high volume low pressure (HVLP) spraying, the labor costs decrease in proportion. According to the commenter, this is a false assumption since travel time with an HVLP spray gun must be slowed to allow for slower film build. The commenter stated that the labor costs with HVLP and conventional spray guns are about the same.

Response: The EPA used data collected from the industry to develop the MACT standards for the NESHAP and to develop the economic cost analysis. The EPA believes that the data reported by the industry were accurate and that the information represents valid and currently used techniques and costs throughout the industry.

Comment: Commenter IV-D-35 suggested that the inorganic HAP emissions from water, flashlamp, and laser stripping technologies are realistically orders of magnitude lower than the emissions from dry media blasting. According to the commenter, by using

the same analysis chosen for a plastic media blasting (PMB) facility, adding particulate filtration controls to a hangar where these alternative technologies are used for stripping would cost on the order of $4 million to control less then 0.002 ton per year, resulting in an annualized cost of $790,000 per year, or $395 million per ton of emissions controlled.

As an example, the commenter provided the following scenario:

1. If a PMB operation produced 4.25 lb/hour of total emissions, operated for 15 blast hours, 330 days per year, the savings in emissions between 99 percent and 84 percent would be approximately 0.13 ton/year.
2. The additional filtration (84 to 99 percent) would cost over $900,000 for capital improvements for adding a HEPA filter system and $129,000/yr in additional O&M costs, for an annualized cost of $235,000 per year (20 year, 10 percent amortization on capital + O&M costs).
3. Thus, controlling the additional 0.13 ton per year of inorganic HAP emissions would cost over $2.6 million per ton.

The commenter also provided the results of a commissioned study that investigated the estimated cost impact to the Air Force. The commenter's study indicated that the Air Force can expect $10 million in capital costs and an additional annual O&M cost of $1.8 million/yr for adding HEPA filtration systems to Air Force depaint hangars. The commenter estimated incremental control cost at $2.6 million/ton of HAP reduction. According to the commenter, if depainting operations cannot achieve 99 percent at a reasonable cost, the Military may be forced to convert current PMB, medium pressure water, high pressure water, and Flashjet processes to environmentally compliant chemical strippers. The commenter estimated that the Navy's capital costs would be $1.3 million with an additional $0.5 million/yr for O&M. The commenter stated that no upgrade cost were projected for the Army, since all booths would be new. The commenter

pointed out that the total DoD capital cost related to the 99 percent control efficiency requirement would be $11 million.

The commenter concluded by stating that the 99 percent control efficiency requirement for controlling inorganic HAP emissions from depainting will lead to significant costs for facility improvements without providing documented environmental benefits.

Response: The EPA has eliminated the 99 percent control efficiency in the final rule, and has imposed a set of workplace practices for facilities using media blasting depainting techniques and methods. In addition, the final rule specifies that particulate filters are required only for dry media blasting operations. The EPA has also implemented a new source MACT requiring the use of HEPA or three-stage dry filters for coating application operations involving chromium or cadmium emissions. No control efficiencies are specified in the final rule because no data were available that utilized the recommended test methods.

Comment: Commenter IV-D-78 noted that some commenters have claimed that non-HAP chemical strippers are so much more expensive than conventional methylene chloride-based chemical strippers that it is not economically viable to switch to this new technology. The commenter stated that this is not the case and, in fact, a cost savings is realized. The commenter stated that although the unit cost of these products is somewhat higher, the overall cost of the depainting operation has been shown to be reduced due to savings in material consumption (30-60 percent), man-hours (25-50 percent), and waste treatment costs (40-90 percent).

Response: The EPA's cost analysis of the MACT technologies indicated that facilities that switch to non-HAP strippers should have a decrease in their overall operating expenses.

Comment: Commenter IV-D-38 noted that the large commercial airlines operate an estimated 4,000 aircraft, the majority of which are currently depainted using HAP-containing (i.e., methylene chloride) strippers and that an additional 2,000

planes, operated by regional (commuter) airlines, and several thousand private aircraft also are maintained with HAP-containing strippers. The commenter also noted that many military aircraft also are stripped with HAP-based products. The commenter suggested that according to the data submitted to the record, depainting of these vehicles occurs in a significant percentage (greater than the Agency's 5 percent estimate) of the 2,000 commercial and military facilities that perform maintenance of aircraft. As a result, the commenter believes that the economic impact of the aerospace NESHAP would be significant.

The commenter noted that the EPA's analysis of the cost of complying with the proposed depainting standard is based on the use of plastic media blasting. The commenter claimed that available evidence suggested that the more expensive process of wheat starch blasting is far more likely to be viewed as acceptable over time. The commenter believes that the Agency's economic analysis, therefore, likely underestimates the cost of compliance for military facilities by a considerable margin.

The commenter stated that, despite its use of a conservative estimate of the cost of media blasting, the EPA recognizes that the cost of media blasting would be prohibitive for most facilities, stating that "due to the high capital cost of blast depainting equipment, very few facilities are expected to use this option other than those that already have it." The commenter suggested that this is a rather curious statement in light of the fact that media blasting would be the only acceptable depainting alternative for military operations currently using HAP strippers.

Response: The final rule allows facilities to use many different methods and techniques for depainting. The EPA did not use media blasting as the basis for calculation of the cost impacts. Methylene chloride-containing strippers were used as the basis of calculation since many facilities currently use this type of stripping operation.

Additionally, the commenter did not offer any statistics or supporting data in order for the EPA to evaluate whether the 5

percent estimate should be revised. Therefore, the 5 percent estimate is considered to be valid by the Agency.

Comment: Commenter IV-D-47 stated that the projected economic impacts of the depainting provisions are one reason that the proposed MACT standard must be revised. The commenter noted that according to the EPA's economic analysis, if all aerospace rework facilities were to install media blasting equipment, a nationwide capital cost of $2.8 billion is expected with an additional capital cost of $54.5 million to install equipment to control the inorganic HAP emissions from media blasting systems.

The commenter pointed out that even these astronomical figures may be an underestimate, because the EPA simply assumed, without any evidence to support such an assumption, that only 5 percent of small and medium rework facilities perform outer surface depainting of aerospace vehicles.

Commenter IV-D-5 stated that the number of small and medium rework facilities performing depainting is actually 40 to 50 percent, instead of 5 percent as assumed. This commenter pointed out that the NESHAP preliminary draft BID, Appendix A, Development of Environmental Impacts, shows a cost of $250,000 for a facility to depaint small aircraft and $700,000 for medium to large aircraft, which, the commenter states, conflicts with the $61 million capital cost given for implementing dry media blasting equipment. The commenter stated that the $61 million figure is in error and grossly underestimates the capital costs involved.

Commenter IV-D-47 suggested that, since the EPA's cost analysis is based only on plastic media blasting, it does not take into account the additional cost of specialized equipment required for certain blasting technologies such as wheat starch blasting, which may require a dedicated facility or a blast and vacuum unit. The commenter noted that the EPA recognized that the costs of media blasting would be prohibitive for most facilities, stating that, "due to the high capital cost of blast depainting equipment, very few facilities are expected to use this option other than those that already have it." Yet, the

commenter pointed out, the EPA still considered media blasting to be an appropriate MACT standard.

The commenter claimed that this leaves a number of facilities, particularly smaller ones, with only one option for MACT compliance: non-HAP chemical strippers. The commenter pointed out that the EPA's calculation that the use of non-HAP strippers would result in a net savings of $38.8 million if all affected sources used them, is based on data from only one commercial facility that uses non-HAP strippers. The commenter claimed that this limited information is clearly insufficient to perform an adequate cost analysis. Additionally, the commenter claimed that the EPA's analysis failed to take into account the greater amount of time necessary to strip with non-organic HAP chemical strippers and the corresponding increase in labor and other costs, despite ample evidence in the record to that effect.

