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National Emission Standards for Aerospace Manufacturing and Rework
Facilities Risk and Technology Review; Proposed Rule

**ENVIRONMENTAL PROTECTION
AGENCY**
40 CFR Part 63
[EPA-HQ-OAR-2014-0830; FRL-9922-10-OAR]
RIN 2060-AQ99
**National Emission Standards for
Aerospace Manufacturing and Rework
Facilities Risk and Technology Review**
AGENCY: Environmental Protection Agency.

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing amendments to the national emissions standards for hazardous air pollutants (NESHAP) for Aerospace Manufacturing and Rework Facilities to address the results of the residual risk and technology review (RTR) conducted as required under the Clean Air Act (CAA), and to correct errors and deficiencies identified during the review of these standards. The proposed amendments would add limitations to reduce organic and inorganic emissions of hazardous air pollutants (HAP) from specialty coating application operations; would remove the exemptions from the emission limitations for periods of startup, shutdown and malfunction (SSM) so that affected units would be subject to the emission standards at all times; and would revise provisions to address recordkeeping and reporting requirements applicable to periods of SSM. This action also proposes other technical corrections. The EPA estimates that implementation of this proposed rule will result in reductions of 58 tons of HAP.

DATES: *Comments.* Comments must be received on or before April 3, 2015. A copy of comments on the information collection provisions should be submitted to the Office of Management and Budget (OMB) on or before March 19, 2015.

Public Hearing. If anyone contacts the EPA requesting a public hearing by February 23, 2015, we will hold a public hearing on March 4, 2015. If you are interested in requesting a public hearing or attending the public hearing, contact Ms. Pamela Garrett at (919) 541-7966 or at garrett.pamela@epa.gov. If the EPA holds a public hearing, the EPA will keep the record of the hearing open for 30 days after completion of the hearing to provide an opportunity for submission of rebuttal and supplementary information.

ADDRESSES: *Comments.* Submit your comments, identified by Docket ID No.

EPA-HQ-OAR-2014-0830, by one of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the online instructions for submitting comments.

- *Email:* A-and-R-Docket@epa.gov. Include Attention Docket ID No. EPA-HQ-OAR-2014-0830 in the subject line of the message.

- *Fax:* (202) 566-9744, Attention Docket ID No. EPA-HQ-OAR-2014-0830.

- *Mail:* Environmental Protection Agency, EPA Docket Center (EPA/DC), Mail Code 28221T, Attention Docket ID No. EPA-HQ-OAR-2014-0830, 1200 Pennsylvania Avenue NW., Washington, DC 20460. In addition, please mail a copy of your comments on the information collection provisions to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), Attn: Desk Officer for EPA, 725 17th Street NW., Washington, DC 20503.

- *Hand/Courier Delivery:* EPA Docket Center, Room 3334, EPA WJC West Building, 1301 Constitution Avenue NW., Washington, DC 20004, Attention Docket ID No. EPA-HQ-OAR-2014-0830. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

Instructions. Direct your comments to Docket ID No. EPA-HQ-OAR-2014-0830. The EPA's policy is that all comments received will be included in the public docket without change and may be made available online at <http://www.regulations.gov>, including any personal information provided, unless the comment includes information claimed to be confidential business information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through <http://www.regulations.gov> or email. The <http://www.regulations.gov> Web site is an "anonymous access" system, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through <http://www.regulations.gov>, your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If the EPA

cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should not include special characters or any form of encryption and be free of any defects or viruses. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at: <http://www.epa.gov/dockets>.

Docket. The EPA has established a docket for this rulemaking under Docket ID No. EPA-HQ-OAR-2014-0830. All documents in the docket are listed in the <http://www.regulations.gov> index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy. Publicly available docket materials are available either electronically in www.regulations.gov or in hard copy at the EPA Docket Center, Room 3334, EPA WJC West Building, 1301 Constitution Avenue NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the EPA Docket Center is (202) 566-1742.

Public Hearing. If a public hearing is requested by February 23, 2015, it will be held on March 4, 2015 at the EPA's Research Triangle Park Campus, 109 T.W. Alexander Drive, Research Triangle Park, NC 27711. The hearing will convene at 10:00 a.m. (Eastern Standard Time) and end at 5:00 p.m. (Eastern Standard Time). A lunch break will be held from 12:00 p.m. (Eastern Standard Time) until 1:00 p.m. (Eastern Standard Time). Please contact Ms. Pamela Garrett at (919) 541-7966 or at garrett.pamela@epa.gov to request a hearing, to determine if a hearing will be held and to register to speak at the hearing, if one is held. If a hearing is requested, the last day to pre-register in advance to speak at the hearing will be March 2, 2015.

Additionally, requests to speak will be taken the day of the hearing at the hearing registration desk, although preferences on speaking times may not be able to be fulfilled. If you require the service of a translator or special accommodations such as audio description, please let us know at the time of registration. If you require an accommodation, we ask that you preregister for the hearing, as we may not be able to arrange such

accommodations without advance notice.

If no one contacts the EPA requesting a public hearing to be held concerning this proposed rule by February 23, 2015, a public hearing will not take place. If a hearing is held, it will provide interested parties the opportunity to present data, views or arguments concerning the proposed action. The EPA will make every effort to accommodate all speakers who arrive and register. Because the hearing will be held at a U.S. governmental facility, individuals planning to attend the hearing should be prepared to show valid picture identification to the security staff in order to gain access to the meeting room. Please note that the REAL ID Act, passed by Congress in 2005, established new requirements for entering federal facilities. If your driver's license is issued by Alaska, American Samoa, Arizona, Kentucky, Louisiana, Maine, Massachusetts, Minnesota, Montana, New York, Oklahoma or the state of Washington, you must present an additional form of identification to enter the federal building. Acceptable alternative forms of identification include: federal employee badges, passports, enhanced driver's licenses and military identification cards. In addition, you will need to obtain a property pass for any personal belongings you bring with you. Upon leaving the building, you will be required to return this property pass to the security desk. No large signs will be allowed in the building, cameras may only be used outside of the building and demonstrations will not be allowed on federal property for security reasons.

The EPA may ask clarifying questions during the oral presentations, but will not respond to the presentations at that time. Written statements and supporting information submitted during the comment period will be considered with the same weight as oral comments and supporting information presented at the public hearing. Commenters should notify Ms. Garrett if they will need specific equipment, or if there are other special needs related to providing comments at the hearing. Verbatim transcripts of the hearings and written statements will be included in the docket for the rulemaking. The EPA will make every effort to follow the schedule as closely as possible on the day of the hearing; however, please plan for the hearing to run either ahead of schedule or behind schedule. Again, a hearing will not be held unless requested.

FOR FURTHER INFORMATION CONTACT: For questions about this proposed action,

contact Kim Teal, Sector Policies and Programs Division (D243-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-5580; fax number: (919) 541-5450; and email address: teal.kim@epa.gov. For specific information regarding the risk modeling methodology, contact Ted Palma, Health and Environmental Impacts Division (C539-02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-5470; fax number: (919) 541-0840; and email address: palma.ted@epa.gov. For information about the applicability of the NESHAP to a particular entity, contact Rafael Sanchez, Office of Enforcement and Compliance Assurance (OECA), (202) 564-7028, sanchez.rafael@epa.gov.

SUPPLEMENTARY INFORMATION:

Preamble Acronyms and Abbreviations. We use multiple acronyms and terms in this preamble. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

AD Airworthiness Directive
 AEGL acute exposure guideline level
 AERMOD air dispersion model used by the HEM-3 model
 ATSDR Agency for Toxic Substances and Disease Registry
 BACT Best Achievable Control Technology
 CAA Clean Air Act
 CalEPA California EPA
 CBI Confidential Business Information
 CDX EPA's Central Data Exchange
 CEDRI EPA's Compliance and Emissions Data Reporting Interface
 CFR Code of Federal Regulations
 CTG Control Technique Guideline document
 EJ environmental justice
 EPA Environmental Protection Agency
 ERPG Emergency Response Planning Guidelines
 ERT EPA's Electronic Reporting Tool
 FAA Federal Aviation Administration
 FR Federal Register
 g/L grams/liter
 HAP hazardous air pollutants
 HCl hydrochloric acid
 HEM-3 Human Exposure Model, Version 1.1.0
 HF hydrogen fluoride
 HI hazard index
 HQ hazard quotient
 HVLP high volume low pressure
 IARC International Agency for Research on Cancer
 ICR information collection request
 IRIS Integrated Risk Information System
 km kilometer
 lb/gal pounds/gallon
 LOAEL Lowest-observed-adverse-effect level

MACT maximum achievable control technology
 mg/m³ milligrams per cubic meter
 MIR maximum individual risk
 mm Hg millimeters mercury
 NAAQS National Ambient Air Quality Standards
 NAICS North American Industry Classification System
 NAS National Academy of Sciences
 NATA National Air Toxics Assessment
 NEI National Emission Inventory
 NESHAP National Emissions Standards for Hazardous Air Pollutants
 NOAA National Oceanic and Atmospheric Administration
 NOAEL No-observed-adverse-effect levels
 NRC National Research Council
 NRDC Natural Resources Defense Council
 NTP National Toxicology Program
 NTTAA National Technology Transfer and Advancement Act
 OAQPS Office of Air Quality Planning and Standards
 OECA Office of Enforcement and Compliance Assurance
 OEM original equipment manufacturer
 OMB Office of Management and Budget
 PAH polycyclic aromatic hydrocarbons
 PB-HAP hazardous air pollutants known to be persistent and bio-accumulative in the environment
 PEL Probable effect level
 POM polycyclic organic matter
 ppm parts per million
 PSD Prevention of Significant Deterioration
 RACT Reasonably Available Control Technology
 RBLC EPA's RACT/BACT/LAER Clearinghouse
 RCRA Resource Conservation and Recovery Act of 1976
 REL reference exposure level
 RFA Regulatory Flexibility Act
 RfC reference concentration
 RfD reference dose
 RoC Report of the Carcinogens
 RTR residual risk and technology review
 SAB Science Advisory Board
 SCAQMD South Coast Air Quality Management District
 SSM startup, shutdown and malfunction
 TOSHI target organ-specific hazard index
 tpy tons per year
 TRIM.FaTE Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure model
 TTN Technology Transfer Network
 UF uncertainty factor
 µg/m³ microgram per cubic meter
 UMRA Unfunded Mandates Reform Act
 URE unit risk estimate
 VOC volatile organic compounds

Organization of this Document. The information in this preamble is organized as follows:

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I. General Information

A. Does this action apply to me?

Table 1 of this preamble lists the regulated industrial source category that

is the subject of this proposal. Table 1 is not intended to be exhaustive, but rather to provide a guide for readers regarding the entities that this proposed action is likely to affect. The proposed standards, once promulgated, will be directly applicable to the affected sources. Federal government entities may be affected by this proposed action. Parties potentially affected by this action include major and synthetic minor source installations that are owned or operated by the Armed Forces of the United States (including the Department of Defense and the Coast Guard) and the National Aeronautics and Space Administration. As defined under the “Surface Coating” industry sector in the “Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990” (see 57 FR 31576, July 16, 1992), the Aerospace Manufacturing and Rework Facilities source category is any facility engaged, either in part or in whole, in the manufacture or rework of commercial, civil or military aerospace vehicles or components and that are major sources as defined in 40 CFR 63.2.

TABLE 1—INDUSTRIAL SOURCE CATEGORY AFFECTED BY THIS PROPOSED ACTION

Source Category	NESHAP	NAICS code ^a
Aerospace Manufacturing and Rework Facilities	Aerospace Manufacturing and Rework Facilities.	336411, 336412, 336413, 336414, 336415, 336419, 481111, 481112, 481211, 481212, 481219.

^aNorth American Industry Classification System.

B. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this action is available on the Internet through the EPA’s Technology Transfer Network (TTN) Web site, a forum for information and technology exchange in various areas of air pollution control. Following signature by the EPA Administrator, the EPA will post a copy of this proposed action at: <http://www.epa.gov/ttn/atw/aerosp/aeropg.html>. Following publication in the **Federal Register**, the EPA will post the **Federal Register** version of the proposal and key technical documents at this same Web site. Information on the overall residual risk and technology review program is available at the following Web site: <http://www.epa.gov/ttn/atw/rrisk/rrtpg.html>.

C. What should I consider as I prepare my comments for the EPA?

Submitting CBI. Do not submit information containing CBI to the EPA through <http://www.regulations.gov> or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on a disk or CD-ROM that you mail to the EPA, mark the outside of the disk or CD-ROM as CBI and then identify electronically within the disk or CD-ROM the specific information that is claimed as CBI. In addition to one complete version of the comments that includes information claimed as CBI, you must submit a copy of the comments that does not contain the information claimed as CBI for inclusion in the public docket. If you submit a CD-ROM or disk that does not contain CBI, mark the outside of the disk or CD-ROM clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and the EPA’s electronic public

docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 Code of Federal Regulations (CFR) part 2. Send or deliver information identified as CBI only to the following address: OAQPS Document Control Officer (C404-02), OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID No. EPA-HQ-OAR-2014-0830.

II. Background

A. What is the statutory authority for this action?

Section 112 of the CAA establishes a two-stage regulatory process to address emissions of HAP from stationary sources. In the first stage, after the EPA has identified categories of sources emitting one or more of the HAP listed in CAA section 112(b), CAA section 112(d) requires us to promulgate technology-based NESHAP for those

sources. “Major sources” are those that emit or have the potential to emit 10 tons per year (tpy) or more of a single HAP or 25 tpy or more of any combination of HAP. For major sources, the technology-based NESHAP must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements and non-air quality health and environmental impacts) and are commonly referred to as maximum achievable control technology (MACT) standards.

MACT standards must reflect the maximum degree of emissions reduction achievable through the application of measures, processes, methods, systems or techniques, including, but not limited to, measures that: (1) Reduce the volume of or eliminate pollutants through process changes, substitution of materials or other modifications; (2) enclose systems or processes to eliminate emissions; (3) capture or treat pollutants when released from a process, stack, storage or fugitive emissions point; (4) are design, equipment, work practice or operational standards (including requirements for operator training or certification); or (5) are a combination of the above. CAA section 112(d)(2)(A) through (E). The MACT standards may take the form of design, equipment, work practice or operational standards where the EPA first determines either that: (1) A pollutant cannot be emitted through a conveyance designed and constructed to emit or capture the pollutant, or that any requirement for or use of, such a conveyance would be inconsistent with law; or (2) the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations. CAA section 112(h)(1) and (2).

The MACT “floor” is the minimum control level allowed for MACT standards promulgated under CAA section 112(d)(3) and may not be based on cost considerations. For new sources, the MACT floor cannot be less stringent than the emissions control that is achieved in practice by the best-controlled similar source. The MACT floor for existing sources can be less stringent than floors for new sources, but not less stringent than the average emissions limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory (or the best-performing five sources for categories or subcategories with fewer than 30 sources). In developing MACT standards, the EPA must also consider control options that are more stringent than the floor. We may establish

standards more stringent than the floor based on considerations of the cost of achieving the emission reductions, any non-air quality health and environmental impacts and energy requirements.

The EPA is then required to review these technology-based standards and revise them “as necessary (taking into account developments in practices, processes and control technologies)” no less frequently than every 8 years. CAA section 112(d)(6). In conducting this review, the EPA is not required to recalculate the MACT floor. *Natural Resources Defense Council (NRDC) v. EPA*, 529 F.3d 1077, 1084 (D.C. Cir. 2008). *Association of Battery Recyclers, Inc. v. EPA*, 716 F.3d 667 (D.C. Cir. 2013).

The second stage in standard-setting focuses on reducing any remaining (*i.e.*, “residual”) risk according to CAA section 112(f). CAA Section 112(f)(1) required that the EPA prepare a report to Congress discussing (among other things) methods of calculating the risks posed (or potentially posed) by sources after implementation of the MACT standards, the public health significance of those risks and the EPA’s recommendations as to legislation regarding such remaining risk. The EPA prepared and submitted the *Residual Risk Report to Congress*, EPA-453/R-99-001 (*Risk Report*) in March 1999. CAA section 112(f)(2) then provides that if Congress does not act on any recommendation in the *Risk Report*, the EPA must analyze and address residual risk for each category or subcategory of sources 8 years after promulgation of such standards pursuant to CAA section 112(d).

Section 112(f)(2) of the CAA requires the EPA to determine for source categories subject to MACT standards whether the emission standards provide an ample margin of safety to protect public health. Section 112(f)(2)(B) of the CAA expressly preserves the EPA’s use of the two-step process for developing standards to address any residual risk and the agency’s interpretation of “ample margin of safety” developed in the *National Emissions Standards for Hazardous Air Pollutants: Benzene Emissions from Maleic Anhydride Plants, Ethylbenzene/Styrene Plants, Benzene Storage Vessels, Benzene Equipment Leaks, and Coke By-Product Recovery Plants* (Benzene NESHAP) (54 FR 38044, September 14, 1989). The EPA notified Congress in the *Risk Report* that the agency intended to use the Benzene NESHAP approach in making CAA section 112(f) residual risk determinations (EPA-453/R-99-001, p. ES-11). The EPA subsequently adopted

this approach in its residual risk determinations and in a challenge to the risk review for the Synthetic Organic Chemical Manufacturing source category, the United States Court of Appeals for the District of Columbia Circuit upheld as reasonable the EPA’s interpretation that subsection 112(f)(2) incorporates the approach established in the Benzene NESHAP. *See NRDC v. EPA*, 529 F.3d 1077, 1083 (D.C. Cir. 2008) (“[S]ubsection 112(f)(2)(B) expressly incorporates the EPA’s interpretation of the Clean Air Act from the Benzene standard, complete with a citation to the **Federal Register**.”); see also *A Legislative History of the Clean Air Act Amendments of 1990*, vol. 1, p. 877 (Senate debate on Conference Report).

The first step in the process of evaluating residual risk is the determination of acceptable risk. If risks are unacceptable, the EPA cannot consider cost in identifying the emissions standards necessary to bring risks to an acceptable level. The second step is the determination of whether standards must be further revised in order to provide an ample margin of safety to protect public health. The ample margin of safety is the level at which the standards must be set, unless an even more stringent standard is necessary to prevent, taking into consideration costs, energy, safety and other relevant factors, an adverse environmental effect.

1. Step 1—Determination of Acceptability

The agency in the Benzene NESHAP concluded that “the acceptability of risk under section 112 is best judged on the basis of a broad set of health risk measures and information” and that the “judgment on acceptability cannot be reduced to any single factor.” Benzene NESHAP at 38046. The determination of what represents an “acceptable” risk is based on a judgment of “what risks are acceptable in the world in which we live” (*Risk Report* at 178, quoting *NRDC v. EPA*, 824 F. 2d 1146, 1165 (D.C. Cir. 1987) (en banc) (“Vinyl Chloride”), recognizing that our world is not risk-free.