Two commenters (IV-D-5, IV-D-47) stated that, while the EPA's evaluation recognized the greater cost and level of consumption associated with non-HAP strippers, it assumed that these costs were offset by reduced disposal costs for non-HAP strippers. The commenters suggested that the anticipated reduction in costs was based on the EPA's assumption that the large amount of non-HAP solvent sludge could be treated on-site. The commenters claimed that it is not clear from the record, however, that this practice would be feasible at all or even most facilities. Commenter IV-D-5 stated that the non-HAP strippers contain solvents that result in higher treatment cost and result in an increased annual cost. Commenter IV-D-5 also stated that the cost to media blast an aircraft in the private sector is not "minimal," but is 7 to 8 times the cost to depaint with methylene chloride removers. The commenter also stated that many manufacturers of aircraft limit each aircraft to only one media blasting depainting per lifetime, which deflates the value of the aircraft and limits its useful life. The commenter pointed out that aircraft replacement costs due to the proposed standards have been omitted from the economic impact analysis.

In conclusion, commenter IV-D-47 stated that the prohibitive cost of media blasting will have the effect of forcing many commercial companies into trying non-HAP strippers if the proposed standard is adopted. The commenter believes that this will result in companies searching for non-HAP strippers that can strip as effectively and quickly as DCM-based strippers, at an increased economic cost to the company. The commenter suggested that the health and environmental disadvantages associated with increased emissions of chemicals may well prove to be much more hazardous than DCM.

Response: The $61 million capital cost given for implementing dry media blasting equipment is based on 5 percent of the small and medium rework facilities and all of the large rework facilities performing media blasting. The EPA is required to determine the MACT floor based on the information available. Since the information obtained utilized data from plastic media blasting, the EPA believes it was correct in using this information for its analysis.

The cost analysis for aircraft depainting indicates that plastic media blasting is not 7 to 8 times the cost of methylene chloride strippers.

The manufacturers of aircraft do not determine whether rework facilities use media blasting or chemical stripping. All facilities must have depainting procedures approved by the FAA to insure airworthiness.

Comment: Commenter IV-D-5 maintained that the statement, "Selection of chemical strippers that do not contain organic HAP by all affected sources instead of dry media blasting would decrease the total nationwide capital investment by approximately 10 percent," is false. The commenter stated that a facility's size would have to be increased for both the use of non-HAP removers and media blasting if the current workload capability is to be maintained. The commenter added that this is due to a reduction in the number of aircraft refurbished per hour.

Response: The EPA is required to use, and has used, the information collected from the industry. The information was

used to develop economic and environmental impacts based on the various technologies in use.

15.3 PRIMER AND TOPCOAT APPLICATION OPERATIONS

Comment: Commenter IV-D-29 indicated that the costs of research and development for identifying compliant topcoats and primers do not appear to have been considered. According to the commenter's experience, the assumed cost of $23 per gallon for compliant paints appears too low. The commenter claimed that the costs of obtaining low-VOC materials are at least 65 percent greater than conventional materials (even at high volume usage prices), while 75 percent greater is common for topcoats and 100 percent increases are common for primers.

Response: The EPA believes that the manufacturers absorb research and development costs and include these costs in the prices of their coatings. Extensive data were collected by the EPA which indicated that the prices and market analysis presented in the preamble are correct. The commenter did not provide any data or specific information to substantiate their conjecture; therefore, the EPA will continue to use the cost estimates for these coatings in its revised impact analysis for the final rule.

Comment: Commenter IV-D-48 stated that they replaced the high-VOC coatings they had been using with low-VOC coatings on January 1, 1991, as required under its ARACT. Initially, the commenter noticed that the costs of the low-VOC coatings were appreciably more than the coatings that they had previously been using. The commenter attributed the cost increase to the increased fraction of resins and pigments and the reduced amount of solvents in the coatings. In general, the commenter noted that there was approximately a 20-50 percent increase in the cost to purchase the low-VOC coatings; however, it was anticipated that the coatings would cover more area due to the thicker consistency from less solvents being used in the formulation of the low-VOC coatings. The commenter pointed out that the cost of productivity should be another potential concern for prospective users of low-VOC coatings because there is a longer cycle for the entire process of application, drying, and curing. The commenter

suggested that, typically, a facility can anticipate between 1 to 3 additional days depending on weather conditions, familiarity of the new low VOC product, etc. The commenter stated that they were in a growth phase in 1991, making it impossible to accurately determine the actual cost impact attributable to the purchases of the low-VOC coatings.

Response: The EPA encourages the industry to submit information for the sources regulated by the rule. However, the information noted above is based on one particular commenter's experience and may or may not represent market conditions and operations in every sector of the industry.

Comment: Commenter IV-D-50 stated that they cannot meet the HAP and VOC limitations proposed for primers and topcoats without the installation of costly controls. The commenter pointed out that they rework aircraft components in their repair division facility and do not have control over the painting system used during the rework processes because they must follow the system specified by the customer. Therefore, the commenter suggested that even if lower VOC/HAP primers and topcoats are available, they do not have the freedom to use them.

The commenter maintained that the customer-specified coatings, in many instances, match the OEM specifications used on the original aircraft. According to the commenter, this is due to the fact that the FAA requires rework to be performed (1) as specified by the OEM, (2) as specified in engineering documentation published by the airline, or (3) by a process that has been approved by the FAA. The commenter stated that their experience indicates that FAA approval of procedures that are different than that specified by the OEM is difficult to obtain, especially in the short timeframe the airlines typically require for the repair of their aircraft components. The commenter also indicated that airlines are reluctant to approve coating systems that are different than those used by the OEM. Therefore, the commenter is bound by the OEM specifications of the original aircraft on most of the rework jobs.

The commenter stated that they have worked extensively with the OEMs to locate lower VOC coating substitutes, with no success. The commenter claimed that, for the last 5 years, they have been told lower VOC coatings are "in the works;" however, the coatings used in their rework operations, based mainly on OEM specifications, have not decreased in VOC content. The commenter pointed out that this is especially true in the area of topcoats.

The commenter claimed that, if the aerospace NESHAP is adopted as proposed, they will be required to install very expensive controls to continue in their repair business. As a result, the commenter believes that the EPA's economic model of the impact of the proposed rules is severely flawed.

Response: The EPA understands that many rework facilities are required by their customers to follow the OEM specifications. The customers request that the rework facility follow OEM specifications so that the owner of the aircraft can maintain the warranty on the aircraft. The FAA doesn't mandate that rework facilities follow OEM specifications for coating operations. The EPA also expects many of the OEM specifications will be modified with the implementation of the NESHAP.

The information contained in the rulemaking docket indicates that many facilities are performing at the VOC and HAP content limits specified in the final rule. The information collected by the EPA indicated that 12 percent of the facilities were meeting the required VOC/HAP content levels without the installation of additional control devices. Installing control devices to control organic HAP and VOC emissions is a compliance option when a facility chooses to use coatings with VOC/HAP contents higher than the levels specified in the rule.

Comment: Commenter IV-D-35 noted that the Air Force recently surveyed 32 bases and the study revealed that 16 had converted to HVLP and several others were using some HVLP in painting activities. The commenter stated that HVLP equipment is very painter dependent. When coupled with low-VOC paint, the commenter suggested that a painter who normally uses conventional spray equipment may actually apply more paint, instead of less,

using HVLP. The commenter stated that training employees in the use of HVLP increases costs.

The commenter noted that a decrease in paint usage has not been observed from conventional spray. Therefore, the commenter sees no benefit in the EPA mandating that the aerospace industry switch to HVLP from conventional spray.

The commenter suggested that the Military's experience indicates that there is a significant difference in the cost per labor hour per gallon of coating applied. According to the commenter, while this cost may come down over time as the technology matures, in today's market HVLP represents no cost savings and only minor emission savings. The commenter suggested that the labor-hours for high solids paint use may increase due to required greater attention to the details of the application. The commenter stated that painters must work slower with HVLP and additional cleaning and rework are sometimes required, increasing labor costs. The commenter also stated that the labor costs associated with the act of simply spraying the paint are only a small portion of the overall labor cost associated with painting a part. The commenter claimed that a 50 percent increase in drying time is common for low-VOC coatings applied with HVLP, which in turn leads to more labor cost and inventory expense.

Response: The information contained in the docket indicates that HVLP actually leads to application of less paint than conventional spray painting because the coatings formulated for HVLP have less volatile solvent than the coatings formulated for conventional spray application.

Comment: Commenter IV-D-95 stated that the cost of installing a carbon adsorption process in their paint and stripping operation is estimated at $7.5 million. The commenter pointed out that they can process approximately 60 aircraft per year. The commenter stated that the estimated price of installing carbon adsorption (plus operating expenses), depreciated over 7 to 10 years, will increase the price to paint an average aircraft by approximately $18,500, which equates to a 65 percent increase. The commenter stated that the addition of

catalytic incineration would increase the price increase to over 100 percent.

Response: The EPA does not require the use of carbon adsorption control devices for compliant coatings and strippers. Facilities have the option of using compliant coatings and strippers without a control device.

15.4 CLEANING OPERATIONS

Comment: Commenter IV-D-50 stated that the proposed requirements for spray gun cleaning operations are unduly burdensome on companies that spray many different types of small parts. The commenter claimed that the gun cleaning requirements are much more onerous on them (a rework facility) than a large OEM, since they have to change coatings more frequently than the large OEM. The commenter, therefore, believes the requirements have a greater impact on companies that are rework facilities and than on OEM's. The commenter claimed that this is particularly true if disassembly and vat cleaning are used as a means to comply with the gun cleaning requirements.

Response: The EPA is unsure about what alternatives the commenter would recommend. Spray guns do not have to be cleaned each time a different coating is applied. The operator may apply as many coatings as they wish as long as each time the gun is cleaned, the cleaning operation follows the provisions set out in the standard. The standards do not require disassembly each time the gun is cleaned; there are several cleaning methods available. The EPA does not believe that the standards will impose undue hardship on the industry.

Comment: Commenter IV-D-29 believes that the EPA's cost estimates for compliance with the proposed cleaning operation standards may be based on incomplete information. The commenter understands that the EPA's cost estimates were based on a single case of one solvent substitution conducted at one company, which, according to the commenter, would not adequately represent the industry. The commenter stated that in addition, the baseline cost range for typical existing solvents listed by the EPA seems high. The commenter noted that the typical cost for MEK is less

than $2.00/gal and that the listed costs for low vapor pressure solvents seem low. The commenter claimed that some low vapor pressure materials cost $20 to $30/gal. The commenter believes that disposal costs associated with this section may also not be representative. The commenter claimed that a large commercial OEM's disposal cost can be three times greater than the costs listed in the proposed rule. The commenter suggested that the use of low vapor pressure solvents may actually increase the quantity of rags used, increasing waste and the costs of disposal.

Response: The EPA believes that there is ample information in the docket to support the economic impact analysis for the implementation of the MACT standard for cleaning operations.

15.5 RECORDKEEPING AND REPORTING

Comment: Commenter IV-D-35 pointed out that the Air Force estimated the cost of compliance with the aerospace NESHAP from a recordkeeping and reporting perspective at $81 million annually.

Commenter IV-D-35 maintained that the recordkeeping and reporting represents the predominant portion of the anticipated annual environmental compliance requirement. In order to assist the EPA in targeting areas of recordkeeping and reporting requirements that might be reduced, the commenter provided a distribution of activities that fall under the requirement. The manpower requirements for each activity were listed in units of full-time equivalents (FTE) projected on the basis of the facility's size. The commenter provided the following list of activities with the manpower requirements included:

	Facilities			
Recordkeeping and Reporting Activities	**Small**	**Medium**	**Large**	**Average Percent**
1. Compliance Audit	0.25	0.25	1	7.2
2. Tracking	0.25	0.25	1	7.2
3. Pharmacy: Tracking and Dispensing	0.5	0.5	1	11.7
4. Usage Tracking at Shop Level	1.5	3	6	53.4
5. Environmental Management Reporting	0.10	0.2	0.7	4.4
6. Shop Reporting	0.10	0.2	1.0	5.1
7. Waste Tracking	0.05	0.1	0.3	2.1
8. Testing: Coordination and Monitoring	0.25	0.5	1	8.9
Total Full Time Equivalents	3	5	12	100

The commenter pointed out that nearly half the effort is spent tracking materials at the shop level. The commenter offered the following suggestions to reduce the resource requirements:

1. Place greater reliance on the use of manufacturer and supplier information, minimize duplicate compliance certification testing. This would minimize activity #8 and #4 requirements.
   - Maximized use of readily available MSDS information to demonstrate compliance for HAP and VOC content. This would minimize activity #8 and #5 requirements.
2. Eliminate duplicate waste tracking requirements. This would minimize or eliminate activity #7 requirements and would minimize activity #4 and #2 requirements.
3. Revise regulations to allow use of central issue point (Pharmacy) information to demonstrate compliance and usage rates. This information would tend to

overestimate usage rate, providing a conservative margin of safety. This would slightly increase activity #3 requirements, while minimizing activity #4 requirements.

- In turn, this would minimize the requirements for usage tracking within the shop. This area alone consumes nearly 50 percent of the FTE requirement. This would greatly minimize activity #4 requirements.
- Maximize use of the Pharmacy data versus the need for process- or source-specific information. This would minimize activity #2, #4, #5, #6 requirements.
- Use purchase records to maximum extent. This would minimize activity #8 and #1 requirements.

4. Extend the averaging times allowed for compliance demonstration. This minimizes usage tracking and EM reporting workloads. This would minimize activity #2, #4, and #6 requirements.
5. Minimize the number and frequency of reports required by the facility to the EPA or regulators. This would minimize activity #5 and #6 requirements.
   - Reduce Environmental Management requirements. This would minimize activity #5 requirements.
   - Reduce shop level usage tracking. This would minimize activity #4 requirements.
6. The EPA could conduct widespread aerospace NESHAP worker training (Workshops) nationally on site/in-plant.
   - Increase compliance awareness and expand knowledge of the aerospace workforce regarding compliance requirements. This would minimize activity #1 requirements.
   - Assist upon request in instituting program regarding required housekeeping measures and

pollution prevention. This would minimize activity #1, #4, #7 and #8 requirements.

- Increase the effectiveness of industry's internal compliance auditing programs to reduce the occurrence of violations. This would minimize activity #5 and #4 requirements.
- Foster overall compliance and speed the implementation in the workplace while minimizing the cost burden of regulation. This would minimize activity #5 requirements.

The commenter stated that intensive recordkeeping and reporting will unnecessarily burden DoD installations. The commenter claimed that the recordkeeping will require an enormous increase in the manpower requirements dedicated to compliance activities at the central issue point (Pharmacy), in the shop, in the field, and in the environmental management offices at each installation. The commenter estimated that the annual DoD O&M compliance requirement for recordkeeping and reporting to accomplish the above will exceed $142 million if the rule remains unchanged. Recordkeeping requirements account for 55 percent of the DoD's total O&M compliance ($256 million) for the aerospace NESHAP. The commenter noted that additional costs would be incurred if the rule were to apply to non-major aerospace sources located at any major source.

Response: For facilities choosing to use compliant materials, the recordkeeping and reporting requirements are the minimum amount necessary in order to determine compliance. When non-compliant coatings, strippers, and maskants are used, stricter recordkeeping requirements are necessary. Over 25 percent of the aerospace industry is located in California. Facilities in California are typically located in nonattainment areas and must meet emission limits that are more stringent than any other area of the country. Because these facilities have already been required to meet the limits set by the State Agency, the EPA does not anticipate that very many of these facilities will have to alter their operations in any significant way.