In the Benzene NESHAP, we stated that “EPA will generally presume that if the risk to [the maximum exposed] individual is no higher than approximately one in 10 thousand, that risk level is considered acceptable.” 54 FR 38045, September 14, 1989. We discussed the maximum individual lifetime cancer risk (or maximum individual risk (MIR)) as being “the estimated risk that a person living near a plant would have if he or she were

exposed to the maximum pollutant concentrations for 70 years.” *Id.* We explained that this measure of risk “is an estimate of the upper bound of risk based on conservative assumptions, such as continuous exposure for 24 hours per day for 70 years.” *Id.* We acknowledged that maximum individual lifetime cancer risk “does not necessarily reflect the true risk, but displays a conservative risk level which is an upper-bound that is unlikely to be exceeded.” *Id.*

Understanding that there are both benefits and limitations to using the MIR as a metric for determining acceptability, we acknowledged in the Benzene NESHAP that “consideration of maximum individual risk * * * must take into account the strengths and weaknesses of this measure of risk.” *Id.* Consequently, the presumptive risk level of 100-in-1 million (1-in-10 thousand) provides a benchmark for judging the acceptability of maximum individual lifetime cancer risk, but does not constitute a rigid line for making that determination. Further, in the Benzene NESHAP, we noted that:

[p]articular attention will also be accorded to the weight of evidence presented in the risk assessment of potential carcinogenicity or other health effects of a pollutant. While the same numerical risk may be estimated for an exposure to a pollutant judged to be a known human carcinogen, and to a pollutant considered a possible human carcinogen based on limited animal test data, the same weight cannot be accorded to both estimates. In considering the potential public health effects of the two pollutants, the Agency’s judgment on acceptability, including the MIR, will be influenced by the greater weight of evidence for the known human carcinogen.

Id. at 38046. The agency also explained in the Benzene NESHAP that:

[i]n establishing a presumption for MIR, rather than a rigid line for acceptability, the Agency intends to weigh it with a series of other health measures and factors. These include the overall incidence of cancer or other serious health effects within the exposed population, the numbers of persons exposed within each individual lifetime risk range and associated incidence within, typically, a 50 km exposure radius around facilities, the science policy assumptions and estimation uncertainties associated with the risk measures, weight of the scientific evidence for human health effects, other quantified or unquantified health effects, effects due to co-location of facilities, and co-emission of pollutants.

Id. at 38045. In some cases, these health measures and factors taken together may provide a more realistic description of the magnitude of risk in the exposed population than that provided by maximum individual lifetime cancer risk alone.

As noted earlier, in *NRDC v. EPA*, the court held that CAA section 112(f)(2) “incorporates the EPA’s interpretation of the Clean Air Act from the Benzene Standard.” The court further held that Congress’ incorporation of the Benzene standard applies equally to carcinogens and non-carcinogens. 529 F.3d at 1081–82. Accordingly, we also consider non-cancer risk metrics in our determination of risk acceptability and ample margin of safety.

2. Step 2—Determination of Ample Margin of Safety

CAA section 112(f)(2) requires the EPA to determine, for source categories subject to MACT standards, whether those standards provide an ample margin of safety to protect public health. As explained in the Benzene NESHAP, “the second step of the inquiry, determining an ‘ample margin of safety,’ again includes consideration of all of the health factors, and whether to reduce the risks even further Beyond that information, additional factors relating to the appropriate level of control will also be considered, including costs and economic impacts of controls, technological feasibility, uncertainties and any other relevant factors. Considering all of these factors, the agency will establish the standard at a level that provides an ample margin of safety to protect the public health, as required by section 112.” 54 FR 38046, September 14, 1989.

According to CAA section 112(f)(2)(A), if the MACT standards for HAP “classified as a known, probable, or possible human carcinogen do not reduce lifetime excess cancer risks to the individual most exposed to emissions from a source in the category or subcategory to less than one in one million,” the EPA must promulgate residual risk standards for the source category (or subcategory), as necessary to provide an ample margin of safety to protect public health. In doing so, the EPA may adopt standards equal to existing MACT standards if the EPA determines that the existing standards (*i.e.*, the MACT standards) are sufficiently protective. *NRDC v. EPA*, 529 F.3d 1077, 1083 (D.C. Cir. 2008) (“If EPA determines that the existing technology-based standards provide an ‘ample margin of safety,’ then the Agency is free to readopt those standards during the residual risk rulemaking.”) The EPA must also adopt more stringent standards, if necessary, to prevent an adverse environmental effect,¹ but must consider cost, energy,

¹ “Adverse environmental effect” is defined as any significant and widespread adverse effect,

safety and other relevant factors in doing so.

The CAA does not specifically define the terms “individual most exposed,” “acceptable level” and “ample margin of safety.” In the Benzene NESHAP, 54 FR 38044–38045, September 14, 1989, we stated as an overall objective:

In protecting public health with an ample margin of safety under section 112, EPA strives to provide maximum feasible protection against risks to health from hazardous air pollutants by (1) protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately 1-in-1 million and (2) limiting to no higher than approximately 1-in-10 thousand [*i.e.*, 100-in-1 million] the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years.

The agency further stated that “[t]he EPA also considers incidence (the number of persons estimated to suffer cancer or other serious health effects as a result of exposure to a pollutant) to be an important measure of the health risk to the exposed population. Incidence measures the extent of health risks to the exposed population as a whole, by providing an estimate of the occurrence of cancer or other serious health effects in the exposed population.” *Id.* at 38045.

In the ample margin of safety decision process, the agency again considers all of the health risks and other health information considered in the first step, including the incremental risk reduction associated with standards more stringent than the MACT standard or a more stringent standard that EPA has determined is necessary to ensure risk is acceptable. In the ample margin of safety analysis, the agency considers additional factors, including costs and economic impacts of controls, technological feasibility, uncertainties and any other relevant factors. Considering all of these factors, the agency will establish the standard at a level that provides an ample margin of safety to protect the public health, as required by CAA section 112(f). 54 FR 38046, September 14, 1989.

which may be reasonably anticipated to wildlife, aquatic life or natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental qualities over broad areas. See CAA section 112(a)(7).

B. What is this source category and how does the current NESHAP regulate its HAP emissions?

1. Description of the Aerospace Manufacturing and Rework Facilities Source Category and Applicability.

The NESHAP for the Aerospace Manufacturing and Rework Facilities source category (henceforth referred to as the "Aerospace NESHAP") was promulgated on September 1, 1995 (60 FR 45956) and codified at 40 CFR part 63, subpart GG. As promulgated in 1995, the Aerospace NESHAP applies to the surface coating and related operations at each new and existing affected source of HAP emissions at facilities that are major sources and are engaged, either in part or in whole, in the manufacture or rework of commercial, civil or military aerospace vehicles or components. The requirements of the standards are nearly the same for both new and existing sources. The Aerospace NESHAP (40 CFR 63.742) defines "aerospace vehicle or component" as "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." Today, we estimate that 144 facilities are subject to the Aerospace NESHAP. A complete list of facilities subject to the Aerospace NESHAP is available in the Aerospace RTR database, which is available for review in the docket for this proposed rulemaking. Section 63.741(c) defines each affected source in the Aerospace Manufacturing and Rework Facilities source category, and a facility could have a combination of both new and existing affected sources. However, the emission standards for new and existing affected sources are the same for nearly all operations within subpart GG. The exceptions are the filter efficiency requirements to control inorganic HAP emissions from primer and topcoat spray application operations in 40 CFR 63.745 and for dry media blasting operations in 40 CFR 63.746 and the requirements for controls to reduce organic HAP emissions from chemical depainting operations in 40 CFR 63.746(c).

The Aerospace NESHAP applies to organic HAP emissions from cleaning operations, depainting operations, primer application operations, topcoat application operations, chemical milling maskant application operations and the handling and storage of waste. The rule also applies to inorganic HAP emissions from primer and topcoat application operations using spray equipment and

depainting operations using dry media blasting. The rule provides an exemption for primers, topcoats and chemical milling maskants used in low-volumes which is defined as 189 liters (50 gallons) or less per formulation and for which the combined annual total does not exceed 757 liters (200 gallons).

The current Aerospace NESHAP explicitly excludes specialty coatings from meeting any control requirements, as specified in 40 CFR 63.741(f) and in 40 CFR 63.742 (*i.e.*, the definitions for "exterior primer," "primer," and "topcoat"). Appendix A of the Aerospace NESHAP defines 59 separate categories of specialty coatings.

Although the EPA did not include emission limitations for specialty coatings in the Aerospace NESHAP finalized in 1995 or in any subsequent amendments, the EPA included VOC content limits for the 59 categories of specialty coatings in the 1997 Aerospace Control Techniques Guidelines (CTG) document.² The CAA requires that state implementation plans (SIPs) for certain ozone nonattainment areas be revised to require the implementation of reasonably available control technology (RACT) to control volatile organic compounds (VOC) emissions. The EPA has defined RACT as the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. The Aerospace CTG is intended to provide state and local air pollution control authorities with an information base, recommended emissions limitations and monitoring, recordkeeping and reporting requirements for proceeding with their analyses of reasonably available control technology (RACT) for their own regulations to reduce VOC emissions from aerospace surface coating operations.

2. Organic and Inorganic HAP Emission Sources

Organic HAP emissions from cleaning and depainting operations occur from the evaporation of the volatile portion of the cleaning solvents or chemical strippers. Cleaning emissions are typically fugitive in nature and occur at most processing steps. Emissions from depainting operations that occur within

a booth or hangar are typically captured and exhausted through a stack, although some emissions may be fugitive in nature (*e.g.*, open tanks).

Organic HAP emissions from coating (primers, topcoats and chemical milling maskants) application operations occur from the evaporation of the solvent contained in the coatings. These emissions occur during the application of the coatings on aerospace vehicles or parts, which may take place in large open areas, such as hangars or in partially or fully enclosed spaces, such as within spray booths.

Organic HAP emissions from waste occur from evaporation of the volatile portion of the waste while it is being handled or stored. These emissions are fugitive in nature, occurring from each waste container.

Some coatings contain compounds that are inorganic HAP. Inorganic HAP emissions from coatings occur during the application of the coating if it is applied using spray guns. These inorganic HAP emissions are paint particulates, commonly referred to as "overspray," that do not adhere to the surface being coated. Like the organic HAP emissions from the operations, the emissions of the inorganic HAP may occur in large open areas, such as hangars or in partially or fully enclosed spaces, such as within spray booths. However, coatings that contain inorganic HAP are typically applied in spray booths equipped with exhaust filters to capture paint overspray. Inorganic HAP are not emitted from coatings applied with non-spray methods, such as brushes, rollers or dip coating, because the coating is not atomized with these methods.

Inorganic HAP emissions from depainting operations may occur from non-chemical methods, such as plastic and other types of dry media blasting, used to strip an aerospace vehicle. (Chemical stripping techniques do not release inorganic HAP.) These emissions occur as particulates generated during the blasting process. The operation is typically carried out within a large hangar equipped with a ventilation system and particulate filtration device (*e.g.*, a baghouse) or in smaller enclosures, also equipped with filtration. The inorganic HAP that are released from the depainting operations are primarily found in the paint being stripped, although some stripping media may contain trace amounts of inorganic HAP.

² Guideline Series: Control of Volatile Organic Compound Emissions from Coating Operations at Aerospace Manufacturing and Rework Operations. Emission Standards Division, U. S. Environmental Protection Agency, Office of Air and Radiation, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711, December 1997. Publication No. EPA-453/R-97-004.

3. Regulation of Organic and Inorganic HAP Emissions in the Aerospace NESHAP

The Aerospace NESHAP specifies numerical emission limits for organic HAP emissions from primer, topcoat, chemical milling maskant application operations and chemical depainting operations; equipment and filter efficiency requirements for dry media blasting depainting operations and spray applied coating operations; composition requirements and equipment standards for cleaning operations; and work practice standards for waste handling and storage operations.

The organic HAP emission rate for primers is 540 grams/liter (g/L) (4.5 pounds/gallon (lb/gal)) (less water) for general aviation rework facilities; 650 g/L (5.4 lb/gal) (less water) for large commercial aircraft; or 350 g/L (2.9 lb/gal) for other primers (40 CFR 63.745(c)(1) and (2)). For topcoats and self-priming topcoats the emission rate is 420 g/L (3.5 lb/gal) (less water); and 540 g/L (4.5 lb/gal) (less water) for primers and self-priming topcoats at general aviation rework facilities (40 CFR 63.745(c)(3) and (4)). Alternatively, a control system can be used to capture and control emissions from the primer or topcoat application operation (40 CFR 63.745(d)). The system must achieve an overall control efficiency of 81 percent. Further, the Aerospace NESHAP specifies which types of coating application techniques may be used (40 CFR 63.745(f)). The Aerospace NESHAP also provides operating requirements for the application of primers or topcoats that contain inorganic HAP, including control of spray booth exhaust streams with either particulate filters or waterwash systems (40 CFR 63.745(g)). The primer and topcoat limits and control requirements do not apply to specialty coatings defined in Appendix A to subpart GG.

The organic HAP emission content limits for chemical milling maskants for use with Type I chemical milling solutions is 622 g/L (5.2 lb/gal) (less water) and 160 g/L (1.3 lb/gal) (less water) for use with Type II chemical milling solutions (40 CFR 63.747(c)). Alternatively, a control system that achieves an overall control efficiency of 81 percent can be used to capture and control emissions from the maskant application operation (40 CFR 63.747(d)). These requirements do not apply to touch-up of scratched surfaces or damaged maskant and touch-up of trimmed edges.

For cleaning operations (including hand-wipe cleaning), the Aerospace

NESHAP specifies that cleaning solvents meet certain composition requirements or that the cleaning solvents have a composite vapor pressure of no more than 45 millimeters mercury (mm Hg) (24.1 in. water) (40 CFR 63.744(b)). Work practice measures are also required (40 CFR 63.744(a)). Four work practice alternative techniques are specified for spray gun cleaning, and work practice standards are specified for flush cleaning operations (40 CFR 63.744(c) and (d)).

The Aerospace NESHAP also specifies requirements for depainting operations. Where there are no controls for organic HAP emissions from chemical depainting operations, the rule prohibits organic HAP emissions from chemical depainting operations, with the exception that 26 gallons of HAP-containing chemical stripper (or alternatively 190 pounds of organic HAP) may be used for each commercial aircraft stripped, or 50 gallons (or 365 pounds of organic HAP) for each military aircraft for spot stripping and decal removal (40 CFR 63.746(b)(1) through (3)). Where there are controls for organic HAP emissions from chemical depainting, emissions must be reduced by 81 percent for controls installed before the effective date, and by 95 percent for controls installed on or after the effective date (40 CFR 63.746(c)). For non-chemical depainting operations that generate inorganic HAP emissions from dry media blasting, the operation must be performed in an enclosed area or in a closed cycle depainting system and the air stream from the operation must pass through a dry filter system meeting a minimum efficiency specified in the rule, through a baghouse or through a waterwash system before being released to the atmosphere (40 CFR 63.746(b)(4)).

The handling and storage of waste that contains HAP must be conducted in a manner that minimizes spills (40 CFR 63.748).

C. What data collection activities were conducted to support this action?

In February 2011, the EPA issued an information collection request (ICR), pursuant to CAA section 114, to approximately 1,300 facilities that were thought to potentially own and operate Aerospace Manufacturing and Rework Facilities. Information was requested on operations subject to the Aerospace NESHAP (coatings, blast depainting operations, solvent depainting operations and solvent cleaning operations) as well as specialty coatings, chemical milling and metal finishing operations, composite processing, storage tanks and wastewater treatment.

Information was also requested on booth characteristics and control devices and location coordinates (latitude and longitude) of emission stacks and operations. The ICR requested available information regarding coating and solvent usage, process equipment, control devices used, point and fugitive HAP emissions, practices used to control HAP emissions and other aspects of facility operations. A total of 87 major source facilities and 57 synthetic minor facilities responded to the survey and were included in the risk modeling analysis. The remaining facilities were either area source facilities, not aerospace manufacturing or rework facilities or closed facilities, or the ICR was returned undeliverable. We received data on coating and solvent usage, chemical milling, metal finishing, depainting operations, composite processing operations, storage tanks, wastewater treatment operations and use of add-on control devices. From these data, we were able to calculate HAP emissions for each of the major source and synthetic minor facilities that responded to the survey.

In October 2012, the EPA issued a request for stack test data under the authority of section 114 of the CAA. This request was sent to 9 parent companies for 18 facilities, requesting stack emissions testing data for selected coating operations and spray booths and blast depainting, composite processing and metal finishing operations believed to represent the various processes and capture and control configurations used by the industry. All facilities either responded to the survey or provided information indicating the operations for which we requested stack testing had been shutdown.

In September 2013, the EPA issued an additional request to the same companies requesting supplemental testing to confirm the content of the coatings used in the October 2012 stack testing. These data were used to speciate emissions for individual coatings and to develop the default chromium speciation profile for processes included in the 2011 ICR.

In May 2014, the EPA solicited industry review of the EPA's draft modeling file records (e.g., estimated emissions and emission estimation methods) that were developed based on the results of the data collection efforts described above and the 2011 National Emission Inventory (NEI) and 2005 National Air Toxics Assessment (NATA) discussed in section II.D of this preamble. Of the 171 facilities contacted, 84 facilities responded. Of the 171 facilities contacted, the EPA determined that 144 are in operation

and subject to the NESHAP and 27 facilities are closed or not subject to the Aerospace NESHAP (e.g., are area sources). The 144 facilities that were determined to be in operation and subject to the NESHAP are included in the model input file for the risk assessment.

D. What other relevant background information and data are available?

The 2011 NEI provided supplemental information for this RTR. The NEI is a database that contains information about sources that emit criteria air pollutants, their precursors and HAP. The database includes estimates of annual air pollutant emissions from point, nonpoint and mobile sources in the 50 states, the District of Columbia, Puerto Rico and the Virgin Islands. The EPA collects this information and releases an updated version of the NEI database every 3 years. The NEI includes information necessary for conducting risk modeling, including annual HAP emissions estimates from individual emission points at facilities and the related emissions release parameters. For each emission record that was needed for the model input file for the risk assessment (hereafter referred to as the “RTR emissions dataset”) that was not available from the 2011 ICR responses, the EPA used available data in the 2011 NEI as the first alternative. The NEI emission records used included annual HAP emissions estimates for boilers, engines, chemical manufacturing processes, secondary metal production processes, heaters, soil remediation, transportation equipment, waste disposal, welding and other miscellaneous manufacturing processes that were not included in the 2011 ICR. Individual chromium emissions estimates were excluded from the modeling file if they were found to overlap with a regulated process.

The 2005 NATA also provided supplemental data for the RTR emissions dataset for this RTR. The 2005 NATA includes annual HAP emissions estimates for three Aerospace Manufacturing and Rework Facilities that are not in the 2011 NEI. These data were incorporated into the RTR emissions dataset, and include emission data for space heaters, boilers and underground fuel tanks at the facilities. Although the 2005 NATA data is outdated, we thought it important to ensure we had accounted for all the major sources in the source category and given that we did not have data on three of the facilities, EPA augmented our RTR emissions dataset with this data for three of the 144 facilities. We expect to have updated NATA soon and will

consider the impact on the three sources, as appropriate. NATA is the EPA’s ongoing evaluation of air toxics in the United States. The EPA developed NATA as a screening tool for state/local/tribal agencies to prioritize pollutants, emission sources and locations of interest for further study in order to gain a better understanding of population risks. NATA assessments do not incorporate refined information about emission sources, but rather use general information about sources to develop estimates of risks which are more likely to overestimate impacts than underestimate them. NATA provides estimates of the risk of cancer and other serious health effects from breathing (inhaling) air toxics in order to inform both national and more localized efforts to identify and prioritize air toxics, emission source types and locations which are of greatest potential concern in terms of contributing to population risk.

E. What litigation is related to this proposed action?

In 2007, the United States Court of Appeals for the District of Columbia Circuit found that the EPA had erred in establishing emissions standards for sources of HAP in the NESHAP for Brick and Structural Clay Products Manufacturing and Clay Ceramics Manufacturing, 67 FR 26690 (May 16, 2003), and consequently vacated the rules.³ Among other things, the court found EPA erred by failing to regulate processes that emitted HAP, in some instances by establishing a MACT floor of “no control.” In this action we are proposing to correct the same error in the Aerospace NESHAP by proposing to remove the exemption for specialty coatings found at 40 CFR 63.741(f) and instead add limits for specialty coatings (including adhesives, adhesive bonding primers and sealants).

In a separate case, the court vacated portions of two provisions in the EPA’s CAA section 112 regulations that govern emissions of HAP during periods of SSM.⁴ Specifically, the court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1), holding that under section 302(k) of the CAA, emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA’s requirement that some section 112 standards apply continuously. In this action, we are also proposing to revise these provisions for Aerospace

Manufacturing and Rework Facilities operations, as discussed in section IV.E.2 of this preamble.

III. Analytical Procedures

In this section, we describe the analyses performed to support the proposed decisions for the RTR and other issues addressed in this proposal.

A. How did we estimate post-MACT risks posed by the source category?

The EPA conducted a risk assessment that provides estimates of the MIR posed by the HAP emissions from each source in the source category, the hazard index (HI) for chronic exposures to HAP with the potential to cause non-cancer health effects and the hazard quotient (HQ) for acute exposures to HAP with the potential to cause non-cancer health effects. The assessment also provides estimates of the distribution of cancer risks within the exposed populations, cancer incidence and an evaluation of the potential for adverse environmental effects. The seven sections that follow this paragraph describe how we estimated emissions and conducted the risk assessment. The docket for this rulemaking contains the following information on the risk assessment inputs and models: *Residual Risk Assessment for the Aerospace Manufacturing and Rework Facilities Source Category in Support of the January, 2015 Risk and Technology Review Proposal, January 2015*. The methods used to assess risks (as described in the primary steps below) are consistent with those peer-reviewed by a panel of the EPA’s Science Advisory Board (SAB) in 2009 and described in their peer review report issued in 2010;⁵ they are also consistent with the key recommendations contained in that report.

1. How did we estimate actual emissions and identify the emissions release characteristics?

Data for 144 Aerospace Manufacturing and Rework Facilities were used to create the RTR emissions dataset, as described in section II.C of this preamble. The emissions sources included in the RTR emissions dataset includes the following types of sources currently regulated by the Aerospace NESHAP: Primer/topcoat application operations, waste handling operations, chemical milling maskant application

³ *Sierra Club v. EPA*, 479 F. 3d 875 (D.C. Cir. March 13, 2007).

⁴ *Sierra Club v. EPA*, 551 F. 3d 1019 (D.C. Cir. 2008), cert. denied, 130 S. Ct 1735 (2010).

⁵ U.S. EPA SAB. *Risk and Technology Review (RTR) Risk Assessment Methodologies: For Review by the EPA’s Science Advisory Board with Case Studies—MACT I Petroleum Refining Sources and Portland Cement Manufacturing*, May 2010.

operations, cleaning operations and chemical and blast depainting operations. The RTR emissions dataset also includes the following types of sources not currently regulated by the Aerospace NESHAP: Specialty coatings, composite processing, chemical milling and metal finishing, wastewater, storage tanks, boilers, engines, chemical manufacturing processes, secondary metal production processes, heaters, soil remediation, transportation equipment, waste disposal, welding and other miscellaneous manufacturing processes. These emission sources include both fugitive emissions and stack emissions. This RTR emissions dataset is based primarily on data gathered through the CAA section 114 questionnaire, as described in section II.C of this preamble. This dataset was supplemented with data received from the 2012 ICR for stack testing data and the 2013 request for information on coatings analyses (as described in section II.C of this preamble), the 2011 NEI (as described in section II.D of this preamble) and the 2005 NATA (as described in section II.D of this preamble). The sources noted above provided all of the emissions data in the RTR emissions dataset and nearly all of the facility specific data needed to conduct the risk modeling analysis. However, there were limited instances where default values were used to fill gaps in the facility-specific data used in the risk modeling analysis. Examples of default values used to fill these data gaps were default values used for stack height and other release point parameters, and percentages used to segregate mercury and chromium compounds into separate species. Use of defaults is discussed in detail in the memorandum, *Aerospace Manufacturing and Rework Facilities RTR Modeling File Preparation*, December 2014, available in the docket for this action (Modeling File Preparation Memo).

The RTR emissions dataset was refined following an extensive quality assurance check of source locations, emission release characteristics and annual emission estimates. We checked the coordinates of each emission source in the dataset using ArcGIS to ensure the emission point locations were correct. Also, as discussed in section II.C of this preamble, in May 2014, the EPA solicited industry review of the dataset and made corrections, as needed. For further information on the EPA's quality assurance review, see the Modeling File Preparation Memo available in the docket for this action.

A list of the 144 facilities and additional information used to develop

the RTR emissions dataset is available in the Aerospace RTR database, and documentation on the development of this database is provided in the Modeling File Preparation Memo, both of which are available in the docket for this action.

2. How did we estimate MACT-allowable emissions?

The available emissions data in the RTR emissions dataset include estimates of the actual mass of HAP emitted during the specified annual time period. In some cases, these "actual" emission levels are lower than the emission levels required to comply with the MACT standards. The emissions level allowed to be emitted by the MACT standards is referred to as the "MACT-allowable" emissions level. We discussed the use of both MACT-allowable and actual emissions in the final Coke Oven Batteries residual risk rule (70 FR 19998–19999, April 15, 2005) and in the proposed and final Hazardous Organic NESHAP residual risk rules (71 FR 34428, June 14, 2006 and 71 FR 76609, December 21, 2006, respectively). In those previous actions, we noted that assessing the risks at the MACT-allowable level is inherently reasonable since these risks reflect the maximum level facilities could emit and still comply with national emission standards. We also explained that it is reasonable to consider actual emissions, where such data are available, in both steps of the risk analysis, in accordance with the Benzene NESHAP approach. (54 FR 38044, September 14, 1989.)

We used the RTR emissions dataset discussed in section III.A.1 of this preamble to estimate MACT-allowable emissions levels. Facilities were asked to provide a multiplier in the 2011 ICR survey to scale up average hourly emissions to maximum hourly emissions for air dispersion modeling, given that each facility typically has a large number of emission points and it would be difficult to determine the maximum hourly emissions from each emission point. Many of the facilities reported multipliers that were based on, for example, scaling production from 2,000 hours to 8,760 hours per year or from one shift per day to three shifts. However, using these values would have led to unrealistically high "allowable" emission values because of limitations in the market for new aerospace vehicles and for rework services, and because many facilities have permit restrictions on their total annual emissions. Therefore, the EPA did not use maximum hourly emissions and instead chose to use a multiplier based on current and historical industry

capacity utilization factors. The EPA chose to use a single multiplier of 1.02 to scale average annual emissions to allowable annual emissions. The allowable emissions multiplier is based on the difference between 2008 production utilization rate of 83.1 percent and the 20-year historical maximum production utilization rate from 1990 of 85.0 percent ($85 \div 83.1 = 1.02$). The docket for this rulemaking contains information on the development of estimated MACT-allowable emissions in the Modeling File Preparation Memo.

3. How did we conduct dispersion modeling, determine inhalation exposures and estimate individual and population inhalation risks?

Both long-term and short-term inhalation exposure concentrations and health risks from the source category addressed in this proposal were estimated using the Human Exposure Model (Community and Sector HEM–3 version 1.1.0). The HEM–3 performs three primary risk assessment activities: (1) Conducting dispersion modeling to estimate the concentrations of HAP in ambient air, (2) estimating long-term and short-term inhalation exposures to individuals residing within 50 kilometers (km) of the modeled sources⁶ and (3) estimating individual and population-level inhalation risks using the exposure estimates and quantitative dose-response information.

The air dispersion model used in the analysis, the AERMOD model, is one of the EPA's preferred models for assessing pollutant concentrations from industrial facilities.⁷ To perform the dispersion modeling and to develop the preliminary risk estimates, HEM–3 draws on three data libraries. The first is a library of meteorological data, which is used for dispersion calculations. This library includes 1 year (2011) of hourly surface and upper air observations for more than 800 meteorological stations, selected to provide coverage of the United States and Puerto Rico. A second library of United States Census Bureau census block⁸ internal point locations and populations provides the basis of human exposure calculations (U.S. Census, 2010). In addition, for each census block, the census library

⁶ This metric comes from the Benzene NESHAP. See 54 FR 38046.

⁷ U.S. EPA. *Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions* (70 FR 68218, November 9, 2005).

⁸ A census block is the smallest geographic area for which census statistics are tabulated.

includes the elevation and controlling hill height, which are also used in dispersion calculations. A third library of pollutant unit risk factors and other health benchmarks is used to estimate health risks. These risk factors and health benchmarks are the latest values recommended by the EPA for HAP and other toxic air pollutants. These values are available at: <http://www.epa.gov/ttn/atw/toxsource/summary.html> and are discussed in more detail later in this section.

In developing the risk assessment for chronic exposures, we used the estimated annual average ambient air concentrations of each HAP emitted by each source for which we have emissions data in the source category. The air concentrations at each nearby census block centroid were used as a surrogate for the chronic inhalation exposure concentration for all the people who reside in that census block. We calculated the MIR for each facility as the cancer risk associated with a continuous lifetime (24 hours per day, 7 days per week and 52 weeks per year for a 70-year period) exposure to the maximum concentration at the centroid of inhabited census blocks. Individual cancer risks were calculated by multiplying the estimated lifetime exposure to the ambient concentration of each of the HAP (in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)) by its unit risk estimate (URE). The URE is an upper bound estimate of an individual's probability of contracting cancer over a lifetime of exposure to a concentration of 1 microgram of the pollutant per cubic meter of air. For residual risk assessments, we generally use URE values from the EPA's Integrated Risk Information System (IRIS). For carcinogenic pollutants without IRIS values, we look to other reputable sources of cancer dose-response values, often using California EPA (CalEPA) URE values, where available. In cases where new, scientifically credible dose response values have been developed in a manner consistent with the EPA guidelines and have undergone a peer review process similar to that used by the EPA, we may use such dose-response values in place of, or in addition to, other values, if appropriate.

The EPA estimated incremental individual lifetime cancer risks associated with emissions from the facilities in the source category as the sum of the risks for each of the carcinogenic HAP (including those classified as carcinogenic to humans, likely to be carcinogenic to humans and suggestive evidence of carcinogenic

potential⁹) emitted by the modeled sources. Cancer incidence and the distribution of individual cancer risks for the population within 50 km of the sources were also estimated for the source category as part of this assessment by summing individual risks. A distance of 50 km is consistent with both the analysis supporting the 1989 Benzene NESHAP (54 FR 38044, September 14, 1989) and the limitations of Gaussian dispersion models, including AERMOD.

To assess the risk of non-cancer health effects from chronic exposures, we summed the HQ for each of the HAP that affects a common target organ system to obtain the HI for that target organ system (or target organ-specific HI, TOSHI). The HQ is the estimated exposure divided by the chronic reference value, which is a value selected from one of several sources. First, the chronic reference level can be the EPA reference concentration (RfC) (<http://www.epa.gov/riskassessment/glossary.htm>), defined as "an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime." Alternatively, in cases where an RfC from the EPA's IRIS database is not available or where the EPA determines that using a value other than the RfC is appropriate, the chronic reference level can be a value from the following prioritized sources: (1) The Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Level (<http://www.atsdr.cdc.gov/mrls/index.asp>), which is defined as "an estimate of daily human exposure to a hazardous substance that is likely to be without an appreciable risk of adverse non-cancer health effects (other than cancer) over a specified duration of exposure"; (2) the CalEPA Chronic Reference Exposure Level (REL) (http://www.oehha.ca.gov/air/hot_spots/pdf/HRAGuidefinal.pdf), which is defined as "the concentration level (that is expressed in units of micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)) for inhalation

⁹ These classifications also coincide with the terms "known carcinogen, probable carcinogen, and possible carcinogen," respectively, which are the terms advocated in the EPA's previous *Guidelines for Carcinogen Risk Assessment*, published in 1986 (51 FR 33992, September 24, 1986). Summing the risks of these individual compounds to obtain the cumulative cancer risks is an approach that was recommended by the EPA's SAB in their 2002 peer review of EPA's NATA entitled, *NATA—Evaluating the National-scale Air Toxics Assessment 1996 Data—an SAB Advisory*, available at: [http://yosemite.epa.gov/sab/sabproduct.nsf/214C6E915BB04E14852570CA007A682C/\\$File/ecadv02001.pdf](http://yosemite.epa.gov/sab/sabproduct.nsf/214C6E915BB04E14852570CA007A682C/$File/ecadv02001.pdf).

exposure and in a dose expressed in units of milligram per kilogram-day for oral exposures), at or below which no adverse health effects are anticipated for a specified exposure duration"; or (3), as noted above, a scientifically credible dose-response value that has been developed in a manner consistent with the EPA guidelines and has undergone a peer review process similar to that used by the EPA, in place of or in concert with other values.

As mentioned above, in order to characterize non-cancer chronic effects, and in response to key recommendations from the SAB, the EPA selects dose-response values that reflect the best available science for all HAP included in RTR risk assessments.¹⁰ More specifically, for a given HAP, the EPA examines the availability of inhalation reference values from the sources included in our tiered approach (e.g., IRIS first, ATSDR second, CalEPA third) and determines which inhalation reference value represents the best available science. Thus, as new inhalation reference values become available, the EPA will typically evaluate them and determine whether they should be given preference over those currently being used in RTR risk assessments.

The EPA also evaluated screening estimates of acute exposures and risks for each of the HAP at the point of highest potential off-site exposure for each facility. To do this, the EPA estimated the risks when both the peak hourly emissions rate and worst-case dispersion conditions occur. We also assume that a person is located at the point of highest impact during that same time. In accordance with our mandate in section 112 of the CAA, we use the point of highest off-site exposure to assess the potential risk to the maximally exposed individual. The acute HQ is the estimated acute exposure divided by the acute dose-response value. In each case, the EPA calculated acute HQ values using best available, short-term dose-response values. These acute dose-response values, which are described below, include the acute REL, acute exposure guideline levels (AEGL) and emergency response planning guidelines (ERPG) for 1-hour exposure durations. As discussed below, we used conservative assumptions for emissions rates, meteorology and exposure location for our acute analysis.

¹⁰ The SAB peer review of RTR Risk Assessment Methodologies is available at: [http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/\\$File/EPA-SAB-10-007-unsigned.pdf](http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf).

As described in the *CalEPA's Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I, The Determination of Acute Reference Exposure Levels for Airborne Toxicants*, an acute REL value (<http://www.oehha.ca.gov/air/pdf/acutereel.pdf>) is defined as “the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration.” *Id.* at page 2. Acute REL values are based on the most sensitive, relevant, adverse health effect reported in the peer-reviewed medical and toxicological literature. Acute REL values are designed to protect the most sensitive individuals in the population through the inclusion of margins of safety. Because margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact.

AEGL values were derived in response to recommendations from the National Research Council (NRC). As described in *Standing Operating Procedures (SOP) of the National Advisory Committee on Acute Exposure Guideline Levels for Hazardous Substances* (<http://www.epa.gov/oppt/aegl/pubs/sop.pdf>),¹¹ “the NRC’s previous name for acute exposure levels—community emergency exposure levels—was replaced by the term AEGL to reflect the broad application of these values to planning, response and prevention in the community, the workplace, transportation, the military and the remediation of Superfund sites.” *Id.* at 2. This document also states that AEGL values “represent threshold exposure limits for the general public and are applicable to emergency exposures ranging from 10 minutes to eight hours.” *Id.* at 2.

The document lays out the purpose and objectives of AEGL by stating that “the primary purpose of the AEGL program and the National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances is to develop guideline levels for once-in-a-lifetime, short-term exposures to airborne concentrations of acutely toxic, high-priority chemicals.” *Id.* at 21. In detailing the intended application of AEGL values, the document states that “[i]t is anticipated that the AEGL values will be used for regulatory and nonregulatory purposes by U.S. federal and state agencies and possibly the international community in conjunction with chemical emergency

response, planning and prevention programs. More specifically, the AEGL values will be used for conducting various risk assessments to aid in the development of emergency preparedness and prevention plans, as well as real-time emergency response actions, for accidental chemical releases at fixed facilities and from transport carriers.” *Id.* at 31.

The AEGL-1 value is then specifically defined as “the airborne concentration (expressed as ppm (parts per million) or mg/m³ (milligrams per cubic meter)) of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.” *Id.* at 3. The document also notes that, “Airborne concentrations below AEGL-1 represent exposure levels that can produce mild and progressively increasing but transient and non disabling odor, taste, and sensory irritation or certain asymptomatic, nonsensory effects.” *Id.* Similarly, the document defines AEGL-2 values as “the airborne concentration (expressed as parts per million or milligrams per cubic meter) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.” *Id.*

ERPG values are derived for use in emergency response, as described in the American Industrial Hygiene Association’s Emergency Response Planning Committee document titled, *ERPGS Procedures and Responsibilities* (<http://sp4m.aiha.org/insideaiha/GuidelineDevelopment/ERP/ Documents/ERP-SOPs2006.pdf>), which states that, “Emergency Response Planning Guidelines were developed for emergency planning and are intended as health based guideline concentrations for single exposures to chemicals.”¹² *Id.* at 1. The ERPG-1 value is defined as “the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient adverse health effects or without perceiving a clearly defined, objectionable odor.” *Id.* at 2. Similarly, the ERPG-2 value is defined as “the maximum airborne concentration below which it is

believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual’s ability to take protective action.” *Id.* at 1.

As can be seen from the definitions above, the AEGL and ERPG values include the similarly defined severity levels 1 and 2. For many chemicals, a severity level 1 value AEGL or ERPG has not been developed because the types of effects for these chemicals are not consistent with the AEGL-1/ERPG-1 definitions; in these instances, we compare higher severity level AEGL-2 or ERPG-2 values to our modeled exposure levels to screen for potential acute concerns. When AEGL-1/ERPG-1 values are available, they are used in our acute risk assessments.

Acute REL values for 1-hour exposure durations are typically lower than their corresponding AEGL-1 and ERPG-1 values. Even though their definitions are slightly different, AEGL-1 values are often the same as the corresponding ERPG-1 values, and AEGL-2 values are often equal to ERPG-2 values. Maximum HQ values from our acute screening risk assessments typically result when basing them on the acute REL value for a particular pollutant. In cases where our maximum acute HQ value exceeds 1, we also report the HQ value based on the next highest acute dose-response value (usually the AEGL-1 and/or the ERPG-1 value).

To develop screening estimates of acute exposures in the absence of hourly emissions data, generally we first develop estimates of maximum hourly emissions rates by multiplying the average actual annual hourly emissions rates by a default factor to cover routinely variable emissions. We choose the factor to use partially based on process knowledge and engineering judgment. The factor chosen also reflects a Texas study of short-term emissions variability, which showed that most peak emission events in a heavily-industrialized four-county area (Harris, Galveston, Chambers and Brazoria Counties, Texas) were less than twice the annual average hourly emissions rate. The highest peak emissions event was 74 times the annual average hourly emissions rate, and the 99th percentile ratio of peak hourly emissions rate to the annual average hourly emissions rate was 9.¹³ Considering this analysis, to account for more than 99 percent of the peak hourly

¹¹ National Academy of Sciences (NAS), 2001. *Standing Operating Procedures for Developing Acute Exposure Levels for Hazardous Chemicals*, page 2.

¹² *ERP Committee Procedures and Responsibilities*. November 1, 2006. American Industrial Hygiene Association.

¹³ See http://www.tceq.state.tx.us/compliance/field_ops/eer/index.html or the docket to access the source of these data.

emissions, we apply a conservative screening multiplication factor of 10 to the average annual hourly emissions rate in our acute exposure screening assessments as our default approach. However, we use a factor other than 10 if we have information that indicates that a different factor is appropriate for a particular source category.