Several of the Military's affected facilities are also located in California. In order to provide facilities located in attainment areas with additional flexibility, the EPA has changed the daily recordkeeping requirement to monthly or as determined by the permitting authority. This requirement also gives State and local air quality agencies the authority to implement time periods necessary to ensure the public's safety.

15.6 GENERAL COMMENTS

Comment: Commenter IV-D-35 noted that the EPA is required to conduct a cost analysis to determine the cost to the aerospace industry of complying with the proposed NESHAP, and that the EPA published this study in the background document for the Aerospace NESHAP. After a review of this document, the commenter believes that the costs presented in the background information are greatly understated.

The commenter pointed out that in order to sufficiently plan future funding requirements, in July 1994 the Air Force commissioned a cost impact study of the proposed EPA aerospace NESHAP. The cost impact study initially focused on anticipated Air Force-wide costs and was later expanded to project Navy and Army costs. The commenter's study provided the anticipated total costs for DoD in the event the regulation is not modified to include the various exemptions, exclusions, or other modifications proposed by the commenter.

The commenter's study addressed the following major areas of the regulation: General, Cleaning Operations, Primer and Topcoat Application Operations, Depainting Operations, Chemical Milling Maskants Application Operations, Handling and Storage of Waste, Compliance Dates and Determinations (if applicable), Performing Test Methods/Procedures, Monitoring Requirements, and Recordkeeping and Reporting Requirements. Additionally, the commenter evaluated these areas with respect to the following major issues: Maintenance Painting; Mechanical Sanding; Manufacturer's and Supplier's Specifications and Information; Touch-up and Repair; Inorganic HAP Filter Efficiency; Emissions Averaging/Emission Credits for Over Control; Flexible Primer;

Testing, Recordkeeping & Reporting; Implementing Depainting Options; Military Construction (MILCON) Funding Requirements; and Total Costs.

The commenter stated that impacts on the DoD are illustrated by the Air Force cost study. The commenter pointed out that this study describes the applicability of the NESHAP to Air Force installations and describes the cost analysis methods used to develop the model facilities (large, medium, and small) employed in the study. According to the commenter, the total projected capital cost for the Air Force alone would be in excess of $721 million for 140 installations, with annualized costs greater than $236 million per year. The commenter noted that costs will be incurred for new construction, and for modification or upgrading of existing facilities. In contrast, the commenter pointed out that the EPA estimated annualized cost savings of $18 million per year for the entire Military.

In particular, the commenter noted that the control of inorganic HAP drives the majority of the Air Force's capital costs ($606 million, or 84.1 percent) and approximately 39 percent of the annual operations and maintenance (O&M) costs. The commenter stated that control of organic emissions drives the flexible primer and the depainting issues, accounting for $67.7 million and 9.4 percent of the total capital requirements.

The commenter stated that the total Air Force annual O&M costs for sustained compliance activities (monitoring/recordkeeping and reporting) associated with the major issues identified in Table 1 account for $152 million. Recordkeeping associated with the manufacturer's specification and waste tracking accounted for $83 million or 54.7 percent of the annual projected O&M issues alone requirement. Additionally, the commenter believes the proposed aerospace rule would necessitate expensive changes to existing technical orders. The commenter stated that this effort has been estimated at $40 million across the Air Force. In contrast, the commenter pointed out that the EPA estimated the nationwide cost of recordkeeping at $36.7 million for the entire aerospace industry. The

commenter noted that an examination of the EPA's background information document (EPA-453/R-94-036a) indicated that in Table 9-19 the cost for control of inorganics has not been included, but estimates that such costs would be "quite small." In contrast, the commenter pointed out that the Air Force Cost Impact Study projected the cost of control for inorganics at $606 million in capital costs. The commenter concluded that the study indicates that the EPA has significantly underestimated the cost to comply with the proposed rule.

By extrapolating the costs, the commenter determined that DoD's total capital costs for 278 installations was conservatively estimated at $1.2 billion. The associated annual operations and maintenance cost for environmental compliance was estimated at $256 million and the annualized costs were conservatively estimated at $398 million per year. This analysis did not include cost impacts on non-major aerospace sources. The commenter noted that if the EPA elects to include non-major sources under the final rule, then additional costs would be incurred.

The commenter estimated that, for the DoD, the combined inorganic HAP emissions from mechanical sanding, maintenance painting, and touch-up and repair painting is approximately 3.4 tons per year, of which about 2 tons per year are from mechanical sanding. The 3.4 tons per year, according to the commenter, represents 1.2 percent of the industry-wide inorganic HAP emissions from painting and depainting based on data in the BID. The commenter stated that controlling the 3.4 tons of inorganic HAP per year would require DoD to modify or build over 300 hangars and booths at a projected capital cost of $881 million and annual O&M cost of $92 million. Based on a 20 year, 10 percent amortization, the annualized cost would be $196 million per year. Therefore, the commenter estimated that the cost of controlling 3.4 tons/year of inorganic HAP is approximately $58 million/ton. The commenter pointed out that cost of control for a typical depot operation would be $107 million/ton (based on total inorganic HAP emissions of 0.04 ton per year) and for a

small fighter base, the cost would be $8 million/ton of inorganic HAP emissions.

For the three operations listed above, DoD estimated that 350 buildings will require modification or replacement at a cost of $881 million. According to the commenter, due to the long time lag to upgrade this number of buildings (10-15 years), there would be a significant amount of field corrosion repair work delayed until depot maintenance could be scheduled, and then delays in accomplishing depot maintenance. The commenter believes this would affect both airworthiness and mission reliability and increase long term corrosion repair costs.

The commenter stated that additional costs for controls due to the lack of a flexible and workable emission averaging scheme are also not fully included. The commenter believes that the Aerospace NESHAP has the potential to have a several billion dollar impact on the DoD. The commenter believes that several of the proposed requirements identified in the EPA aerospace rule are excessive for the limited environmental benefit received and that, if unchanged, these requirements would severely burden the military and industry alike. The commenter stated that restrictions on DoD's operations that will result from imposition of this rule compromise the military's ability to fulfill its critical national defense role. The commenter claimed that full funding to comply with the emission control requirements of the NESHAP at unit-level maintenance areas may not be feasible (see compliance cost estimates), and the services may subsequently be forced to restrict some essential basic maintenance, now being performed at the unit-level, to central locations. Moreover, the commenter suggested that it may not be feasible to fund compliance at all DoD intermediate maintenance facilities, thereby reducing the number of centralized support facilities and increasing the distance that some aviation units would have to travel for routine maintenance and repairs. According to the commenter, having to ferry aircraft to central locations for minor maintenance and repairs could adversely affect operational readiness by significantly reducing the time that aircraft and

flight personnel are available to support military missions including training. Additionally, the commenter maintained that the increased air time to reach central maintenance facilities and the inability of unit personnel to perform some types of basic maintenance and repairs at their home base may adversely affect safety.

The commenter suggested that, based upon the projected total DoD costs, it appears the EPA has significantly underestimated the cost to implement the NESHAP. The commenter recommends that the EPA reexamine the projected impact costs to industry associated with compliance. The commenter stated that the Air Force cost study should be used as a starting point to develop realistic costs. The commenter pointed out that their recommendation is consistent with Executive Order (E.O.) 12291 (46 FR 13193), section 2(a) which mandates that Administrative decisions shall be based on adequate information concerning the need for the consequences of the proposed action. The commenter also recommends that an effort be made to strip the regulation of excess burdens to source owners and operators and to ensure reasonable benefit for the compliance investment required of the aerospace industry. The commenter stated that the recommendation should take into consideration the least net cost to society of the alternative chosen (E.O. section 2 (d)). The commenter stated that the above stated recommendation is consistent with the CAAA emission standards. The commenter also noted that section 112(d)(2) requires the Administrator to establish such standards "taking into consideration the cost of achieving such emissions reduction requirements...." The commenter also pointed out that section 112(f) requires the Administrator to take "into consideration costs, energy, safety, and other relevant factors, and adverse environmental effect" when establishing requirements and setting standards. The commenter also strongly recommended that the Office of Management and Budget (OMB) review the NESHAP prior to promulgation.