For this source category, the default value was not utilized. A peak 1-hour emission multiplier of 1.2 times the annual emissions was utilized for the entire source category. This value was developed from current and historical industry capacity utilization factors. The emissions from this category are generally dependent on the amount of HAP in the coatings and the amount of coating applied, and would only vary in a significant manner if production increased. Therefore, the EPA based the acute emissions multiplier on potential changes in production. The acute emissions multiplier is based on the difference between 2008 production utilization rate of 83.1 percent and the maximum production utilization rate of 100 percent, which has not been realized in 20 years of historical data ($100 \div 83.1 = 1.2$). The docket for this rulemaking contains information on the development of estimated MACT-acute emissions in the Modeling File Preparation Memo. A further discussion of why this factor was chosen can be found in Appendix 1 of the Modeling File Preparation Memo, available in the docket for this rulemaking.

As part of our acute risk assessment process, for cases where acute HQ values from the screening step were less than or equal to 1 (even under the conservative assumptions of the screening analysis), acute impacts were deemed negligible and no further analysis was performed. In cases where an acute HQ from the screening step was greater than 1, additional site-specific data were considered to develop a more refined estimate of the potential for acute impacts of concern. For this source category, the data refinements employed consisted of evaluating the off-site extent of any exceedances of the acute health benchmarks. These refinements are discussed more fully in the Modeling File Preparation Memo, which is available in the docket for this source category. Ideally, we would prefer to have continuous measurements over time to see how the emissions vary by each hour over an entire year. Having a frequency distribution of hourly emissions rates over a year would allow us to perform a probabilistic analysis to estimate potential threshold exceedances and their frequency of

occurrence. Such an evaluation could include a more complete statistical treatment of the key parameters and elements adopted in this screening analysis. Recognizing that this level of data is rarely available, we instead rely on the multiplier approach.

To better characterize the potential health risks associated with estimated acute exposures to HAP, and in response to a key recommendation from the SAB's peer review of the EPA's RTR risk assessment methodologies,¹⁴ we generally examine a wider range of available acute health metrics (*e.g.*, RELs, AEGs) than we do for our chronic risk assessments. This is in response to the SAB's acknowledgement that there are generally more data gaps and inconsistencies in acute reference values than there are in chronic reference values. In some cases, when Reference Value Arrays¹⁵ for HAP have been developed, we consider additional acute values (*i.e.*, occupational and international values) to provide a more complete risk characterization.

4. How did we conduct the multipathway exposure and risk screening?

The EPA conducted a screening analysis examining the potential for significant human health risks due to exposures via routes other than inhalation (*i.e.*, ingestion). We first determined whether any sources in the Aerospace Manufacturing and Rework Facilities source category emitted any HAP known to be persistent and bioaccumulative in the environment (PB-HAP). The PB-HAP compounds or compound classes are identified for the screening from the EPA's Air Toxics Risk Assessment Library (available at <http://www2.epa.gov/fera/risk-assessment-and-modeling-air-toxics-risk-assessment-reference-library>).

For the Aerospace Manufacturing and Rework Facilities source category, we identified emissions of cadmium, dioxins/furans, POM, mercury (both inorganic mercury and methyl mercury) and lead compounds. Because one or more of these PB-HAP are emitted by at least one facility in the Aerospace Manufacturing and Rework Facilities

source category, we proceeded to the next step of the evaluation. In this step, we determined whether the facility-specific emissions rates of the emitted PB-HAP were large enough to create the potential for significant non-inhalation human health risks under reasonable worst-case conditions. To facilitate this step, we developed emissions rate screening levels for several PB-HAP using a hypothetical upper-end screening exposure scenario developed for use in conjunction with the EPA's Total Risk Integrated Methodology.Fate, Transport, and Ecological Exposure (TRIM.FaTE) model. The PB-HAP with emissions rate screening levels are: Lead, cadmium, chlorinated dibenzodioxins and furans, mercury compounds and POM. We conducted a sensitivity analysis on the screening scenario to ensure that its key design parameters would represent the upper end of the range of possible values, such that it would represent a conservative, but not impossible scenario. The facility-specific emissions rates of these PB-HAP were compared to the emission rate screening levels for these PB-HAP to assess the potential for significant human health risks via non-inhalation pathways. We call this application of the TRIM.FaTE model the Tier 1 TRIM-screen or Tier 1 screen.

For the purpose of developing emissions rates for our Tier 1 TRIM-screen, we derived emission levels for these PB-HAP (other than lead compounds) at which the maximum excess lifetime cancer risk would be 1-in-1 million (*i.e.*, for polychlorinated dibenzodioxins and furans and POM) or, for HAP that cause non-cancer health effects (*i.e.*, cadmium compounds and mercury compounds), the maximum HQ would be 1. If the emissions rate of any PB-HAP included in the Tier 1 screen exceeds the Tier 1 screening emissions rate for any facility, we conduct a second screen, which we call the Tier 2 TRIM-screen or Tier 2 screen.

In the Tier 2 screen, the location of each facility that exceeded the Tier 1 emission rate is used to refine the assumptions associated with the environmental scenario while maintaining the exposure scenario assumptions. A key assumption that is part of the Tier 1 screen is that a lake is located near the facility; we confirm the existence of lakes near the facility as part of the Tier 2 screen. We then adjust the risk-based Tier 1 screening level for each PB-HAP for each facility based on an understanding of how exposure concentrations estimated for the screening scenario change with meteorology and environmental assumptions. PB-HAP emissions that do

¹⁴ The SAB peer review of RTR Risk Assessment Methodologies is available at: [http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/\\$File/EPA-SAB-10-007-unsigned.pdf](http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf).

¹⁵ U.S. EPA. (2009) Chapter 2.9, Chemical Specific Reference Values for Formaldehyde, in *Graphical Arrays of Chemical-Specific Health Effect Reference Values for Inhalation Exposures* (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-09/061, and available online at <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=211003>.

not exceed these new Tier 2 screening levels are considered to pose no unacceptable risks. If the PB-HAP emissions for a facility exceed the Tier 2 screening emissions rate and data are available, we may decide to conduct a more refined Tier 3 multipathway assessment. There are several analyses that can be included in a Tier 3 screen depending upon the extent of refinement warranted, including validating that the lake is fishable and considering plume-rise to estimate emissions lost above the mixing layer. If the Tier 3 screen is exceeded, the EPA may further refine the assessment.

In evaluating the potential multipathway risk from emissions of lead compounds, rather than developing a screening emissions rate for them, we compared maximum estimated chronic inhalation exposures with the level of the current National Ambient Air Quality Standard (NAAQS) for lead.¹⁶ Values below the level of the primary (health-based) lead NAAQS were considered to have a low potential for multipathway risk.

For further information on the multipathway analysis approach, see the *Residual Risk Assessment for the Aerospace Manufacturing and Rework Facilities Source Category in Support of the January, 2015 Risk and Technology Review Proposal*, January 2015, which is available in the docket for this action.

5. How did we conduct the environmental risk screening assessment?

a. Adverse Environmental Effect

The EPA conducts a screening assessment to examine the potential for adverse environmental effects as required under section 112(f)(2)(A) of the CAA. Section 112(a)(7) of the CAA defines “adverse environmental effect” as “any significant and widespread adverse effect, which may reasonably be anticipated, to wildlife, aquatic life or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of

¹⁶In doing so, EPA notes that the legal standard for a primary NAAQS—that a standard is requisite to protect public health and provide an adequate margin of safety (CAA section 109(b))—differs from the CAA section 112(f) standard (requiring among other things that the standard provide an “ample margin of safety”). However, the lead NAAQS is a reasonable measure of determining risk acceptability (*i.e.*, the first step of the Benzene NESHAP analysis) since it is designed to protect the most susceptible group in the human population—children, including children living near major lead emitting sources (73 FR 67002/3; 73 FR 67000/3; 73 FR 67005/1). In addition, applying the level of the primary lead NAAQS at the risk acceptability step is conservative, since that primary lead NAAQS reflects an adequate margin of safety.

environmental quality over broad areas.”

b. Environmental HAP

The EPA focuses on seven HAP, which we refer to as “environmental HAP,” in its screening analysis: Five PB-HAP and two acid gases. The five PB-HAP are cadmium, dioxins/furans, POM, mercury (both inorganic mercury and methyl mercury) and lead compounds. The two acid gases are hydrogen chloride (HCl) and hydrogen fluoride (HF). The rationale for including these seven HAP in the environmental risk screening analysis is presented below.

HAP that persist and bioaccumulate are of particular environmental concern because they accumulate in the soil, sediment and water. The PB-HAP are taken up, through sediment, soil, water and/or ingestion of other organisms, by plants or animals (*e.g.*, small fish) at the bottom of the food chain. As larger and larger predators consume these organisms, concentrations of the PB-HAP in the animal tissues increases as does the potential for adverse effects. The five PB-HAP we evaluate as part of our screening analysis account for 99.8 percent of all PB-HAP emissions nationally from stationary sources (on a mass basis from the 2005 NEI).

In addition to accounting for almost all of the mass of PB-HAP emitted, we note that the TRIM.FaTE model that we use to evaluate multipathway risk allows us to estimate concentrations of cadmium compounds, dioxins/furans, POM and mercury in soil, sediment and water. For lead compounds, we currently do not have the ability to calculate these concentrations using the TRIM.FaTE model. Therefore, to evaluate the potential for adverse environmental effects from lead compounds, we compare the estimated HEM-modeled exposures from the source category emissions of lead with the level of the secondary NAAQS for lead.¹⁷ We consider values below the level of the secondary NAAQS for lead to be unlikely to cause adverse environmental effects.

Due to their well-documented potential to cause direct damage to terrestrial plants, we include two acid gases, HCl and HF, in the environmental screening analysis. According to the

¹⁷The secondary NAAQS for lead is a reasonable measure of determining whether there is an adverse environmental effect since it was established considering “effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.”

2005 NEI, HCl and HF account for about 99 percent (on a mass basis) of the total acid gas HAP emitted by stationary sources in the U.S. In addition to the potential to cause direct damage to plants, high concentrations of HF in the air have been linked to fluorosis in livestock. Air concentrations of these HAP are already calculated as part of the human multipathway exposure and risk screening analysis using the HEM3-AERMOD air dispersion model, and we are able to use the air dispersion modeling results to estimate the potential for an adverse environmental effect.

The EPA acknowledges that other HAP beyond the seven HAP discussed above may have the potential to cause adverse environmental effects. Therefore, the EPA may include other relevant HAP in its environmental risk screening in the future, as modeling science and resources allow. The EPA invites comment on the extent to which other HAP emitted by the source category may cause adverse environmental effects. Such information should include references to peer-reviewed ecological effects benchmarks that are of sufficient quality for making regulatory decisions, as well as information on the presence of organisms located near facilities within the source category that such benchmarks indicate could be adversely affected.

c. Ecological Assessment Endpoints and Benchmarks for PB-HAP

An important consideration in the development of the EPA’s screening methodology is the selection of ecological assessment endpoints and benchmarks. Ecological assessment endpoints are defined by the ecological entity (*e.g.*, aquatic communities including fish and plankton) and its attributes (*e.g.*, frequency of mortality). Ecological assessment endpoints can be established for organisms, populations, communities or assemblages and ecosystems.

For PB-HAP (other than lead compounds), we evaluated the following community-level ecological assessment endpoints to screen for organisms directly exposed to HAP in soils, sediment and water:

- Local terrestrial communities (*i.e.*, soil invertebrates, plants) and populations of small birds and mammals that consume soil invertebrates exposed to PB-HAP in the surface soil.
- Local benthic (*i.e.*, bottom sediment dwelling insects, amphipods, isopods and crayfish) communities exposed to

PB-HAP in sediment in nearby water bodies.

- Local aquatic (water-column) communities (including fish and plankton) exposed to PB-HAP in nearby surface waters.

For PB-HAP (other than lead compounds), we also evaluated the population-level ecological assessment endpoint to screen for indirect HAP exposures of top consumers via the bioaccumulation of HAP in food chains. The endpoint evaluated was piscivorous (*i.e.*, fish-eating) wildlife consuming PB-HAP-contaminated fish from nearby water bodies.

For cadmium compounds, dioxins/furans, POM and mercury, we identified the available ecological benchmarks for each assessment endpoint. An ecological benchmark represents a concentration of HAP (*e.g.*, 0.77 µg of HAP per liter of water) that has been linked to a particular environmental effect level (*e.g.*, a no-observed-adverse-effect level (NOAEL)) through scientific study. For PB-HAP, we identified, where possible, ecological benchmarks at the following effect levels:

- Probable effect levels (PEL): Level above which adverse effects are expected to occur frequently.
- Lowest-observed-adverse-effect level (LOAEL): The lowest exposure level tested at which there are biologically significant increases in frequency or severity of adverse effects.
- No-observed-adverse-effect levels (NOAEL): The highest exposure level tested at which there are no biologically significant increases in the frequency or severity of adverse effect.

We established a hierarchy of preferred benchmark sources to allow selection of benchmarks for each environmental HAP at each ecological assessment endpoint. In general, the EPA sources that are used at a programmatic level (*e.g.*, Office of Water, Superfund Program) were used, if available. If not, the EPA benchmarks used in regional programs (*e.g.*, Superfund) were used. If benchmarks were not available at a programmatic or regional level, we used benchmarks developed by other federal agencies (*e.g.*, National Oceanic and Atmospheric Administration (NOAA)) or state agencies.

Benchmarks for all effect levels are not available for all PB-HAP and assessment endpoints. In cases where multiple effect levels were available for a particular PB-HAP and assessment endpoint, we use all of the available effect levels to help us to determine whether ecological risks exist and, if so, whether the risks could be considered significant and widespread.

d. Ecological Assessment Endpoints and Benchmarks for Acid Gases

The environmental screening analysis also evaluated potential damage and reduced productivity of plants due to direct exposure to acid gases in the air. For acid gases, we evaluated the ecological assessment endpoint of local terrestrial plant communities with foliage exposed to acidic gaseous HAP in the air.

The selection of ecological benchmarks for the effects of acid gases on plants followed the same approach as for PB-HAP (*i.e.*, we examine all of the available chronic benchmarks). For HCl, the EPA identified chronic benchmark concentrations. We note that the benchmark for chronic HCl exposure to plants is greater than the reference concentration for chronic inhalation exposure for human health. This means that where the EPA includes regulatory requirements to prevent an exceedance of the reference concentration for human health, additional analyses for adverse environmental effects of HCl would not be necessary.

For HF, the EPA identified chronic benchmark concentrations for plants and evaluated chronic exposures to plants in the screening analysis. High concentrations of HF in the air have also been linked to fluorosis in livestock. However, the HF concentrations at which fluorosis in livestock occur are higher than those at which plant damage begins. Therefore, the benchmarks for plants are protective of both plants and livestock.

e. Screening Methodology

For the environmental risk screening analysis, the EPA first determined whether any facilities in the Aerospace Manufacturing and Rework Facilities source category emitted any of the seven environmental HAP. For the Aerospace Manufacturing and Rework Facilities source category, we identified emissions of five PB-HAP and two acid gases as the environmental HAP. The five PB-HAP are cadmium, dioxins/furans, POM, mercury (both inorganic mercury and methyl mercury) and lead compounds. The two acid gases are HCl and HF.

Because one or more of the seven environmental HAP evaluated are emitted by at least one facility in the source category, we proceeded to the second step of the evaluation.

f. PB-HAP Methodology

For cadmium, mercury, POM and dioxins/furans, the environmental screening analysis consists of two tiers, while lead compounds are analyzed

differently as discussed earlier. In the first tier, we determined whether the maximum facility-specific emission rates of each of the emitted environmental HAP were large enough to create the potential for adverse environmental effects under reasonable worst-case environmental conditions. These are the same environmental conditions used in the human multipathway exposure and risk screening analysis.

To facilitate this step, TRIM.FaTE was run for each PB-HAP under hypothetical environmental conditions designed to provide conservatively high HAP concentrations. The model was set to maximize runoff from terrestrial parcels into the modeled lake, which in turn, maximized the chemical concentrations in the water, the sediments and the fish. The resulting media concentrations were then used to back-calculate a screening level emission rate that corresponded to the relevant exposure benchmark concentration value for each assessment endpoint. To assess emissions from a facility, the reported emission rate for each PB-HAP was compared to the screening level emission rate for that PB-HAP for each assessment endpoint. If emissions from a facility do not exceed the Tier 1 screening level, the facility “passes” the screen, and, therefore, is not evaluated further under the screening approach. If emissions from a facility exceed the Tier 1 screening level, we evaluate the facility further in Tier 2.

In Tier 2 of the environmental screening analysis, the emission rate screening levels are adjusted to account for local meteorology and the actual location of lakes in the vicinity of facilities that did not pass the Tier 1 screen. The modeling domain for each facility in the Tier 2 analysis consists of eight octants. Each octant contains five modeled soil concentrations at various distances from the facility (5 soil concentrations × 8 octants = total of 40 soil concentrations per facility) and one lake with modeled concentrations for water, sediment and fish tissue. In the Tier 2 environmental risk screening analysis, the 40 soil concentration points are averaged to obtain an average soil concentration for each facility for each PB-HAP. For the water, sediment and fish tissue concentrations, the highest value for each facility for each pollutant is used. If emission concentrations from a facility do not exceed the Tier 2 screening level, the facility passes the screen, and typically is not evaluated further. If emissions from a facility exceed the Tier 2 screening level, the facility does not

pass the screen and, therefore, may have the potential to cause adverse environmental effects. Such facilities are evaluated further to investigate factors such as the magnitude and characteristics of the area of exceedance.

g. Acid Gas Methodology

The environmental screening analysis evaluates the potential phytotoxicity and reduced productivity of plants due to chronic exposure to acid gases. The environmental risk screening methodology for acid gases is a single-tier screen that compares the average off-site ambient air concentration over the modeling domain to ecological benchmarks for each of the acid gases. Because air concentrations are compared directly to the ecological benchmarks, emission-based screening levels are not calculated for acid gases as they are in the ecological risk screening methodology for PB-HAP.

For purposes of ecological risk screening, the EPA identifies a potential for adverse environmental effects to plant communities from exposure to acid gases when the average concentration of the HAP around a facility exceeds the LOAEL ecological benchmark. In such cases, we further investigate factors such as the magnitude and characteristics of the area of exceedance (e.g., land use of exceedance area, size of exceedance area) to determine if there is an adverse environmental effect.

For further information on the environmental screening analysis approach, see the *Residual Risk Assessment for the Aerospace Manufacturing and Rework Facilities Source Category in Support of the January, 2015 Risk and Technology Review Proposal*, January 2015, which is available in the docket for this action.

6. How did we conduct facility-wide assessments?

To put the source category risks in context, we typically examine the risks from the entire “facility,” where the facility includes all HAP-emitting operations within a contiguous area and under common control. In other words, we examine the HAP emissions not only from the source category emission points of interest, but also emissions of HAP from all other emission sources at the facility for which we have data.

The emissions inventories developed from the 2011 and 2012 ICRs, 2011 NEI and 2005 NATA include emissions information for all emissions sources at the facilities that are part of the Aerospace Manufacturing and Rework Facilities source category. These include sources currently regulated by the

Aerospace NESHAP: Primer/topcoat application operations, waste handling operations, chemical milling maskant application operations, cleaning operations and chemical and blast depainting operations. These also include emission sources not currently regulated by the Aerospace NESHAP: Specialty coatings, composite processing, chemical milling and metal finishing, wastewater, storage tanks, boilers, engines, chemical manufacturing processes, secondary metal production processes, heaters, soil remediation, transportation equipment, waste disposal, welding and other miscellaneous manufacturing processes.

We analyzed risks due to the inhalation of HAP that are emitted “facility-wide” for the populations residing within 50 km of each facility, consistent with the methods used for the source category analysis described above. For these facility-wide risk analyses, the modeled source category risks were compared to the facility-wide risks to determine the portion of facility-wide risks that could be attributed to the source category addressed in this proposal. We specifically examined the facility that was associated with the highest estimate of risk and determined the percentage of that risk attributable to the source category of interest. The *Residual Risk Assessment for the Aerospace Manufacturing and Rework Facilities Source Category in Support of the January, 2015 Risk and Technology Review Proposal*, January 2015, available through the docket for this action, provides the methodology and results of the facility-wide analyses, including all facility-wide risks and the percentage of source category contribution to facility-wide risks.

7. How did we consider uncertainties in risk assessment?

In the Benzene NESHAP, we concluded that risk estimation uncertainty should be considered in our decision-making under the ample margin of safety framework. Uncertainty and the potential for bias are inherent in all risk assessments, including those performed for this proposal. Although uncertainty exists, we believe that our approach, which used conservative tools and assumptions, ensures that our decisions are health protective and environmentally protective. A brief discussion of the uncertainties in the RTR emissions dataset, dispersion modeling, inhalation exposure estimates and dose-response relationships follows below. A more thorough discussion of these uncertainties is included in the *Residual Risk Assessment for the Aerospace Manufacturing and Rework*

Facilities Source Category in Support of the January, 2015 Risk and Technology Review Proposal, January 2015, which is available in the docket for this action.

a. Uncertainties in the RTR Emissions Dataset

Although the development of the RTR emissions dataset involved quality assurance/quality control processes, the accuracy of emissions values will vary depending on the source of the data, the degree to which data are incomplete or missing, the degree to which assumptions made to complete the datasets are accurate, and errors in emission estimates and other factors. The emission estimates considered in this analysis are annual totals for certain years, and they do not reflect short-term fluctuations during the course of a year or variations from year to year. The estimates of peak hourly emission rates for the acute effects screening assessment were based on an emission adjustment factor applied to the average annual hourly emission rates, which are intended to account for emission fluctuations due to normal facility operations.

b. Uncertainties in Dispersion Modeling

We recognize there is uncertainty in ambient concentration estimates associated with any model, including the EPA’s recommended regulatory dispersion model, AERMOD. In using a model to estimate ambient pollutant concentrations, the user chooses certain options to apply. For RTR assessments, we select some model options that have the potential to overestimate ambient air concentrations (e.g., not including plume depletion or pollutant transformation). We select other model options that have the potential to underestimate ambient impacts (e.g., not including building downwash). Other options that we select have the potential to either under- or overestimate ambient levels (e.g., meteorology and receptor locations). On balance, considering the directional nature of the uncertainties commonly present in ambient concentrations estimated by dispersion models, the approach we apply in the RTR assessments should yield unbiased estimates of ambient HAP concentrations.

c. Uncertainties in Inhalation Exposure

The EPA did not include the effects of human mobility on exposures in the assessment. Specifically, short-term mobility and long-term mobility between census blocks in the modeling

domain were not considered.¹⁸ The approach of not considering short or long-term population mobility does not bias the estimate of the theoretical MIR (by definition), nor does it affect the estimate of cancer incidence because the total population number remains the same. It does, however, affect the shape of the distribution of individual risks across the affected population, shifting it toward higher estimated individual risks at the upper end and reducing the number of people estimated to be at lower risks, thereby increasing the estimated number of people at specific high risk levels (e.g., 1-in-10 thousand or 1-in-1 million).

In addition, the assessment predicted the chronic exposures at the centroid of each populated census block as surrogates for the exposure concentrations for all people living in that block. Using the census block centroid to predict chronic exposures tends to over-predict exposures for people in the census block who live farther from the facility and under-predict exposures for people in the census block who live closer to the facility. Thus, using the census block centroid to predict chronic exposures may lead to a potential understatement or overstatement of the true maximum impact, but is an unbiased estimate of average risk and incidence. We reduce this uncertainty by analyzing large census blocks near facilities using aerial imagery and adjusting the location of the block centroid to better represent the population in the block, as well as adding additional receptor locations where the block population is not well represented by a single location.

The assessment evaluates the cancer inhalation risks associated with pollutant exposures over a 70-year period, which is the assumed lifetime of an individual. In reality, both the length of time that modeled emission sources at facilities actually operate (i.e., more or less than 70 years) and the domestic growth or decline of the modeled industry (i.e., the increase or decrease in the number or size of domestic facilities) will influence the future risks posed by a given source or source category. Depending on the characteristics of the industry, these factors will, in most cases, result in an overestimate both in individual risk levels and in the total estimated number of cancer cases. However, in the unlikely scenario where a facility maintains, or even increases, its

emissions levels over a period of more than 70 years, residents live beyond 70 years at the same location, and the residents spend most of their days at that location, then the cancer inhalation risks could potentially be underestimated. However, annual cancer incidence estimates from exposures to emissions from these sources would not be affected by the length of time an emissions source operates.

The exposure estimates used in these analyses assume chronic exposures to ambient (outdoor) levels of pollutants. Because most people spend the majority of their time indoors, actual exposures may not be as high, depending on the characteristics of the pollutants modeled. For many of the HAP, indoor levels are roughly equivalent to ambient levels, but for very reactive pollutants or larger particles, indoor levels are typically lower. This factor has the potential to result in an overestimate of 25 to 30 percent of exposures.¹⁹

In addition to the uncertainties highlighted above, there are several factors specific to the acute exposure assessment that the EPA conducts as part of the risk review under section 112 of the CAA that should be highlighted. The accuracy of an acute inhalation exposure assessment depends on the simultaneous occurrence of independent factors that may vary greatly, such as hourly emissions rates, meteorology and the presence of humans at the location of the maximum concentration. In the acute screening assessment that we conduct under the RTR program, we assume that peak emissions from the source category and worst-case meteorological conditions co-occur, thus, resulting in maximum ambient concentrations. These two events are unlikely to occur at the same time, making these assumptions conservative. We then include the additional assumption that a person is located at this point during this same time period. For this source category, these assumptions would tend to be worst-case actual exposures as it is unlikely that a person would be located at the point of maximum exposure during the time when peak emissions and worst-case meteorological conditions occur simultaneously.

d. Uncertainties in Dose-Response Relationships

There are uncertainties inherent in the development of the dose-response values used in our risk assessments for

cancer effects from chronic exposures and non-cancer effects from both chronic and acute exposures. Some uncertainties may be considered quantitatively, and others generally are expressed in qualitative terms. We note as a preface to this discussion a point on dose-response uncertainty that is brought out in the EPA's *2005 Cancer Guidelines*; namely, that "the primary goal of EPA actions is protection of human health; accordingly, as an Agency policy, risk assessment procedures, including default options that are used in the absence of scientific data to the contrary, should be health protective" (*EPA 2005 Cancer Guidelines*, pages 1–7). This is the approach followed here as summarized in the next several paragraphs. A complete detailed discussion of uncertainties and variability in dose-response relationships is given in the *Residual Risk Assessment for the Aerospace Manufacturing and Rework Facilities Source Category in Support of the January, 2015 Risk and Technology Review Proposal*, January 2015, which is available in the docket for this action.

Cancer URE values used in our risk assessments are those that have been developed to generally provide an upper bound estimate of risk. That is, they represent a "plausible upper limit to the true value of a quantity" (although this is usually not a true statistical confidence limit).²⁰ In some circumstances, the true risk could be as low as zero; however, in other circumstances the risk could be greater.²¹ When developing an upper bound estimate of risk and to provide risk values that do not underestimate risk, health-protective default approaches are generally used. To err on the side of ensuring adequate health protection, the EPA typically uses the upper bound estimates rather than lower bound or central tendency estimates in our risk assessments, an approach that may have limitations for other uses (e.g., priority-setting or expected benefits analysis).

Chronic non-cancer RfC and reference dose (RfD) values represent chronic exposure levels that are intended to be health-protective levels. Specifically, these values provide an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure (RfC) or a daily oral exposure (RfD) to the human population

²⁰ IRIS glossary (http://www.epa.gov/NCEA/iris/help_gloss.htm).

²¹ An exception to this is the URE for benzene, which is considered to cover a range of values, each end of which is considered to be equally plausible, and which is based on maximum likelihood estimates.

¹⁸ Short-term mobility is movement from one micro-environment to another over the course of hours or days. Long-term mobility is movement from one residence to another over the course of a lifetime.

¹⁹ U.S. EPA. *National-Scale Air Toxics Assessment for 1996*. EPA 453/R-01-003; January 2001; page 85.

(including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. To derive values that are intended to be “without appreciable risk,” the methodology relies upon an uncertainty factor (UF) approach (U.S. EPA, 1993, 1994)^{22 23} which considers uncertainty, variability and gaps in the available data. The UF are applied to derive reference values that are intended to protect against appreciable risk of deleterious effects. The UF are commonly default values²⁴ (e.g., factors of 10 or 3) used in the absence of compound-specific data; where data are available, UF may also be developed using compound-specific information. When data are limited, more assumptions are needed and more UF are used. Thus, there may be a greater tendency to overestimate risk in the sense that further study might support development of reference values that are higher (i.e., less potent) because fewer default assumptions are needed. However, for some pollutants, it is possible that risks may be underestimated.

While collectively termed “UF,” these factors account for a number of different quantitative considerations when using observed animal (usually rodent) or human toxicity data in the development of the RfC. The UF are intended to account for: (1) Variation in susceptibility among the members of the human population (i.e., inter-individual variability); (2) uncertainty in extrapolating from experimental animal data to humans (i.e., interspecies differences); (3) uncertainty in extrapolating from data obtained in a

study with less-than-lifetime exposure (i.e., extrapolating from sub-chronic to chronic exposure); (4) uncertainty in extrapolating the observed data to obtain an estimate of the exposure associated with no adverse effects; and (5) uncertainty when the database is incomplete or there are problems with the applicability of available studies.

Many of the UF used to account for variability and uncertainty in the development of acute reference values are quite similar to those developed for chronic durations, but they more often use individual UF values that may be less than 10. The UF are applied based on chemical-specific or health effect-specific information (e.g., simple irritation effects do not vary appreciably between human individuals, hence a value of 3 is typically used), or based on the purpose for the reference value (see the following paragraph). The UF applied in acute reference value derivation include: (1) Heterogeneity among humans; (2) uncertainty in extrapolating from animals to humans; (3) uncertainty in lowest observed adverse effect (exposure) level to no observed adverse effect (exposure) level adjustments; and (4) uncertainty in accounting for an incomplete database on toxic effects of potential concern. Additional adjustments are often applied to account for uncertainty in extrapolation from observations at one exposure duration (e.g., 4 hours) to derive an acute reference value at another exposure duration (e.g., 1 hour).

Not all acute reference values are developed for the same purpose and care must be taken when interpreting the results of an acute assessment of human health effects relative to the reference value or values being exceeded. Where relevant to the estimated exposures, the lack of short-term dose-response values at different levels of severity should be factored into the risk characterization as potential uncertainties.

For a group of compounds that are unspiciated (e.g., glycol ethers), we conservatively use the most protective reference value of an individual compound in that group to estimate risk. Similarly, for an individual compound in a group (e.g., ethylene glycol diethyl ether) that does not have a specified reference value, we also apply the most protective reference value from the other compounds in the group to estimate risk.

e. Uncertainties in the Multipathway Assessment

For each source category, we generally rely on site-specific levels of PB-HAP emissions to determine

whether a refined assessment of the impacts from multipathway exposures is necessary. This determination is based on the results of a three-tiered screening analysis that relies on the outputs from models that estimate environmental pollutant concentrations and human exposures for four PB-HAP. Two important types of uncertainty associated with the use of these models in RTR risk assessments and inherent to any assessment that relies on environmental modeling are model uncertainty and input uncertainty.²⁵

Model uncertainty concerns whether the selected models are appropriate for the assessment being conducted and whether they adequately represent the actual processes that might occur for that situation. An example of model uncertainty is the question of whether the model adequately describes the movement of a pollutant through the soil. This type of uncertainty is difficult to quantify. However, based on feedback received from previous EPA SAB reviews and other reviews, we are confident that the models used in the screen are appropriate and state-of-the-art for the multipathway risk assessments conducted in support of RTR.

Input uncertainty is concerned with how accurately the models have been configured and parameterized (i.e., represented in terms of measurable or estimable variables) for the assessment at hand. For Tier 1 of the multipathway screen, we configured the models to avoid underestimating exposure and risk. This was accomplished by selecting upper-end values from nationally representative datasets for the more influential parameters in the environmental model, including selection and spatial configuration of the area of interest, lake location and size, meteorology, surface water and soil characteristics and structure of the aquatic food web. We also assume an ingestion exposure scenario and values for human exposure factors that represent reasonable maximum exposures.

In Tier 2 of the multipathway assessment, we refine the model inputs to account for meteorological patterns in the vicinity of the facility versus using upper-end national values and we identify the actual location of lakes near the facility rather than the default lake location that we apply in Tier 1. By

²⁵ In the context of this discussion, the term “uncertainty” as it pertains to exposure and risk encompasses both *variability* in the range of expected inputs and screening results due to existing spatial, temporal and other factors, as well as *uncertainty* in being able to accurately estimate the true result.

²² U.S. EPA. *Reference Dose (RfD): Description and Use in Health Risk Assessments*. Dated March 1993.

²³ U.S. EPA. *Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry*. EPA/600/8-90/066F. Dated October 1994.

²⁴ According to the NRC report, *Science and Judgment in Risk Assessment* (NRC, 1994) “[Default] options are generic approaches, based on general scientific knowledge and policy judgment, that are applied to various elements of the risk assessment process when the correct scientific model is unknown or uncertain.” The 1983 NRC report, *Risk Assessment in the Federal Government: Managing the Process*, defined default option as “the option chosen on the basis of risk assessment policy that appears to be the best choice in the absence of data to the contrary” (NRC, 1983a, p. 63). Therefore, default options are not rules that bind the agency; rather, the agency may depart from them in evaluating the risks posed by a specific substance when it believes this to be appropriate. In keeping with EPA’s goal of protecting public health and the environment, default assumptions are used to ensure that risk to chemicals is not underestimated (although defaults are not intended to overtly overestimate risk). See EPA, 2004, *An Examination of EPA Risk Assessment Principles and Practices*, EPA/100/B-04/001 available at: <http://www.epa.gov/osa/pdfs/ratf-final.pdf>.

refining the screening approach in Tier 2 to account for local geographical and meteorological data, we decrease the likelihood that concentrations in environmental media are overestimated, thereby increasing the usefulness of the screen. The assumptions and the associated uncertainties regarding the selected ingestion exposure scenario are the same for Tier 1 and Tier 2.

For both Tiers 1 and 2 of the multipathway assessment, our approach to addressing model input uncertainty is generally cautious. We choose model inputs from the upper end of the range of possible values for the influential parameters used in the models, and we assume that the exposed individual exhibits ingestion behavior that would lead to a high total exposure. This approach reduces the likelihood of not identifying high risks for adverse impacts.

Despite the uncertainties, when individual pollutants or facilities do screen out, we are confident that the potential for adverse multipathway impacts on human health is very low. On the other hand, when individual pollutants or facilities do not screen out, it does not mean that multipathway impacts are significant, only that we cannot rule out that possibility and that a refined multipathway analysis for the site might be necessary to obtain a more accurate risk characterization for the source category.

For further information on uncertainties and the Tier 1 and 2 screening methods, refer to Appendix 4 of Modeling File Preparation Memo.

f. Uncertainties in the Environmental Risk Screening Assessment

For each source category, we generally rely on site-specific levels of environmental HAP emissions to perform an environmental screening assessment. The environmental screening assessment is based on the outputs from models that estimate environmental HAP concentrations. The same models, specifically the TRIM.FaTE multipathway model and the AERMOD air dispersion model, are used to estimate environmental HAP concentrations for both the human multipathway screening analysis and for the environmental screening analysis. Therefore, both screening assessments have similar modeling uncertainties.

Two important types of uncertainty associated with the use of these models in RTR environmental screening assessments—and inherent to any assessment that relies on environmental

modeling—are model uncertainty and input uncertainty.²⁶

Model uncertainty concerns whether the selected models are appropriate for the assessment being conducted and whether they adequately represent the movement and accumulation of environmental HAP emissions in the environment. For example, does the model adequately describe the movement of a pollutant through the soil? This type of uncertainty is difficult to quantify. However, based on feedback received from previous EPA SAB reviews and other reviews, we are confident that the models used in the screen are appropriate and state-of-the-art for the environmental risk assessments conducted in support of our RTR analyses.

Input uncertainty is concerned with how accurately the models have been configured and parameterized for the assessment at hand. For Tier 1 of the environmental screen for PB-HAP, we configured the models to avoid underestimating exposure and risk to reduce the likelihood that the results indicate the risks are lower than they actually are. This was accomplished by selecting upper-end values from nationally-representative datasets for the more influential parameters in the environmental model, including selection and spatial configuration of the area of interest, the location and size of any bodies of water, meteorology, surface water and soil characteristics and structure of the aquatic food web. In Tier 1, we used the maximum facility-specific emissions for the PB-HAP (other than lead compounds, which were evaluated by comparison to the secondary lead NAAQS) that were included in the environmental screening assessment and each of the media when comparing to ecological benchmarks. This is consistent with the conservative design of Tier 1 of the screen. In Tier 2 of the environmental screening analysis for PB-HAP, we refine the model inputs to account for meteorological patterns in the vicinity of the facility versus using upper-end national values, and we identify the locations of water bodies near the facility location. By refining the screening approach in Tier 2 to account for local geographical and meteorological data, we decrease the likelihood that concentrations in environmental media are overestimated,

thereby increasing the usefulness of the screen. To better represent widespread impacts, the modeled soil concentrations are averaged in Tier 2 to obtain one average soil concentration value for each facility and for each PB-HAP. For PB-HAP concentrations in water, sediment and fish tissue, the highest value for each facility for each pollutant is used.

For the environmental screening assessment for acid gases, we employ a single-tiered approach. We use the modeled air concentrations and compare those with ecological benchmarks.

For both Tiers 1 and 2 of the environmental screening assessment, our approach to addressing model input uncertainty is generally cautious. We choose model inputs from the upper end of the range of possible values for the influential parameters used in the models, and we assume that the exposed individual exhibits ingestion behavior that would lead to a high total exposure. This approach reduces the likelihood of not identifying potential risks for adverse environmental impacts.

Uncertainty also exists in the ecological benchmarks for the environmental risk screening analysis. We established a hierarchy of preferred benchmark sources to allow selection of benchmarks for each environmental HAP at each ecological assessment endpoint. In general, EPA benchmarks for programmatic levels (e.g., Office of Water, Superfund Program) were used if available. If not, we used EPA benchmarks used in regional programs (e.g., Superfund Program). If benchmarks were not available at a programmatic or regional level, we used benchmarks developed by other agencies (e.g., NOAA) or by state agencies.

In all cases (except for lead compounds, which were evaluated through a comparison to the NAAQS), we searched for benchmarks at the following three effect levels, as described in section III.A.5 of this preamble:

1. A no-effect level (i.e., NOAEL).
2. Threshold-effect level (i.e., LOAEL).
3. Probable effect level (i.e., PEL).

For some ecological assessment endpoint/environmental HAP combinations, we could identify benchmarks for all three effect levels, but for most, we could not. In one case, where different agencies derived significantly different numbers to represent a threshold for effect, we included both. In several cases, only a single benchmark was available. In cases where multiple effect levels were

²⁶ In the context of this discussion, the term “uncertainty,” as it pertains to exposure and risk assessment, encompasses both *variability* in the range of expected inputs and screening results due to existing spatial, temporal and other factors, as well as *uncertainty* in being able to accurately estimate the true result.

available for a particular PB-HAP and assessment endpoint, we used all of the available effect levels to help us to determine whether risk exists and if the risks could be considered significant and widespread.