Two commenters (IV-D-35, IV-D-83) pointed out that the EPA indicated that it has classified the aerospace NESHAP rule as

"non-significant" under Executive Order 12866 and, therefore, the proposed rule was not reviewed by OMB. The commenters were concerned about the potential for added cost associated with some of the requirements in the proposal. The commenters believe that the cost associated with the Aerospace NESHAP will significantly impact the industry and DoD. The commenters strongly recommended that the proposed rule (and its changes) undergo review by OMB pursuant to Executive Order 12291 (46 FR 13193).

Response: As commenter IV-D-35 pointed out, 84.1 percent of their estimated capital cost comes from the control of inorganic HAP and 9.4 percent of the total capital costs is derived from the control of organic HAP. The data collected by the Agency indicated that all facilities currently use filters to capture and collect inorganic emissions from depainting operations. Additionally, the depainting standard, primer and topcoat application standard, and the chemical milling maskant standard all contain provisions for compliant coatings. The commenter may use these coatings in addition to the filtering device already in place for topcoat and primer operations. Such an action on the commenter's part would mean that no additional inorganic control devices would be required. Additionally, no control devices for organic HAP would be required if compliant coatings, strippers, and maskants were used. If the commenter decides to use non-compliant coatings, the control devices will have to be installed in order to assure the public's safety.

Additionally, the commenter's study addressed areas that the EPA has no control over or did not regulate, such as Military Construction (MILCON) Funding Requirements and Emission Credits. The final rule does not contain control requirements for facilities that use mechanical sanding, flexible primers, or perform touch-up and repair coating operations. The final rule was also submitted to OMB for review.

Comment: Commenter IV-D-50 stated that the EPA's economic model does not account for the loss in the foreign repair business. The commenter pointed out that a significant portion of their repair business comes from foreign-based airlines, such

as Airbus. The commenter also pointed out that they must compete with foreign repair facilities, which will not be subject to the proposed regulations. The commenter suggested that, since they are faced with the large expense of complying with the proposed rule, they may not be able to remain competitive with their competition.

Response: The EPA's goal is to protect the environment in accord with the statutory mandates without inflicting undue economic burdens on the industry. The EPA does not have the authority to set policy for industries located outside the United States boundaries. The EPA believes that, as the world leader in aerospace technology, this industry will continue to perform the majority of rework operations on aircraft produced domestically and internationally due to the technologies used by domestic rework facilities and the skills of the aerospace employees.

Comment: Three commenters (IV-D-29, IV-D-37, IV-D-50) believe that the estimated nationwide costs of compliance with the Aerospace NESHAP are grossly underestimated.

Commenter IV-D-50 claimed that the capital cost for an incineration system to meet the proposed regulation for their non-major source Repair Division facility will cost in excess of $1,000,000. The commenter stated, with all due respect, given the 2,800 facilities that the EPA estimates will be affected by the proposed rules, the EPA's estimate that the implementation cost of rules will be only $16.7 million is ridiculous.

Commenter IV-D-37 claimed that airlines that fly painted aircraft will be required to have separate dedicated hangars for depainting and for primer and topcoat application. According to the commenter, construction costs for hangars that can accommodate large commercial aircraft and are equipped with ventilation and filtration systems in compliance with the NESHAP are presently estimated at $50 to $70 million each.

Response: The docket contains information indicating that almost none of the affected facilities will have to build hangars as a result of the NESHAP. In addition, the EPA has not regulated non-major sources under the NESHAP. Sources of VOC

emissions at these other facilities are being addressed in the Aerospace CTG.

16.0 OTHER COMMENTS

16.1 NESHAP FORMAT

Comment: Two commenters (IV-D-12, IV-D-23) recommended that the applicability determination requirements be included in the regulation itself. The commenters stated that reference to the general provisions for these determinations is not acceptable, since review of these provisions is necessary to determine if a source is even subject to the standards. According to the commenters, the applicability section should be completely self-contained so owners and operators may determine if the rule applies to them on the basis of a single document.

Commenter IV-D-12 stated, however, that it is expeditious for other sections of this standard to contain references to the General Provisions, rather than repeating text from part 63, subpart A. The commenter, therefore, recommended that the following language (or something similar) be added to the Applicability section to assist affected sources.

> "Note: Subpart A of Part 63 of the Code of Federal Regulations (General Provisions) is needed to understand some requirements of the standard. Subpart A can be obtained from the Federal Register publication of (insert FR# and date) or by contacting (insert EPA contact) of the EPA for copies."

Commenter IV-D-29 noted that the proposed rule provides exemptions for a number of activities in specific sections of the rule. The commenter believes that these exclusions would be more useful and more understandable if they were stated together in one place.

Commenter IV-D-12 suggested that the standards be reorganized into subcategories -- cleaning operations, primer and topcoat application, depainting operations, chemical milling maskant application, and handling and storage of waste. Each subcategory would include the specific standards, compliance dates and determinations, test methods and procedures, monitoring, and recordkeeping and reporting requirements associated with each subcategory. The commenter believes that, while this would result in some repetition and multiple documents, the simplification would result in a much more understandable rule.

Four commenters (IV-D-12, IV-D-23, IV-D-29, IV-D-44) complimented and commended the EPA for the inclusion of extensive tables to summarize the requirements of the proposed NESHAP. The commenters stated that the tables provided in this NESHAP are a simple, straightforward, valuable tool in understanding and applying the requirements of Aerospace MACT. The commenters believe that sources will be able to identify early (without muddling through dozens of pages) whether they must comply with the standard. Commenter IV-D-23 encouraged the EPA to continue to strive to simplify regulations so that the need for such a tool is eliminated in the future. Commenter IV-D-29 strongly believes, however, that the Summary Table should be moved to the preamble, where such clarifying language is more appropriately situated. The commenter also added that any revisions to the final rule should be reflected in the Summary Table.

Commenter (IV-F-1) suggested that the EPA refrain from promulgating summary tables as part of the final regulations. The commenter believes that inclusion of tables in the final regulation engenders disputes and confusion with respect to the interpretation and enforcement of the rule.

Response: The EPA inserted the summary table as an appendix in the final rule, and has also included the table in the preamble to the rule. However, the EPA would like to dispel the impression that a facility can read the summary table and accurately determine if they are affected by the rule. The EPA

recommends that all potential affected sources read the complete final rule to determine its applicability to their operations.

Additionally, the EPA has added a provision to the applicability section to provide affected sources with the reference for subpart A of part 63, as suggested by the commenter. The EPA believes that this action deletes the duplication that would result if the language of subpart A was included in the final rule.

Comment: Commenter IV-D-06 pointed out that under Chemical Milling Maskant Operations - Standards - Uncontrolled Maskants 4, it states that "Both controlled and uncontrolled maskants cannot be averaged together" and that this restriction only appears in the table. The commenter noted that if it is the EPA's intent to apply this restriction to chemical milling maskants, then it should be referenced in the maskant section (§63.747).

Response: The EPA has revised the standard which now specifies that control devices used to capture the emissions from maskant operations must achieve an overall control efficiency of at least 81 percent. In addition, the EPA will not allow controlled and uncontrolled emissions to be averaged together.