The EPA evaluates the following seven HAP in the environmental risk screening assessment: Cadmium, dioxins/furans, POM, mercury (both inorganic mercury and methyl mercury), lead compounds, HCl and HF, where applicable. These seven HAP represent pollutants that can cause adverse impacts for plants and animals either through direct exposure to HAP in the air or through exposure to HAP that is deposited from the air onto soils and surface waters. These seven HAP also represent those HAP for which we can conduct a meaningful environmental risk screening assessment. For other HAP not included in our screening assessment, the model has not been parameterized such that it can be used for that purpose. In some cases, depending on the HAP, we may not have appropriate multipathway models that allow us to predict the concentration of that pollutant. The EPA acknowledges that other HAP beyond the seven HAP that we are evaluating may have the potential to cause adverse environmental effects and, therefore, the EPA may evaluate other relevant HAP in the future, as modeling science and resources allow.

Further information on uncertainties and the Tier 1 and 2 environmental screening methods is provided in Appendix 5 of the document, *Technical Support Document for TRIM-Based Multipathway Tiered Screening Methodology for RTR: Summary of Approach and Evaluation*. Also, see the *Residual Risk Assessment for the Aerospace Manufacturing and Rework Facilities Source Category in Support of the January, 2015 Risk and Technology Review Proposal*, January 2015, available in the docket for this action.

B. How did we consider the risk results in making decisions for this proposal?

As discussed in section II.A of this preamble, in evaluating and developing standards under CAA section 112(f)(2), we apply a two-step process to address residual risk. In the first step, the EPA determines whether risks are acceptable. This determination “considers all health information, including risk estimation uncertainty, and includes a presumptive limit on maximum individual lifetime [cancer] risk (MIR)²⁷ of approximately

[1-in-10 thousand] [*i.e.*, 100-in-1 million].” 54 FR 38045, September 14, 1989. If risks are unacceptable, the EPA must determine the emissions standards necessary to bring risks to an acceptable level without considering costs. In the second step of the process, the EPA considers whether the emissions standards provide an ample margin of safety “in consideration of all health information, including the number of persons at risk levels higher than approximately 1-in-1 million, as well as other relevant factors, including costs and economic impacts, technological feasibility, and other factors relevant to each particular decision.” *Id.* The EPA must promulgate emission standards necessary to provide an ample margin of safety.

In past residual risk actions, the EPA considered a number of human health risk metrics associated with emissions from the categories under review, including the MIR, the number of persons in various risk ranges, cancer incidence, the maximum non-cancer HI and the maximum acute non-cancer hazard. *See, e.g.*, 72 FR 25138, May 3, 2007; 71 FR 42724, July 27, 2006. The EPA considered this health information for both actual and allowable emissions. *See, e.g.*, 75 FR 65068, October 21, 2010; 75 FR 80220, December 21, 2010; 76 FR 29032, May 19, 2011. The EPA also discussed risk estimation uncertainties and considered the uncertainties in the determination of acceptable risk and ample margin of safety in these past actions. The EPA considered this same type of information in support of this action.

The agency is considering these various measures of health information to inform our determinations of risk acceptability and ample margin of safety under CAA section 112(f). As explained in the Benzene NESHAP, “the first step judgment on acceptability cannot be reduced to any single factor” and, thus, “[t]he Administrator believes that the acceptability of risk under [previous] section 112 is best judged on the basis of a broad set of health risk measures and information.” 54 FR 38046, September 14, 1989. Similarly, with regard to the ample margin of safety determination, “the Agency again considers all of the health risk and other health information considered in the first step. Beyond that information, additional factors relating to the appropriate level of control will also be considered, including cost and economic impacts of controls,

technological feasibility, uncertainties, and any other relevant factors.” *Id.*

The Benzene NESHAP approach provides flexibility regarding factors the EPA may consider in making determinations and how the EPA may weigh those factors for each source category. In responding to comment on our policy under the Benzene NESHAP, the EPA explained that:

[t]he policy chosen by the Administrator permits consideration of multiple measures of health risk. Not only can the MIR figure be considered, but also incidence, the presence of non-cancer health effects, and the uncertainties of the risk estimates. In this way, the effect on the most exposed individuals can be reviewed as well as the impact on the general public. These factors can then be weighed in each individual case. This approach complies with the *Vinyl Chloride* mandate that the Administrator ascertain an acceptable level of risk to the public by employing [her] expertise to assess available data. It also complies with the Congressional intent behind the CAA, which did not exclude the use of any particular measure of public health risk from the EPA’s consideration with respect to CAA section 112 regulations, and thereby implicitly permits consideration of any and all measures of health risk which the Administrator, in [her] judgment, believes are appropriate to determining what will ‘protect the public health’.

See 54 FR at 38057, September 14, 1989. Thus, the level of the MIR is only one factor to be weighed in determining acceptability of risks. The Benzene NESHAP explained that “an MIR of approximately 1-in-10 thousand should ordinarily be the upper end of the range of acceptability. As risks increase above this benchmark, they become presumptively less acceptable under CAA section 112, and would be weighed with the other health risk measures and information in making an overall judgment on acceptability. Or, the Agency may find, in a particular case, that a risk that includes MIR less than the presumptively acceptable level is unacceptable in the light of other health risk factors.” *Id.* at 38045. Similarly, with regard to the ample margin of safety analysis, the EPA stated in the Benzene NESHAP that: “EPA believes the relative weight of the many factors that can be considered in selecting an ample margin of safety can only be determined for each specific source category. This occurs mainly because technological and economic factors (along with the health-related factors) vary from source category to source category.” *Id.* at 38061. We also consider the uncertainties associated with the various risk analyses, as discussed earlier in this preamble, in

²⁷ Although defined as “maximum individual risk,” MIR refers only to cancer risk. MIR, one metric for assessing cancer risk, is the estimated

risk were an individual exposed to the maximum level of a pollutant for a lifetime.

our determinations of acceptability and ample margin of safety.

The EPA notes that it has not considered certain health information to date in making residual risk determinations. At this time, we do not attempt to quantify those HAP risks that may be associated with emissions from other facilities that do not include the source categories in question, mobile source emissions, natural source emissions, persistent environmental pollution or atmospheric transformation in the vicinity of the sources in these categories.

The agency understands the potential importance of considering an individual's total exposure to HAP in addition to considering exposure to HAP emissions from the source category and facility. We recognize that such consideration may be particularly important when assessing non-cancer risks, where pollutant-specific exposure health reference levels (*e.g.*, RfCs) are based on the assumption that thresholds exist for adverse health effects. For example, the agency recognizes that, although exposures attributable to emissions from a source category or facility alone may not indicate the potential for increased risk of adverse non-cancer health effects in a population, the exposures resulting from emissions from the facility in combination with emissions from all of the other sources (*e.g.*, other facilities) to which an individual is exposed may be sufficient to result in increased risk of adverse non-cancer health effects. In May 2010, the SAB advised the EPA "that RTR assessments will be most useful to decision makers and communities if results are presented in the broader context of aggregate and cumulative risks, including background concentrations and contributions from other sources in the area."²⁸

In response to the SAB recommendations, the EPA is incorporating cumulative risk analyses into its RTR risk assessments, including those reflected in this proposal. The agency is: (1) Conducting facility-wide assessments, which include source category emission points as well as other emission points within the facilities; (2) considering sources in the same category whose emissions result in exposures to the same individuals; and

(3) for some persistent and bioaccumulative pollutants, analyzing the ingestion route of exposure. In addition, the RTR risk assessments have always considered aggregate cancer risk from all carcinogens and aggregate non-cancer hazard indices from all non-carcinogens affecting the same target organ system.

Although we are interested in placing source category and facility-wide HAP risks in the context of *total* HAP risks from all sources combined in the vicinity of each source, we are concerned about the uncertainties of doing so. Because of the contribution to total HAP risk from emission sources other than those that we have studied in depth during this RTR review, such estimates of total HAP risks would have significantly greater associated uncertainties than the source category or facility-wide estimates. Such aggregate or cumulative assessments would compound those uncertainties, making the assessments too unreliable.

C. How did we perform the technology review?

Our technology review focused on the identification and evaluation of developments in practices, processes and control technologies that have occurred since the MACT standards were promulgated. Where we identified such developments, in order to inform our decision of whether it is "necessary" to revise the emissions standards, we analyzed the technical feasibility of applying these developments and the estimated costs, energy implications, non-air environmental impacts, as well as considering the emission reductions. We also considered the appropriateness of applying controls to new sources versus retrofitting existing sources.

Based on our analyses of the available data and information, we identified potential developments in practices, processes and control technologies. For this exercise, we considered any of the following to be a "development":

- Any add-on control technology or other equipment that was not identified and considered during development of the original MACT standards.
- Any improvements in add-on control technology or other equipment (that were identified and considered during development of the original MACT standards) that could result in additional emissions reduction.
- Any work practice or operational procedure that was not identified or considered during development of the original MACT standards.
- Any process change or pollution prevention alternative that could be

broadly applied to the industry and that was not identified or considered during development of the original MACT standards.

- Any significant changes in the cost (including cost effectiveness) of applying controls (including controls the EPA considered during the development of the original MACT standards).

We reviewed a variety of data sources in our investigation of potential practices, processes or controls to consider. Among the sources we reviewed were the NESHAP for various industries that were promulgated since the MACT standards being reviewed in this action. We reviewed the regulatory requirements and/or technical analyses associated with these regulatory actions to identify any practices, processes and control technologies considered in these efforts that could be applied to emission sources in the Aerospace Manufacturing and Rework Facilities source category, as well as the costs, non-air impacts and energy implications associated with the use of these technologies. Additionally, we requested information from facilities regarding developments in practices, processes or control technology. Finally, we reviewed information from other sources, such as state and/or local permitting agency databases and industry-supported databases.

IV. Analytical Results and Proposed Decisions

A. What actions are we taking pursuant to CAA sections 112(d)(2) and 112(d)(3)?

We are not proposing any new emissions limitations to the NESHAP other than with respect to specialty coatings. In this action, we are proposing the following revisions to the Aerospace NESHAP to ensure the standards are consistent with the requirements of the CAA as interpreted by the courts: adding standards to limit organic and inorganic HAP emissions from specialty coating application operations and updating the provisions regulating emissions during periods of SSM. Additionally, we are adding an alternative compliance demonstration provision for all types of coating application operations (primers, topcoats, specialty coatings and chemical milling maskants) in certain situations. The results and proposed decisions based on the analyses performed pursuant to CAA section 112(d)(2) and (3) are presented below.

We are proposing to establish MACT standards specific to specialty coating application operations to ensure the standards are consistent with the

²⁸ EPA's responses to this and all other key recommendations of the SAB's advisory on RTR risk assessment methodologies (which is available at: [http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/\\$File/EPA-SAB-10-007-unsigned.pdf](http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf)) are outlined in a memo to this rulemaking docket from David Guinnup entitled, *EPA's Actions in Response to the Key Recommendations of the SAB Review of RTR Risk Assessment Methodologies*.

requirements of the CAA as interpreted by the courts. Under CAA section 112(d)(3), the EPA is required to promulgate emissions limits for all HAP emitted from major source categories.²⁹ Specialty coatings are a source of HAP emissions from the Aerospace Manufacturing and Rework Facilities source category that is not currently regulated under the Aerospace NESHAP. We are proposing organic HAP content limits to reduce organic HAP emissions and equipment and work practice standards to reduce inorganic HAP emissions associated with specialty coating application. Refer to section IV.E.1 of this preamble for a description of specialty coating application operations, associated emissions and how this emissions source is addressed in the current Aerospace NESHAP, and how the EPA established the MACT floor for specialty coating application operations. Section IV.E.1 of this preamble also includes the EPA's rationale for proposing this standard, as well as how the EPA established the MACT floor for specialty coating application operations and the estimated costs for complying with the proposed standard. The EPA is proposing to add these standards for

specialty coatings because they are a source of HAP emissions from the Aerospace Manufacturing and Rework Facilities source category and EPA had not previously established MACT standards for these emissions points. These proposed changes are necessary to ensure the emissions standards are consistent with the requirements of the CAA as interpreted by the courts and are unrelated to the risk findings.

The EPA is also proposing to revise the provisions affecting periods of SSM to clarify that the emission limitations in the Aerospace NESHAP apply at all times, including during these SSM periods. Refer to section IV.E.3 of this preamble for a description of the EPA's proposed revisions to the SSM provisions for aerospace manufacturing and rework operations. These proposed changes to the SSM provisions are necessary to ensure the emissions standards are consistent with the requirements of the CAA as interpreted by the courts and are unrelated to the risk findings.

The EPA also collected emissions data and performed a risk analysis for certain emissions points outside of the source category—chemical milling and metal finishing operations, waste water

operations, storage tanks and composite operations that are related to aerospace manufacturing and rework, but are not surface coating operations. The data collected for these non-surface coating operations were used to characterize the risk presented from these operations in order to estimate the total risk from the entirety of each aerospace manufacturing and rework facility. The EPA is not proposing to expand the Aerospace Manufacturing and Rework Facilities source category to include these operations, which are not surface coating operations and were not part of the original source category and which, as explained below, did not present unacceptable risks. The initial and subsequent listings of source categories for regulation under section 112 of the CAA included Aerospace Manufacturing and Rework Facilities only as a surface coating source category.^{30 31}

B. What are the results of the risk assessment and analyses?

1. Inhalation Risk Assessment Results

Table 2 of this preamble provides an overall summary of the results of the inhalation risk assessment.

TABLE 2—AEROSPACE MANUFACTURING AND REWORK FACILITIES INHALATION RISK ASSESSMENT RESULTS

Maximum individual cancer risk (in-1 million) ^a	Estimated population at increased risk levels of cancer	Estimated annual cancer incidence (cases per year)	Maximum chronic non-cancer TOSHI ^b	Maximum screening acute non-cancer HQ ^c
Actual Emissions				
10	≥ 1-in-1 million: 180,000 ≥ 10-in-1 million: 1,500 ≥ 100-in-1 million: 0	0.02	0.5	HQ _{REL} = 2 (ethylene glycol ethyl ether acetate).
Allowable Emissions^d				
10	≥ 1-in-1 million: 180,000 ≥ 10-in-1 million: 2,000 ≥ 100-in-1 million: 0	0.02	0.5	

^a Estimated maximum individual excess lifetime cancer risk due to HAP emissions from the source category.
^b Maximum TOSHI. The target organ with the highest TOSHI for the Aerospace Manufacturing and Rework Facilities source category for both actual and allowable emissions is the kidney system.
^c See Section III.A.3 of this preamble for explanation of acute dose-response values. Acute assessments are not performed on allowable emissions.
^d The development of allowable emission estimates can be found in the memorandum titled, *Aerospace Manufacturing and Rework Facilities RTR Modeling File Preparation*, December 2014, which is available in the docket.

The inhalation risk modeling performed to estimate risks based on

actual and allowable emissions relied primarily on emissions data from the

ICRs and calculations described in the memorandum titled, *Aerospace*

²⁹ For more details see the discussion of *Sierra Club v. EPA*, 479 F. 3d 875 (D.C. Cir. 2007) in section II.E of this preamble, which found that the EPA may not set "no emissions reductions" MACT floors.

³⁰ Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990. 57 FR 31576, July 17, 1992.

³¹ National Emission Standards for Hazardous Air Pollutants; Revision of Initial List of Categories of Sources and Schedule for Standards Under Sections 112(c) and (e) of the Clean Air Act Amendments of 1990. 61 FR 28197, June 4, 1996.

³² See the EPA's "Coatings and Composites Coordinated Rule Development" Web page at <http://www.epa.gov/ttnatw01/coat/coat.html> for a

full list of surface coating-related NESHAP, and links to Web pages specific to each surface coating NESHAP.

Manufacturing and Rework Facilities RTR Modeling File Preparation, December 2014, which is available in the docket for this action. The results of the chronic baseline inhalation cancer risk assessment indicate that, based on estimates of current actual emissions, the MIR posed by the Aerospace Manufacturing and Rework Facilities is 10-in-1 million, with emissions of strontium chromate, from coating operations accounting for the majority of the risk. The total estimated cancer incidence from Aerospace Manufacturing and Rework Facilities based on actual emission levels is 0.02 excess cancer cases per year or one case every 50 years, with emissions of strontium chromate and chromium compounds contributing 66 percent and 15 percent, respectively, to the cancer incidence. In addition, we note that approximately 1,500 people are estimated to have cancer risks greater than or equal to 10-in-1 million, and approximately 180,000 people are estimated to have risks greater than or equal to 1-in-1 million as a result of actual emissions from this source category.

When considering MACT-allowable emissions, the MIR is estimated to be up to 10-in-1 million, driven by emissions of strontium chromate from coating operations. The estimated cancer incidence is estimated to be 0.02 excess cancer cases per year, or one excess case in every 50 years. Approximately 2,000 people are estimated to have cancer risks greater than or equal to 10-in-1 million and approximately 180,000 people are estimated to have cancer risks greater than or equal to 1-in-1 million considering allowable emissions from Aerospace Manufacturing and Rework Facilities.

The maximum modeled chronic non-cancer HI (TOSHI) value for the source category based on actual emissions is estimated to be 0.5, driven by cadmium compounds emissions from blast depainting. When considering MACT-allowable emissions, the maximum chronic non-cancer TOSHI value is estimated to be 0.5, also driven by cadmium compounds emissions from blast depainting.

2. Acute Risk Results

Our screening analysis for worst-case acute impacts based on actual emissions indicates the potential for one pollutant, ethylene glycol ethyl ether acetate, from one facility, to have HQ values above 1, based on its REL value. One hundred forty-three of the 144 Aerospace Manufacturing and Rework Facilities had an estimated worst-case HQ less than or equal to 1 for all HAP.

To better characterize the potential health risks associated with estimated worst-case acute exposures to HAP from the source category at issue and in response to a key recommendation from the SAB's peer review of the EPA's CAA section 112(f) RTR risk assessment methodologies, we examine a wider range of available acute health metrics than we do for our chronic risk assessments. This is in acknowledgement that there are generally more data gaps and inconsistencies in acute reference values than there are in chronic reference values.

By definition, the acute CalEPA REL represents a health-protective level of exposure, with no risk anticipated below those levels, even for repeated exposures; however, the health risk from higher-level exposures is unknown. Therefore, when a CalEPA REL is exceeded and an AEGL-1 or ERPG-1 level is available (*i.e.*, levels at which mild effects are anticipated in the general public for a single exposure), we have used them as a second comparative measure. Historically, comparisons of the estimated maximum off-site 1-hour exposure levels have not been typically made to occupational levels for the purpose of characterizing public health risks in RTR assessments. This is because occupational ceiling values are not generally considered protective for the general public since they are designed to protect the worker population (presumed healthy adults) for short-duration (less than 15-minute) increases in exposure. As a result, for most chemicals, the 15-minute occupational ceiling values are set at levels higher than a 1-hour AEGL-1, making comparisons to them irrelevant unless the AEGL-1 or ERPG-1 levels are also exceeded.

The worst-case maximum estimated 1-hour exposure to ethylene glycol ethyl ether acetate outside the facility fence line for the source categories is 0.3 mg/m³. This estimated worst-case exposure exceeds the 1-hour REL by a factor of 2 (HQ_{REL} = 2). All other HAP in this analysis have worst-case acute HQ values of 1 or less (maximum HQ_{AEGL-1} = 0.02 for phenol, maximum HQ_{ERPG-1} = 0.03 for phenol) indicating that they carry no potential to pose acute concerns.

In characterizing the potential for acute non-cancer impacts of concern, it is important to remember the upward bias of these exposure estimates (*e.g.*, worst-case meteorology coinciding with a person located at the point of maximum concentration during the hour) and to consider the results along with the conservative estimates used to

develop peak hourly emissions as described in the Modeling File Preparation Memo (which is available in the docket for this action) for a detailed description of how the hourly emissions were developed for this source category.

3. Multipathway Risk Screening Results

Results of the worst-case Tier I screening analysis indicate that PB-HAP emissions of cadmium compounds or mercury compounds did not exceed the screening emission rates. Neither dioxins nor polycyclic aromatic hydrocarbons (PAH) are emitted by any source in the source category.

4. Environmental Risk Screening Results

As described in section III.A of this preamble, we conducted a screening-level evaluation of the potential adverse environmental risks associated with emissions of the following environmental HAP from the Aerospace Manufacturing and Rework Facilities source category: lead, mercury, cadmium, HCl and HF.

In the Tier 1 screening analysis for PB-HAP (other than lead compounds, which were evaluated differently), the individual modeled Tier 1 concentrations for mercury and cadmium did not exceed any ecological benchmark for any facility in the source category. For lead compounds, we did not estimate any exceedances of the secondary lead NAAQS.

For HF and HCl, the average modeled concentration around each facility (*i.e.*, the average concentration of all off-site data points in the modeling domain) did not exceed the ecological benchmarks. In addition, each individual modeled concentration of HCl and HF (*i.e.*, each off-site data point in the modeling domain) was below the ecological benchmarks for all facilities.

5. Facility-Wide Risk Results

The facility-wide chronic MIR and TOSHI were estimated based on emissions from all sources at the identified facilities (both MACT and non MACT sources). The results of the facility-wide assessment for cancer risks indicate that 44 facilities with aerospace manufacturing and rework processes have a facility-wide cancer MIR greater than or equal to 1-in-1 million. The maximum facility-wide cancer MIR is 20-in-1 million, primarily driven by arsenic and chromium (VI) compounds, from internal combustion engines. The maximum facility-wide TOSHI for the source category is estimated to be 0.5, primarily driven by emissions of hexamethylene-1,6-diisocyanate from specialty coatings operations.

6. What demographic groups might benefit from this regulation?

To examine the potential for any environmental justice (EJ) issues that might be associated with the source category, we performed a demographic analysis, which is an assessment of risks to individual demographic groups, of the population close to the facilities. In this analysis, we evaluated the

distribution of HAP-related cancer risks and non-cancer hazards from the Aerospace Manufacturing and Rework Facilities across different social, demographic and economic groups within the populations living near facilities identified as having the highest risks. The methodology and the results of the demographic analyses are included in a technical report, *Risk and Technology Review—Analysis of Socio-*

Economic Factors for Populations Living Near Aerospace Facilities, available in the docket for this action.

The results of the demographic analysis are summarized in Table 3 of this preamble. These results, for various demographic groups, are based on the estimated risks from actual aerospace manufacturing and rework emissions levels for the population living within 50 km of the facilities.

TABLE 3—AEROSPACE MANUFACTURING AND REWORK FACILITIES DEMOGRAPHIC RISK ANALYSIS RESULTS

	Nationwide	Population with cancer risk at or above 1-in-1 million due to emissions from aerospace facilities	Population with chronic hazard index above 1 due to emissions from aerospace facilities
Total Population	312,861,265	179,074	0
Race by Percent			
White	72	64	NA
All Other Races	28	36	NA
Race by Percent			
White	72	64	NA
African American	13	19	NA
Native American	1	1.5	NA
Other and Multiracial	14	16	NA
Ethnicity by Percent			
Hispanic	17	16	NA
Non-Hispanic	83	84	NA
Income by Percent			
Below Poverty Level	14	19	NA
Above Poverty Level	86	81	NA
Education by Percent			
Over 25 and without High School Diploma	15	17	NA
Over 25 and with a High School Diploma	85	83	NA

The results of the Aerospace Manufacturing and Rework Facilities baseline risk assessment indicate that emissions from the source category expose approximately 180,000 people to a cancer risk at or above 1-in-1 million and no one is predicted to have a chronic non-cancer TOSHI greater than 1.

The analysis indicates that the percentages of the population exposed to a cancer risk greater than or equal to 1-in-1 million and living within 50 km of the 144 aerospace facilities is higher for minority populations, 36-percent exposed versus the national minority population average of 28 percent. The specific demographics of the population within 50 km of the facilities indicate potential disparities in certain demographic groups, including the

“African American” and “Below the Poverty Level.”

C. What are our proposed decisions regarding risk acceptability, ample margin of safety and adverse environmental effects?

1. Risk Acceptability

As noted in section II.A.1 of this preamble, the EPA sets standards under CAA section 112(f)(2) using “a two-step standard-setting approach, with an analytical first step to determine an ‘acceptable risk’ that considers all health information, including risk estimation uncertainty, and includes a presumptive limit on MIR of approximately 1 in 10 thousand.” 54 FR 38045, September 14, 1989. For the Aerospace Manufacturing and Rework

Facilities source category, we estimate, based on both actual and allowable emissions, an MIR of 10-in-1 million driven by emissions of strontium chromate from coating operations. We estimate that, based on actual emissions, about 1,500 people are estimated to have cancer risks greater than or equal to 10-in-1 million and, based on allowable emissions, about 2,000 people have cancer risks greater than or equal to 10-in-1 million. We estimate that approximately 180,000 people are estimated to have risks greater than or equal to 1-in-1 million based on both actual and allowable emissions from this source category. The total estimated incidence of cancer for this source category due to inhalation exposures, based on both actual and allowable emissions, is 0.02 excess cancer cases

per year, or 1 case in 50 years. The agency estimates that the maximum chronic non-cancer TOSHI from inhalation exposure, based on both actual and allowable emissions, from this source category, is 0.5, with cadmium compounds emissions from blast repainting accounting for the majority of the TOSHI.

The multipathway screening analysis, based upon actual emissions, indicates that PB-HAP emissions of both cadmium compounds and mercury compounds did not exceed the screening emission rates. Neither dioxins nor PAH are emitted by any source in the source category. In evaluating the potential for multipathway effects from emissions of lead, modeled maximum annual lead concentrations were compared to the secondary NAAQS for lead ($0.15 \mu\text{g}/\text{m}^3$). Results of this analysis estimate that the NAAQS for lead would not be exceeded at any off-site locations.

The screening assessment of worst-case acute inhalation impacts from baseline actual emissions indicates that the worst-case maximum estimated 1-hour exposure to ethylene glycol ethyl ether acetate outside the facility fence line exceeds the 1-hour REL by a factor of 2 ($\text{HQ}_{\text{REL}} = 2$). This exceedance was only predicted to occur in a remote, non-inhabited area just adjacent to the facility fence line for 2 hours a year. All other HAP in this analysis have worst-case acute HQ values of 1 or less (maximum $\text{HQ}_{\text{AEGL-1}} = 0.02$ for phenol, maximum $\text{HQ}_{\text{ERPG-1}} = 0.03$ for phenol) indicating that they carry no potential to pose acute concerns.

In determining whether risks are acceptable for this source category, the EPA considered all available health information including any uncertainty in risk estimates. Also, as noted above, the agency estimated risk from both actual and allowable emissions. While there are uncertainties associated with both the actual and allowable emissions, we consider the allowable emissions to be an upper bound, based on the conservative methods we used to calculate allowable emissions.

The risk results indicate that both the actual and allowable inhalation cancer risks to the individual most exposed are no greater than approximately 10-in-1 million, which is considerably less than the presumptive limit of acceptability (*i.e.*, 100-in-1 million). The maximum chronic non-cancer hazard indices for both the actual and allowable inhalation non-cancer risks to the individual most exposed of 0.5 is less than 1.

The maximum acute non-cancer HQ for all pollutants was 2 based on the REL for ethylene glycol ethyl ether

acetate. This value was only predicted to occur during 2 hours per year in a remote location adjacent to a single facility's fence line. All other acute risks are estimated to be below a noncancer HI threshold of 1.

The multipathway screening analysis indicates that PB-HAP emissions did not exceed the screening emission rates for any compound evaluated.

Considering all of the health risk information and factors discussed above, including the uncertainties discussed in section III.A.8 of this preamble, the EPA proposes that the risks at baseline are acceptable since the cancer risks are well below the presumptive limit of acceptability and the non-cancer results indicate there is minimal likelihood of adverse non-cancer health effects due to HAP emissions from this source category.

2. Ample Margin of Safety Analysis and Proposed Controls

Under the ample margin of safety analysis, we evaluate the cost and feasibility of available control technologies and other measures (including the controls, measures and costs evaluated under the technology review) that could be applied in this source category to further reduce the risks due to emissions of HAP identified in our risk assessment, as well as the health impacts of such potential additional measures. As noted in our discussion of the technology review in section III.C of this preamble, no measures (beyond those already in place or that we are proposing today under CAA sections 112 (d)(2) and (d)(3)) were identified for reducing HAP emissions from the Aerospace Manufacturing and Rework Facilities source category. Therefore, we propose that the current standards provide an ample margin of safety to protect public health.

Although the current standards were found to provide an ample margin of safety to protect public health, we are proposing additional standards under CAA sections 112(d)(2) and (3) that address previously unregulated emissions of HAP from specialty coating application operations. The additional standards are being proposed to address a deficiency in the Aerospace NESHAP as discussed previously in section II.E. of this preamble. We are proposing organic HAP and volatile organic compound (VOC) content limits for specialty coatings that are equal to the VOC content limits specified in the Aerospace CTG for specialty coatings. Facilities that do not use specialty coatings and those in nonattainment areas that are currently complying with the Aerospace CTG limits for their

specialty coating operations will not have to do anything new to meet these requirements. The 74 facilities located in attainment areas that reported using specialty coatings in the 2011 ICR may not be using compliant coatings and may need to use alternative coatings, direct the emissions stream to an add-on control device or use the averaging option to demonstrate compliance with implement the standards. We are also proposing that specialty coating application operations be subject to the same equipment standards (*i.e.*, use high-efficiency application equipment) currently required for primer and topcoat application operations. Further, we are proposing to require that specialty coating application operations meet current work practice standards for primer and topcoat application operations for inorganic HAP emissions. The estimated emission reductions resulting from these proposed HAP content limits, equipment standards and work practice standards for specialty coatings are 58 tons of HAP per year. As noted above, we are proposing that the MACT standard, prior to the implementation of these proposed standards for specialty coatings, provides an ample margin of safety to protect public health. Therefore, we maintain that, after the implementation of these standards for specialty coatings, the rule will continue to provide an ample margin of safety to protect public health. Consequently, based on current information, we do not expect it will be necessary to conduct another residual risk review under CAA section 112(f) for this source category 8 years following promulgation of new emission limits and equipment and work practice standards for specialty coatings, merely due to the addition of these MACT requirements. While our decisions on risk acceptability and ample margin of safety are supported even in the absence of these reductions for specialty coatings, if we finalize the proposed requirements for these sources, they would further strengthen our conclusions that risk is acceptable with an ample margin of safety to protect public health.

Although we did not identify any new technologies, other than for specialty coatings application operations, to reduce risk for this source category, we are specifically requesting comment on whether there are additional control measures that may be able to reduce risks from the source category. We request any information on potential emission reductions of such measures, as well the cost and health impacts of

such reductions to the extent they are known.

3. Adverse Environmental Effects

Based on the results of our environmental risk screening assessment, we conclude that there is not an adverse environmental effect as a result of HAP emissions from the Aerospace Manufacturing and Rework Facilities source category. We are proposing that it is not necessary to set a more stringent standard to prevent, taking into consideration costs, energy, safety and other relevant factors, an adverse environmental effect.

D. What are the results and proposed decisions based on our technology review?

As described in section III.C of this preamble, our technology review focused on identifying developments in practices, processes and control technologies for the Aerospace Manufacturing and Rework Facilities source category. The EPA reviewed various information sources regarding emission sources that are currently regulated by the Aerospace NESHAP, which include primer and topcoat application operations, maskant application operations, cleaning operations, chemical and blast depainting operations and waste storage and handling operations.

For the technology review, we conducted a search of the EPA's RACT/BACT/LAER Clearinghouse (RBLA) and regulatory actions (MACT standards, area sources standards and residual risk standards) subsequent to promulgation of the 1995 Aerospace NESHAP.³² We reviewed Washington State's records of Prevention of Significant Deterioration (PSD) permits. Further, we considered numerous relevant regional and state regulations (e.g., California, Missouri, Delaware and Arizona), the Ozone Transport Commission serving the Northeastern United States and state implementation plans. We reviewed the database of responses to the 2011 ICR to determine the technologies and practices reported by industry.

We reviewed these sources for information on add-on control technologies, other process equipment, work practices and procedures and process changes or pollution prevention alternatives that were not considered during development of the Aerospace NESHAP. We also looked for

information on improvements in add-on control technology, other process equipment, work practices and procedures and process changes or pollution prevention alternatives that have occurred since development of the Aerospace NESHAP. Regarding process changes or pollution prevention alternatives, we searched for advancements in the use of low-HAP coatings and solvents, advancements in the use of high solids coatings and the adoption of lower VOC content limits for coatings and solvents.

The following sections summarize our technology review results for each of these emission sources.

1. Primer and Topcoat Application Operations

As defined in the Aerospace NESHAP (see 40 CFR 63.742), a coating is 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. A primer is the first layer and any subsequent layers of coating prior to the topcoat and is typically used for corrosion prevention, protection from the environment, functional fluid resistance and adhesion of subsequent coatings. A topcoat is a coating that is applied over one or more layers of a primer for appearance, identification, camouflage or protection. Specialty coatings are not included in the categories of primers or topcoats currently subject to regulation under 40 CFR 63.745.

Most aerospace coatings contain a mixture of organic solvents that may be HAP, and also inorganic pigments, such as various metal compounds, which may also be HAP. The organic HAP emissions from the application of primers and topcoats occur from the evaporation of organic solvents during mixing, application and drying. Emissions of inorganic HAP from spray-applied coating operations, typically metal compounds (e.g., chromium, cadmium compounds), occur when coating particles do not adhere to the surface being coated (i.e., overspray). The organic and inorganic emissions from coating application occur in large open areas, such as hangars or in partially or fully enclosed spaces, such as within spray booths.

The existing Aerospace NESHAP requires the following organic HAP and VOC content limits for uncontrolled primers and topcoats (40 CFR 63.745(c)):

- Primers: 2.9 lb/gal (less water) as applied; or 4.5 lb/gal (less water) as applied for general aviation rework facilities, or 5.4 lb/gal (less water) as applied, to large commercial aircraft

components (parts or assemblies) or fully assembled, large commercial aircraft.

- Topcoats: 3.5 lb/gal (less water) as applied; or 4.5 lb/gal (less water) as applied for general aviation rework facilities.

Alternatively, a control system can be used to capture and control organic HAP and VOC emissions from the primer or topcoat application operations. The system must achieve an overall control efficiency of 81 percent of organic HAP and VOC emissions (40 CFR 63.745(d)).

In addition, the Aerospace NESHAP requires the use of one of the following coating application techniques (40 CFR 63.745(f)):

- Flow/curtain coat application.
- Dip coat application.
- Roll coating.
- Brush coating.
- Cotton-tipped swab application.
- Electrodeposition (dip) coating.
- High volume low pressure (HVLP) spraying.

- Electrostatic spray application.
- Other coating application methods that achieve emission reductions equivalent to HVLP or electrostatic spray application methods.

The Aerospace NESHAP also includes operating requirements for the application of primers or topcoats that contain inorganic HAP, including control of spray booth exhaust streams with either particulate filters or waterwash spray booths (40 CFR 63.745(g)).

Based on the technology review for primers and topcoats, we did not identify any practices, processes or control technologies beyond those already required by the Aerospace NESHAP. A brief summary of the EPA's findings in conducting its RTR review of primer and topcoat application operations follows. For a detailed discussion of the EPA's findings, refer to the memorandum, *Technology Review for Primer and Topcoat Application Operations in the Aerospace Source Category*, January 2015, available in the docket for this action.

In reviewing add-on control technologies or other equipment and work practices and procedures, we did not identify any add-on control technologies, other equipment or work practices and procedures that had not previously been considered during development of the Aerospace NESHAP, nor did we identify any developments in the same since the promulgation of the NESHAP.

Based on our search of the RBLA, we did not find any more stringent requirements. We identified one facility

³² See the EPA's "Coatings and Composites Coordinated Rule Development" Web page at <http://www.epa.gov/ttnatw01/coat/coat.html> for a full list of surface coating-related NESHAP, and links to Web pages specific to each surface coating NESHAP.

in Washington State, for which a Best Achievable Control Technology (BACT) analysis was completed in September 2014, for constructing new buildings needed for producing new models of large commercial airplanes, including the building and surface coating of composite aircraft wings. The surface coating operations on these aircraft wings would involve the use of primers and topcoats that are subject to the limits in 40 CFR 63.745. The BACT analysis concluded that there are no demonstrations of add-on controls at facilities performing surface coating comparable to large commercial aircraft wing components. The analysis also concluded that add-on controls would not be cost effective for surface coating of large components, such as wings, much less fully assembled large commercial aircraft.

In reviewing improvements in add-on control technologies or other equipment that had previously been considered during development of the Aerospace NESHAP, specifically in conducting a technology review of the wood manufacturing industry, we found that the Wood Furniture Manufacturing NESHAP, 40 CFR part 63, subpart JJ, requires the use of high-efficiency spray guns (e.g., airless spraying, air assisted airless spraying, electrostatic spraying and HVLP spray guns) and prevents the use of conventional spray guns. Although the Aerospace NESHAP does not specifically prohibit the use of conventional spray methods, it does specify that only spray application methods that are equivalent to HVLP or electrostatic spray application methods may be used. Because conventional spray guns can be used only if they can achieve the same efficiency as HVLP or electrostatic spray application methods, the Aerospace NESHAP and the Wood Furniture Manufacturing NESHAP are essentially equivalent. No other new developments in add-on control technologies or other equipment were found.

The EPA reviewed the 2011 ICR data for advancements in the use of low-HAP liquid primers and topcoats as process changes and pollution prevention alternatives that could be transferred to and used in this source category and that were not identified and considered during development of the Aerospace NESHAP. In this review, we found some facilities with weighted-average HAP content values below the HAP and VOC content limits for primers and topcoats in the Aerospace NESHAP. However, the data collected by the ICR cannot be compared directly with the HAP and VOC content limits in the Aerospace NESHAP because the NESHAP limits

are based on grams of HAP per liter of coating, less water. The ICR asked for readily available data, such as data from product sheets and material safety data sheets, which did not provide data on the water content of the coatings. As a result, we cannot accurately convert the reported HAP contents from the ICR to the same basis as in the Aerospace NESHAP. Moreover, we believe that if the coatings in the ICR contained water and the water content of the coatings is removed, then the corrected HAP content of the coatings would increase and the apparent difference between the ICR data and the NESHAP limits would be reduced.