Comment: Commenter IV-D-12 recommended that the alternative composite vapor pressure limit of 45 mm Hg or less for hand-wipe cleaning solvents contained in §63.744(b)(2) be added to Table 3 to make clear that there are three compliance options available. Further, the commenter suggested that Table 3 be positioned in the rule before §63.744(c), the section on spray gun cleaning, to clearly indicate that the limits in Table 3 are for hand-wipe cleaning.

Response: The EPA has specified three compliance options for hand-wipe cleaning solvents in the final rule. Two solvent composition compliance options were specified, 45 mm Hg vapor pressure or the criteria in Table 3. There are different recordkeeping requirements for each of the two options and, therefore, the EPA will not add 45 mm Hg vapor pressure solvents to Table 3. The EPA has adopted the commenter's recommendation and positioned Table 3 before §63.744(c) so that facilities will

clearly know that the solvent specifications apply to hand-wipe cleaning only.

Comment: Commenter IV-D-29 noted that the title of §63.749(f) is "Organic HAP Emissions-Depainting Operations," but in subparagraph (2) of this section, the EPA addresses inorganic HAP from depainting operations. The commenter believes that the EPA should either separate the organic and inorganic HAP requirements for depainting operations, consistent with its approach to primer and topcoat operations, or relabel this section.

Response: The EPA has revised the depainting operations standard extensively since proposal. In addition, the compliance dates and determinations standard has been revised to reflect these changes. The EPA has also incorporated the commenter's recommendation into the revisions.

16.2 PUBLISHING THE PROPOSED RULE IN THE FEDERAL REGISTER

Comment: Four commenters (IV-D-12, IV-D-23, IV-D-29, IV-D-47) objected to the omission of the proposed rule from the Federal Register. Three commenters (IV-D-12, IV-D-23, IV-D-29) noted that downloading the proposed rule from the EPA's Technology Transfer Network is not always a viable option for all interested parties and requesting a copy by mail reduces time from the limited comment period. Commenter IV-D-23 stated that in order for regulatory agencies and industry to fully understand the proposal, it is necessary to review the actual regulation. Commenter IV-D-29 stated that failing to publish the proposed rule inhibits the public comment process.

Commenter IV-D-12 stated that it is critical to have easy access to the proposed rule, since the rule will apply to new sources from the date of proposal, not the date of promulgation. The commenter suggested that, if something is to be left out of the Federal Register, it would make more sense to print the proposed rule and leave out the preamble - those who need such detailed information on the development of the regulation can then obtain it.

The commenter noted that at the beginning of the proposal it states "This section of the Federal Register contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rulemaking prior to the adoption of the final rules." According to the commenter, not printing the text of the rule is inconsistent with the intent of this statement. The commenter further stated that, since there is not an official document that contains the draft rule language, it is impossible to reference the proposal in other official documents.

Commenter IV-D-47 stated that it is not clear that the EPA's publication of only the preamble to the proposed rule complies with the notice and comment requirements of the Administrative Procedure Act, 5 U.S.C. § 553(b)(3).

Response: [This is a policy question which will be addressed in the final document.]

16.3 NEED FOR THE STANDARD

Comment: Commenter IV-D-57 claimed that small manufacturing companies have an extremely difficult task in merely being aware of the myriad of Federal, State, and local environmental laws. The commenter stated that the processes covered under the proposed rule are already governed by existing regulations, along with their attendant reporting and recordkeeping requirements.

The commenter believes that the proposed rule is redundant and unnecessary for most of the establishments that would be covered under the rule. The commenter also believes that the proposed rule is extremely untimely, and would further weaken the U.S. aerospace industry as the leading U.S. export industry, while stimulating foreign competitors' penetration into world markets of American producers.

Response: The EPA is mandated by Congress in section 112 of the amended Clean Air Act to establish HAP emission standards for the aerospace industry on a national level. The proposed standards were based heavily on existing regulations in California, where 25 percent of the industry is located. These

facilities demonstrate that the emission limits established in this rule are achievable without creating an excessive economic burden or threatening the viability of the industry.

16.4 RCRA REQUIREMENTS

Comment: Commenter IV-D-22 stated that the proposed rule encourages the use of new unscrutinized solvents which are not covered under the Resource Conservation and Recovery Act (RCRA) and that the EPA should consider amending RCRA at the next opportunity to cover new solvents that may be widely used.

Response: The final aerospace rule requires that solvents meet composition and/or vapor pressure requirements only, and does not make any representation as to whether particular solvents may or may not be covered by RCRA. The Policy Planning and Standards Group is responsible for developing and implementing the NESHAP. The Agency has another division which evaluates chemicals on an ongoing basis to determine the RCRA or non-RCRA status of each chemical or compound. This rulemaking effort does not conflict with the RCRA requirements and exempts RCRA waste from the reporting requirements. Wastes that are later determined to be RCRA waste will follow RCRA requirements.

16.5 DELEGATION OF AUTHORITY

Comment: Five commenters (IV-D-35, IV-D-37, IV-D-43, IV-D-52, IV-D-58) stated that flexibility should be added to the rule to allow State and local agencies to require alternative recordkeeping, reporting, and monitoring that are cost-effective and are equally effective in demonstrating compliance with the proposed NESHAP. The commenters believe that this would reduce the financial burden on sources.

Commenter IV-D-52 was concerned about Federal requirements for sources of HAP since existing permitting and risk management programs in their AQMD address many of the same toxics concerns. The commenter pointed out that they have numerous rules and regulations in place which limit emissions from the significant source categories in their region, including Regulation 8, Rule 29, Aerospace Assembly and Component Coating Operations. The commenter believes that it is critical for the rulemaking efforts

at the EPA to recognize the importance of established local programs, and provide flexibility to minimize negative impacts on these programs wherever possible.

Commenter IV-D-58 urged the EPA to allow for the use of equivalent control strategies, such as the South Coast Air Quality Management District (SCAQMD) Rules 1401 and 1402 and its proposed Regional Clean Air Incentives Market ("RECLAIM") for VOC, as an alternative method of accomplishing emissions reductions mandated in the EPA's proposed NESHAP. The commenter is concerned that the Aerospace NESHAP as currently proposed adversely affects the anticipated benefits of the proposed VOC RECLAIM. The commenter stated that the SCAQMD has developed regulatory programs that achieve equivalent environmental benefits to the Aerospace NESHAP and requested that the EPA explicitly recognize the approvability of such alternative programs that do not require the retention of VOC-content limits and burdensome recordkeeping and reporting obligations that the proposed VOC RECLAIM program would eliminate.

The commenter provided an explanation of how the RECLAIM program works. The program includes facility-wide emission caps in place of specified control strategies and VOC-content limits. The commenter stated that facility caps are represented in the form of tradeable RECLAIM trading credits, and that the program allows averaging not only within facilities but across facilities to meet the requirements of the District's ozone plan. Additional details on the program were supplied by the commenter.

The commenter suggested that the RECLAIM program and the Aerospace NESHAP are clearly incompatible as currently proposed. The commenter pointed out that, not only is the NESHAP proposal based on "command and control" VOC and HAP limits, but it explicitly prohibits intra- and extra- facility trading which is the cornerstone of the RECLAIM program.

The commenter requested that the EPA consider the approvability of an alternative program in the South Coast Air Basin and other areas that adopt RECLAIM-type programs, which are consistent with the philosophy of the RECLAIM program and at the

same time meet the environmental objectives of the Aerospace NESHAP. The commenter claimed that the combination of the RECLAIM program which achieves basin-wide emission reductions through the program's facility caps, together with the District's recently adopted air toxics programs, A.B. 2588 and District Rules 1401 and 1402, which relies on risk-based standards in lieu of VOC-content and HAP limits, can meet the criteria of an alternative program as stated under section 112(l) of the CAA. The commenter stated that only risk-based approaches, like existing District Rules 1401 and 1402, are consistent with the market-based approaches contained in RECLAIM.

The commenter believes that the policy of assuring compatibility among the various regulatory programs adopted to comply with Federal Clean Air Act requirements is also consistent with the Agency's Common Sense Initiative. The commenter requested the Agency's help in developing compatible regulatory programs.

The commenter also stated that detailed daily recordkeeping and reporting by material type is extremely burdensome and costly and is one of the areas where Southern California companies seek relief by moving to a RECLAIM program. The commenter believes that equivalency demonstrations under section 112(l) should include the ability for the EPA to approve recordkeeping and reporting systems that impose less frequent and less detailed reporting than that proposed in the Aerospace NESHAP. The commenter noted that detailed reporting is not necessary for the risk-based approaches represented in Rules 1401 and 1402. According to the commenter, as long as the recordkeeping and reporting system is sufficient to provide adequate enforcement of the regulatory strategy selected, then alternative recordkeeping programs should be approved.

Response: The EPA has worked very closely with the States and this industry to address their concerns and develop a rule that can be implemented without undermining the effectiveness of local programs. The EPA is required to develop a MACT standard that is applicable on a national basis and, as such, many local,

State, and Federal agencies have provided input. States and local agencies may always implement standards that are more stringent than the NESHAP; however, providing flexibility to local agencies to alter the NESHAP requirements would be detrimental to the intent of the rule. All State and local agencies may submit any air quality control program to the EPA for consideration under section 112(l) of the Act, and the EPA encourages the California delegations to submit their programs for equivalency determinations.

16.6 AMENDING REFERENCED TEST METHODS

Comment: Commenter IV-D-33 stated that they, along with local agencies in California, have done considerable work on developing and improving test methods for coatings. The commenter noted that some of these changes have been incorporated into the U.S. EPA reference method by revision to the State implementation plan (SIP). However, the commenter also noted that most changes have not been incorporated into the SIP because the current process of amending reference test methods is extremely time-consuming and resource intensive. The commenter recommended that the EPA streamline the process for amending its reference test methods.

Response: The EPA has taken steps to streamline the process for amending the reference methods. Although improved, the process is still time-consuming. The EPA will continue to seek areas in which testing can be improved and will work to implement changes in a timely manner.

16.7 COLLECTION OF FEES FROM EMISSIONS

Comment: Commenter IV-D-31 stated that EPA has the authority under the CTG to mandate reductions over a 10-year period and that the EPA should use that authority to leverage continued innovation in emission control. The commenter, therefore, recommended that the EPA set technology enforcing emission reduction targets for facilities, to be obtained 5, 7, and 10 years after issuance of the CTG. The commenter proposed that a requirement of 20 percent reduction for the 5th year, a 30 percent for the 7th year, and a 50 percent for the 10th year,

each from the current MACT level of control. The commenter recommended that, in the event that emissions targets are not met, the permitting agency collect emission fees. The commenter provided recommended emission fee levels and recommended that these fees be divided between facilities that exceeded their targets and the State, which would receive 20 percent of the fee. The commenter stated that the Clean Air Act authorizes using fees to provide incentives for achieving emission reductions and to fund the administrative costs of State programs under the Act [§182(g)(4)(B)]. The commenter also stated that such a scheme would set up competition to meet or exceed emission reductions and reward success.

The commenter provided an algorithm for emissions reduction and a fee schedule.

Response: The EPA will address the issue of emissions fees in the CTG.

16.8 MACT DETERMINATION

Comment: Two commenters (IV-D-27, IV-D-29) believe that, in some circumstances, the EPA has proposed standards that are more stringent that the "MACT floor" and exceed the maximum achievable controls within the industry. Commenter IV-D-27 believes that the EPA has proposed burdensome requirements for the handling and storage of non-RCRA wastes. The commenter claimed that the EPA cannot show--and has not even attempted to show--that these waste stream control measures reflect current practices in the industry, not to mention the best controlled 12 percent of existing sources, and therefore, represent the MACT floor.

Commenter IV-D-31 stated that the statute requires the maximum achievable emission reductions and that cost considerations can, in some cases, justify decisions to promulgate emission limitations not fully reflective of the best technology, provided that the emission limitations do not go below the MACT floor. The commenter also claimed that, in this case, many of the most stringent emission limitations actually save facilities money. According to the commenter, no one should say that the costs make these emission levels unachievable as

they amount to 0.01 percent of the total industry production costs. Therefore, according to the commenter, the most stringent limitations should be placed on the industry.

The commenter further stated that the proposal seems to require less than the best achieved emission limitation for new sources. The commenter stated that this is inconsistent with the Act's floor requirements and, in some cases, such as with hand-wipe cleaning, the emission limitation is less stringent than the properly determined floor for existing sources. According to the commenter, this is not permissible.

Commenter IV-D-29 stated that they support equal controls for both new and existing sources. According to the commenter, if the EPA were to reverse course and propose stricter standards for new sources, a new proposal and a new opportunity for public comment would be legally required.

Response: The EPA has deleted the handling and storage provisions for non-RCRA waste, because the required supporting data necessary to implement such provisions are not available.

Additionally, the MACT standards include a new source provision for primer and topcoat application operations involving coatings that contain cadmium and chromium. This is the only new source requirement that the EPA has identified. Further, the Agency's economic analysis of the industry indicated no new growth over the next several years for this industry. The rule will be reviewed 7 years from promulgation and, if warranted, new requirements can be implemented.

Comment: Commenter IV-D-39 supported most aspects of the proposed rule and considered the limits contained therein representative of MACT in this industry. The commenter noted that certain innovative techniques were used in the development of the proposed MACT limits, such as defining various coatings types as source categories for determination of the MACT floor, and using VOC as a surrogate for HAP. The commenter stated that they have supported the use of these techniques in the development of this standard, but cautions the Agency that these techniques may not be applicable in other surface coating

standards. Specifically, the commenter stated that they would strongly object to the inference that since VOCs were used as a HAP surrogate in this instance, VOC in general should be considered to be hazardous or should be treated in a similar fashion to HAPs. In the case of the Aerospace NESHAP, the commenter believes this strategy proved to be useful and resulted in desirable coordination of the Agency's requirement to control both VOCs and HAPs. Again, however, the commenter indicated that this approach should not be considered universally applicable in surface coating MACT standard development.

Response: The EPA did not intend to imply that HAP and VOC have the same characteristics. The EPA does appreciate the commenter's opinion and will consider it in future rulemaking efforts.

Comment: Commenter IV-D-52 recommended that the housekeeping requirements for solvent cleaning operations specified in §63.744(a) be extended to apply to coatings, thinning solvents, and chemical strippers.

Commenter IV-D-31 stated that the housekeeping and work practice measures proposed constitute good application of common sense.

Response: The EPA has adopted the commenters' recommendations and the final rule contains waste handling and storage requirements for coatings and chemical strippers.

Comment: Commenter IV-D-13 believes that this rule will dramatically impact the general aviation community. The commenter has not been able to find anyone in the general aviation community who was a participant in section 114 questionnaire survey. The commenter stated that the survey appears to be the primary basis for the EPA's decisions and assumptions on how to go forward with this rulemaking effort. The commenter also stated that it appears that the EPA has determined that the general aviation segment of the marketplace has no significant impact on environmental emissions levels and asked: Is this why only the military and commercial aspects were addressed in the survey and the proposed rulemaking?

Response: The EPA sent a information request under section 114 to Beech Aircraft and conducted on-site information collection at Beech Aircraft, Cessna, Hunting Air (now Stevens Aviation), and LearJet. These information gathering efforts provided the Agency with valuable information concerning the general aviation segment of the industry. In addition, these four facilities are major sources and the vast majority of general aviation facilities are non-major sources which will not be covered by the NESHAP.

16.9 STANDARDS: GENERAL

Comment: Commenter IV-D-29 stated that proposed §63.743 was very unclear as to exactly which sections of the General Provisions apply to aerospace operations. The commenter noted that the second sentence of the proposed section states that "each owner or operator of an affected source" is subject to three specific sections of the General Provisions "except as provided in paragraphs (a)(4) through (a)(9) of this section and in Table 2" and that these other provisions in turn reference both portions of the three specific previously cited sections, as well as other sections and subsections. The commenter pointed out that nowhere is there any specific description of the provisions which override the general provisions. The commenter, therefore, recommended that these relationships be clarified in the final rule.

Three commenters (IV-D-27, IV-D-29, IV-D-35) noted that proposed §63.743(b) restates and strengthens the requirement in the General Provisions for "maintenance plans." According to two of the commenters (IV-D-29, IV-D-35), when implementing this requirement, the EPA needs to recognize that these requirements are far more applicable to combustion systems or recovery systems than to particulate filter devices intended for control of inorganic HAP. The commenters believe that the development of a comprehensive operation and maintenance plan for particulate filters represents an excessive burden to the industry without a commensurate environmental benefit. The commenters stated that particulate filtering systems are generally not prone to startup

and shutdown malfunctions as required for the Operating and Maintenance Plans. Commenter IV-D-35 suggested that it is more appropriate to let the State or local regulatory agency determine which level of enforcement is best for them to meet the requirements. The commenter noted that manufacturers' specifications or some other negotiated method could then be used. Commenter IV-D-27 stated that §63.743(b) needs to be clarified to allow particulate filtering systems to be operated in accordance with manufacturers' operating instructions to ensure efficiency.

The commenter recommended the following revision:

"§63.743 Standards: General:

(b) Operating and maintenance plan. Each owner or operator that uses an air pollution control device or equipment to control HAP emissions shall prepare and operate in accordance with a startup, shutdown, and malfunction plan in accordance with §63.6. Particulate filtering systems must be operated per the manufacturers instructions and are exempt from a startup and shutdown plan. In addition to the information required in §63.6, this plan shall also include the following provisions:"

Commenter IV-D-35 recommended that the following sentence be added to §63.743(b):

"Any Operation and Maintenance Plan requirements shall be delineated in the appropriate Title V operating permit."

Commenter IV-D-35 recommended that the following be added as a new section:

"§63.743(d)

As new materials, techniques, and technologies evolve, particular materials, techniques, and technologies called out in individual paragraphs may be obsolete, removed from service, or supplanted by advances to the state of the art. When the superiority of such advances has been established in practice, the administrator shall issue a universal determination that the new material, technique, or technology may be substituted for the requirement specified

in any paragraph under these rules. Until such determination is made, substitution of advanced materials, techniques, or technologies may be negotiated by the administrator's representative on a case-by-case basis."

The commenter stated that the above provision will allow the Aerospace NESHAP to evolve and remain valid as new materials, techniques, and technologies are introduced into the aerospace industry.

Response: The EPA agrees with the commenters and believes that comprehensive startup and shutdown plans are not required for particulate filters operated according to manufacturer's specifications. The EPA has adopted the following revision in order to remove particulate devices from the requirements specified in the General Provisions. Final §63.743(b) states:

"(b) Operation and maintenance plan. Each owner or operator that uses an air pollution control device or equipment to control HAP emissions shall prepare and operate in accordance with a startup, shutdown, and malfunction plan in accordance with §63.6. Dry particulate filter systems operated per the manufacturer's instructions are exempt from a startup and shutdown plan. A startup and shutdown plan shall be prepared for facilities using locally prepared operating procedures. In addition to the information required in §63.6, this plan shall also include the following provisions:"

16.10 VOC AND HAP EMISSIONS IN NONATTAINMENT AREAS

Comment: Commenter IV-D-30 noted that the Aerospace NESHAP is applicable to those facilities that are major sources of HAP and that the Aerospace CTG will be applicable primarily in nonattainment areas. The commenter pointed out that some of their major sources are located in areas of attainment and so would not necessarily be affected by the CTG requirements for VOC restrictions. The commenter stated that, as proposed, the NESHAP would restrict both HAP and VOC for primers, topcoats, and chemical milling maskants; and vapor pressure for cleaning materials. The commenter claimed that this could require them to

replace materials that do not contain any HAP, regardless of whether the material is used in a nonattainment area. Therefore, the commenter would like the EPA to clarify its intent regarding the restriction of VOC in a document related to the restriction of HAP.

Response: The EPA's analysis indicated that all coatings contained VOC and HAP and that VOC content was almost always higher in the materials evaluated than the HAP content. The EPA determined that, frequently, VOC is used as a surrogate for HAP. The EPA has an approved method for VOC, Method 24. Over 95 percent of the affected sources are in nonattainment areas. The industry requested that the EPA provide a "nationally" consistent regulation. The EPA has responded by providing a national standard with an approved test method.

16.11 VARIANCE PROVISION

Comment: Commenter IV-D-29 stated that they believe the EPA must include in the final rule a procedure under which affected sources can petition the EPA for relief from regulatory requirements when compliance has proven impossible for unanticipated reasons not addressed during their rulemaking. According to the commenter, the need for such a "fundamentally different factor" variance has long been legally established in cases under the Clean Water Act, and applied in many contexts by the EPA. The commenter believes that the need is equally clear here.

The commenter stated that compliance with the Aerospace NESHAP will require affected sources to simultaneously identify, evaluate, and qualify many new materials for many new uses. The commenter pointed out that the MACT floor analysis was heavily based on certain California air district regulations. The commenter also pointed out that many of the activities for which new materials will be necessary either do not occur in California, or comply with California standards only through the use of ozone-depleting chemicals that will shortly be unavailable. The commenter claimed that the interaction between the primer/topcoat requirements and the depainting requirements

is just one example of this problem. The commenter noted that the proposed rule imposes new requirements on depainting and at the same time requires a change in the coatings used on the exterior surface of the aircraft. The commenter claimed that the newer depainting techniques that meet the 12 percent MACT floor have not been proven on these new coatings. According to the commenter, there is no evidence to show that all these substitution efforts will succeed on schedule. Further, the commenter stated that the effect of the large number of materials and process changes cannot be completely predicted today, and neither can the final impact to employee safety as a result of the changes. The commenter stated that in such circumstances a variance procedure is appropriate and legally required. Therefore, the commenter recommended revising §63.741(b) and adding §63.741(g) as follows:

> §63.741(b) The owner or operator of an affected source shall comply with the requirements of this subpart and of subpart A or this part, except as specified in §63.743(a) <u>and §63.741(g)</u>.
>
> <u>(g) The owner or operator may apply for a variance from the provisions of this subpart. The variance application shall be in writing and shall demonstrate that the variance request reflects factors fundamentally different from those on which the standards in this subpart were based and the alternative standards that are justified in light of those fundamentally different factors. The variance application shall be submitted to the Regional Administrator or to the state or local jurisdiction in those situations where an EPA approved program exists</u>.

<u>Response</u>: [This is a policy question which will be addressed in the final document.]

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15. SUPPLEMENTARY NOTES

EPA Work Assignment Manager: Barbara Driscoll, ESD/PPSG

16. ABSTRACT

National emission standards for control of HAP emissions from aerospace manufacturing and rework facilities were published in 60 FR 45948, September 1, 1995. This regulation was promulgated under the authority of Section 112 of the Clean Air Act. The standards will reduce air toxics from all major source aerospace facilities (defined as those facilities that emit, or have the potential to emit, more than 9.1 Mg/yr [10 tons/yr] of any HAP or 22.7 Mg/yr [25 tons/yr] of any combination of HAP.)

This document provides: the basis for the revisions made to the standards between proposal and promulgation; a summary of the comments submitted and the responses to these comments; and summary of the changes made since proposal.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Air Pollution Aerospace Manufacturing and Rework Hazardous Air Pollutants	Cleaning Operations Surface Coating (Painting) Depainting	Air Pollution Control MACT Coating Operations Cleaning Operations	

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