Finally, many of the currently used coatings have already been reformulated to meet the current MACT HAP content limits. Manufacturers of aerospace vehicles are constrained to using certain types of primers and topcoats based on the market segment for which the coating is intended (i.e., military original equipment manufacturer (OEM), military rework, commercial OEM or commercial rework) and the unique circumstances and design considerations within each market segment. In addition to being regulated by the Aerospace NESHAP, aerospace vehicle manufacturing and rework operations are also regulated by the Federal Aviation Administration (FAA), the Department of Defense and specific customer requirements. As outlined in the EPA's 1998 promulgation of amendments to the Aerospace NESHAP,³³ affected sources must comply with FAA Airworthiness Directives (AD) that can potentially require the use of chemicals containing HAP, and affected sources may have to obtain alternative means of compliance for AD to allow for the substitution of non-HAP materials. These multiple regulations can result in lengthy processes for qualifying new paint systems.

Based on a finding of no new developments in practices, processes and control technologies in the technology review for primer and topcoat application operations, we are not proposing to revise the Aerospace NESHAP HAP and VOC content limit requirements for primer and topcoat application operations pursuant to CAA section 112(d)(6). For further discussion of the technology review results, refer to the memorandum, *Technology Review for Primer and Topcoat Application Operations in the Aerospace Source Category*, January 2015, available in the docket for this action.

2. Chemical Milling Maskant Application Operations

In the process of chemical milling, an etchant solution is used to chemically reduce the thickness of selected areas of metal parts. The process is typically used when the size or shape of the part precludes mechanical milling or when chemical milling is advantageous due to shorter processing time or its batch capability. Before chemical milling, a maskant is applied to the part, allowed to cure and is then removed from selected areas of the part where metal is to be removed by the etchant. The maskant remaining on the part protects those areas from the etchant. Maskants are applied by brushing, dipping, spraying or flow coating. Organic HAP emissions occur through evaporation of the solvent in the maskant, typically toluene, xylene or perchloroethylene, as the maskant is applied and while it cures.

There are two subcategories of chemical milling maskants in the Aerospace NESHAP. Type I maskants are used with chemical milling etchants that contain dissolved sulfur and no amines, and Type II maskants are used with etchants that are strong sodium hydroxide solutions containing amines. The Aerospace NESHAP requires the following organic HAP and VOC content limits for uncontrolled chemical milling maskants (40 CFR 63.747(c)):

- Type I: 5.2 pounds organic HAP per gallon (622 g/L) less water, as applied.
- Type II: 1.3 pounds of organic HAP per gallon (160 g/L) less water, as applied.

These requirements do not apply to touch-up of scratched surfaces or damaged maskant and touch-up of trimmed edges. Alternatively, a control system can be used to capture and control emissions from the maskant application operation. The system must achieve an overall control efficiency of 81 percent (40 CFR 63.747(d)).

Based on the technology review for chemical milling maskants, we did not identify any add-on control technologies, other equipment or work practices and procedures that had not previously been considered during development of the Aerospace NESHAP. Additionally, we did not identify any improvements that could be transferred to this source category. In our search of the RBLC, we also did not find any more stringent requirements. We did find that some California air quality management districts require more stringent VOC content limits than those in the Aerospace NESHAP and have higher overall minimum control requirements for the use of add-on control technology.

³³ 63 FR 46525, September 1, 1998.

However, the EPA did not find any chemical milling maskant application operations located in these two districts that are subject to these more stringent limits.

Based on a finding of no new developments in practices, processes and control technologies in this technology review, we are not proposing revisions to the Aerospace NESHAP for chemical milling maskant application operations pursuant to CAA section 112(d)(6). Refer to the memorandum, *Technology Review for Chemical Milling Maskant Application Operations in the Aerospace Source Category*, January 2015, available in the docket for this action, for more a more detailed description of the technology review results.

3. Cleaning Operations

At Aerospace Manufacturing and Rework Facilities, cleaning operations are used at essentially every processing step of aerospace surface coating, from preparing surfaces to be coated to cleaning the coating application equipment. The cleaning operations regulated by the current Aerospace NESHAP include hand-wipe cleaning, spray gun cleaning and flush cleaning, as well as housekeeping measures for storage, handling and transfer of cleaning solvents and solvent-laden materials.

The liquid cleaning solutions used in cleaning operations for the aerospace industry contain organic solvents, and some of these organic solvents are HAP. Organic HAP emissions from the cleaning operations are often fugitive in nature, resulting from the evaporation of the volatile portion of the cleaning solvent in large open areas, such as hangars. They may also be emitted from stacks when the solvents are used in partially or fully enclosed spray booths that are ventilated through stacks.

The current Aerospace NESHAP requires that hand-wipe and flush cleaning solvents meet certain composition requirements, or that the cleaning solvents have a composite vapor pressure of no more than 45 mm Hg (24.1 inches water) (40 CFR 63.744(b) and (d)). The NESHAP specifies work practice standards for spray gun cleaning (e.g., cleaning a spray gun in an enclosed gun cleaning system) and flush cleaning operations (e.g., for flush cleaning events, empty used cleaning solvent into an enclosed container) (40 CFR 63.744(c) and (d)). Work practice measures are also specified for the storage and handling of solvents and solvent-laden materials (e.g., solvent-laden cloth, paper or other absorbent materials) (40 CFR 63.744(a)).

Based on the technology review for cleaning operations, we did not identify any practices, processes or control technologies beyond those already required by the Aerospace NESHAP that could be transferred to the source category. A brief summary of the EPA's findings in conducting its RTR review of cleaning operations follows. For a detailed discussion of the EPA's findings, refer to the memorandum, *Technology Review for Cleaning Operations in the Aerospace Source Category*, January 2015, available in the docket for this action.

In the technology review, we did not identify any improvements in add-on control technologies, other equipment or work practices and procedures since promulgation of the Aerospace NESHAP. The EPA identified one aerospace manufacturing and rework facility that routes the air flow from a spray booth to a carbon adsorption control device when performing spray gun cleaning and residual spray gun hand-wipe cleaning. We found that this was the same spray booth in which surface coating is performed, and it is not a spray booth dedicated to spray gun cleaning. Based on the results of the responses to the EPA's 2011 information collection survey for other facilities, the EPA concluded that this practice could not be applied to the source category without impacting facility operations. First, very few facilities have carbon adsorbers controlling emissions from spray booths. Second, it is not always practical to move the spray gun cleaning operations into a spray booth without affecting the surface coating operations in that spray booth because of space limitations within the booth.

The EPA also identified one aerospace manufacturing and rework facility that, for certain cleaning operations, uses a non-HAP solvent blend that has a vapor pressure of 36 mm Hg for certain cleaning operations; the facility does not use this solvent for all cleaning operations. The use of non-HAP cleaning solvent is already a compliance option that was considered in the development of the Aerospace NESHAP and is included in 40 CFR 63.744.

Based on a finding of no new developments in practices, processes and control technologies in the technology review, we are not proposing any revisions to the Aerospace NESHAP standard requirements for cleaning operations pursuant to CAA section 112(d)(6). For further discussion of the technology review results, refer to the memorandum, *Technology Review for Cleaning Operations in the Aerospace Source Category*, January 2015, available in the docket for this action.

4. Chemical and Dry Media Blasting Depainting Operations

At Aerospace Manufacturing and Rework Facilities, chemical and dry media blasting depainting operations remove unwanted or old surface coatings (e.g., primers, topcoats and specialty coatings) to prepare the surface for painting. As defined in the Aerospace NESHAP, a 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 components, excluding hand and mechanical sanding or other non-chemical removal processes that do not involve blast media or other mechanisms that would result in airborne particle movement at high velocity. The depainting operation includes washing of the aerospace vehicle or component to remove residual stripper, media or coating residue. Depainting is most often done in the rework of existing aircraft, but may also be done in limited circumstances in the manufacture of new aircraft.

The liquid chemical agents (i.e., strippers) used to remove permanent coatings in the aerospace industry contain organic solvents. Organic HAP emissions from strippers occur from the evaporation of the chemical stripper during mixing, application and possibly during washing of the vehicle or component to remove residual stripper. The organic emissions from depainting operations that occur within a booth or hangar are typically captured and exhausted through a stack, although some emissions may be fugitive in nature (e.g., open containers of stripper).

Inorganic HAP, typically metal compounds (e.g., compounds of lead, chromium or cadmium), can be emitted during dry media blasting if these compounds are present in the paint layer that is being removed. These inorganic HAP would be emitted as particulate matter as the dry media blasting removes the existing coating through abrasion.

The Aerospace NESHAP restricts facilities to using organic HAP-containing chemical strippers for only spot stripping and decal removal. The amount of stripper used for spot stripping and decal removal is limited to no more than 26 gallons of HAP-containing chemical stripper (or alternatively 190 pounds of organic HAP) for each commercial aircraft, and 50 gallons (or 365 pounds of organic HAP) for each military aircraft. As an alternative, facilities may use controls for organic HAP emissions from

chemical depainting, and emissions must be reduced by 81 percent for controls installed before the effective date, and by 95 percent for controls installed on or after the effective date (40 CFR 63.746(b)(1) through (3) and (c)).

For non-chemical depainting operations that generate inorganic HAP emissions from dry media blasting, the operation must be performed in an enclosed area or in a closed cycle depainting system and the air stream from the operation must pass through a dry filter system meeting a minimum efficiency specified in the rule, through a baghouse or through a waterwash system before being released to the atmosphere (40 CFR 63.746(b)(4)).

Based on the technology review for depainting operations, we did not identify any practices, processes or control technologies that were not already required by the Aerospace NESHAP or considered in its development, nor did we identify any improvements to those practices, processes or control technologies that could be transferred and applied to this source category. A brief summary of the EPA's findings in conducting the RTR review of chemical and dry media blast depainting operations follows. For a detailed discussion of the EPA's findings, refer to the memorandum, *Technology Review for Depainting Operations in the Aerospace Source Category*, January 2015, available in the docket for this action.

In reviewing Washington State's records of permits for Aerospace Manufacturing and Rework Facilities, we identified a 2013 PSD permit amendment that requires the VOC vapor pressure of cleaning solvents and chemical strippers used in depainting operations to be less than 45 mm Hg. The Aerospace NESHAP does not prescribe vapor pressure limits to chemical depainting strippers, but instead has capture and control and volume usage limits for chemical depainting operations that use HAP-containing chemical strippers. Otherwise, facilities must use non-HAP chemical strippers. Therefore, we believe that the Aerospace NESHAP is at least as stringent as the Washington State PSD permit requirements.

Based on a finding of no new developments in practices, processes and control technologies in the technology review, we are not proposing to revise the Aerospace NESHAP standard requirements for chemical or dry media blast depainting operations pursuant to CAA section 112(d)(6). For further discussion of the technology review results, refer to the

memorandum, *Technology Review for Depainting Operations in the Aerospace Source Category*, January 2015, available in the docket for this action.

5. Waste Storage and Handling Operations

At Aerospace Manufacturing and Rework Facilities, waste is produced primarily from cleaning, coating and depainting operations. Cleaning operations produce solvent-laden cloth and paper and spent solvent which can emit organic HAP from the evaporation of the solvents. Coating operations produce waste paint and waste solvent that also emit organic HAP through evaporation.

Depainting operations can produce either a liquid or solid waste stream depending on the type of process used. Chemical depainting processes produce a waste sludge that consists of the stripper solution and paint residue. Emissions occur from the evaporation of the solvent from the stripper solution in the waste sludge.

Blast depainting processes produce a solid waste stream that consists of paint chips and particles and spent blasting media. Emissions do not directly occur from this waste stream, although particulate emissions are generated during the blasting process.

The requirements for waste storage and handling in the Aerospace NESHAP apply to each waste storage and handling operation, which is defined as the total of all waste handling and storage at the facility. In 40 CFR 63.748, the Aerospace NESHAP requires that all waste must be handled and transferred to or from containers, tanks, vats, vessels and piping systems in such a manner that spills are minimized.

Because the EPA did not want to create possible conflicts over the handling of waste between the Aerospace NESHAP and regulations under the Resource Conservation and Recovery Act (RCRA) of 1976 (Pub. L. 94-580), as implemented by 40 CFR parts 260 and 261, the Aerospace NESHAP specifically exempted wastes covered under the RCRA regulations.³⁴ Per 40 CFR 63.741(e), all wastes that are determined to be hazardous wastes under RCRA as implemented by 40 CFR parts 260 and 261, and that are subject to RCRA requirements as implemented in 40 CFR parts 262 through 268, are exempt from the requirements of the Aerospace NESHAP.

The practical effect of the provisions in 40 CFR 63.741(e) is that all HAP-containing wastes generated by

aerospace manufacturing and rework operations are subject to RCRA and are exempt from the requirements of 40 CFR 63.748. Because all of these HAP-containing wastes are covered under RCRA and exempt from 40 CFR 63.748, there is no need to do a technology review for the standards for handling and storage of waste.

E. What other actions are we proposing?

In addition to the proposed actions described above, we are proposing additional revisions. As stated previously in this preamble, the United States Court of Appeals for the District of Columbia Circuit found that the EPA had erred in establishing emissions standards for sources of HAP in the NESHAP for Brick and Structural Clay Products Manufacturing and Clay Ceramics Manufacturing, 67 FR 26690 (May 16, 2003), and consequently vacated the rules.³⁵ Among other things, the court found EPA erred by failing to regulate processes that emitted HAP, in some instances by establishing a MACT floor of "no control." In this action we are proposing to correct the same error in the Aerospace NESHAP by proposing to remove the exemption for specialty coatings found at 40 CFR 63.741(f) and instead add limits for specialty coatings (including adhesives, adhesive bonding primers and sealants).

1. Specialty Coating Application

At Aerospace Manufacturing and Rework Facilities, specialty coatings are those coatings that have additional performance criteria for specific applications that are beyond the criteria for primers, topcoats and self-priming topcoats, although specialty coatings may still meet the definition of a primer or topcoat. These additional performance criteria may include, for example, temperature or fire resistance, substrate compatibility, antireflection, temporary protection or marking, sealant properties, adhesive properties, electrical insulation, lubrication or enhanced corrosion protection (40 CFR 63.742).

Specialty coatings contain a mixture of organic solvents and/or inorganic HAP. The organic HAP emissions from the application of specialty coatings occur from the evaporation of organic solvents during mixing, application and drying. Emissions of inorganic HAP from spray-applied coating operations, typically metal compounds (e.g., chromium, cadmium compounds), occur when particles do not adhere to the surface being coated (i.e.,

³⁴ See the preamble to the proposed rule, 59 FR 29216, June 6, 1994.

³⁵ *Sierra Club v. EPA*, 479 F. 3d 875 (D.C. Cir. March 13, 2007).

overspray). The organic and inorganic emissions from coating application operations occur in large open areas, such as hangars or partially or fully enclosed spaces, such as within spray booths.

The current Aerospace NESHAP explicitly excludes specialty coatings from meeting any control requirements, as specified in 40 CFR 63.741(f) and in 40 CFR 63.742 (*i.e.*, the definitions for “exterior primer,” “primer,” and “topcoat”). Appendix A of the Aerospace NESHAP defines 59 separate categories of specialty coatings.

Although the EPA did not include emission limitations for specialty coatings in the Aerospace NESHAP finalized in 1995 or in any subsequent amendments, the EPA included VOC content limits for the 59 categories of specialty coatings in the 1997 Aerospace CTG. The Aerospace CTG is intended to provide state and local air pollution control authorities with an information base, recommended emissions limitations and monitoring, recordkeeping and reporting requirements for proceeding with their analyses of reasonably available control technology (RACT) for their own regulations to reduce VOC emissions from aerospace surface coating operations. The Aerospace CTG includes presumptive VOC limits for specialty coating operations that are based on a review of the contemporary knowledge and data concerning the technology, impacts and costs associated with various emission control techniques. During their development, the specialty coating categories and VOC limits in the CTG were also subject to a period of public comment and review, and the final CTG categories and VOC limits were revised after proposal to reflect the EPA’s analysis of those comments on the proposed CTG.

In this action, we are proposing to establish standards for specialty coatings. Based on a MACT analysis for specialty coatings, we are proposing to require aerospace manufacturing and rework specialty coating application operations to achieve organic HAP content limits that are equivalent to the VOC content limits for specialty coatings included in the Aerospace CTG. As discussed previously in section IV.E.1 of this preamble, the Aerospace CTG may be adopted by state and local agencies in nonattainment areas to assist them in meeting their state implementation plan requirements. Of the 109 facilities that reported the use of specialty coatings, 35 are in nonattainment areas and likely currently complying with the specialty

coating limits in the Aerospace CTG. The remaining facilities would need to take action to comply with the specialty coating application operations limits.

In the MACT analysis for specialty coatings, the EPA considered data provided in response to a comprehensive information collection request (ICR) sent out in February 2011 and consulted the EPA’s RACT/BACT/LAER Clearinghouse, the California Statewide Best Available Control Technology (BACT) Clearinghouse and regional and state regulations for sources of data on control technologies and limitations. We reviewed state rules to compare the VOC limits in those rules to the VOC limits in the Aerospace CTG. This review of state rules was in addition to a review of the database of responses to the 2011 ICR and the RBLC for information on add-on control technology or other equipment, work practices and procedures and process changes or pollution prevention alternatives not identified and considered during development of the Aerospace CTG, or improvements in the same since the CTG development. A brief summary of the EPA’s findings in conducting its MACT analysis of specialty coating application operations follows. For a detailed discussion of the EPA’s findings, refer to the memorandum, *Maximum Achievable Control Technology for Specialty Coating Operations in the Aerospace Source Category*, January 2015, available in the docket for this action.

For specialty coatings, where there were sufficient data, the EPA compared the emissions for the best performing coatings with the Aerospace CTG limits. The results of this comparison showed that the CTG VOC limits were equivalent in performance to the best performing specialty coating. Therefore, we determined that the current Aerospace CTG limits represent MACT for specialty coatings.

Based on the results of the MACT analysis, we determined that the VOC limits in the Aerospace CTG for specialty coatings are currently being achieved by about half of all operating sources subject to the Aerospace NESHAP. The facilities complying with the CTG limits for specialty coatings are located in ozone non-attainment areas where state VOC rules have been developed based on the Aerospace CTG. From our review of industry responses to the 2011 ICR, we determined that some facilities complying with these state VOC limits employ use of add-on control devices to reduce organic HAP emissions (*i.e.*, thermal oxidizers and carbon adsorbers); however, these add-on controls are not widely used in the

source category. Other facilities achieve equivalent emission reductions without add-on controls by using coatings that meet the VOC content limits.

Based on our review of state and regional regulations for specialty coating operations in the aerospace industry, we identified several cases in which limits are specified for certain specialty coating categories that are lower than the VOC content limits for the same specialty coating categories in the Aerospace CTG. These differences generally affect about one-quarter of the specialty coating categories (although each state or regional regulation may differ from the CTG in only a handful of categories), and the limits differ by less than 200 grams VOC per liter of coating. However, these state and regional rules and the Aerospace CTG differ in certain ways, such that the lower VOC limits in the state and regional rules do not represent a more stringent limit as compared to the Aerospace CTG.

First, in many cases where a state rule has a lower VOC limit than the CTG, the state rule has also added coating categories with VOC limits equal to or higher than the CTG limits. For example, one state rule has a lower limit for fuel tank coatings, but has an additional category for “rapid cure” fuel tank coatings that is the same as the CTG VOC limit.

Second, not all categories of specialty coatings are used at all Aerospace Manufacturing and Rework Facilities. For the specialty categories with more stringent VOC limits, the EPA does not have data to confirm that facilities exist in those jurisdictions that are using those coatings and actually have to comply with the more stringent VOC limits. These data on facilities actually using coatings subject to these more stringent limits would be needed to confirm that these more stringent limits constitute the MACT floor according to section 112(d)(3) of the CAA.

Finally, many of the areas with more stringent VOC limits than in the CTG have climates that are warmer and drier than in most other parts of the United States, and this type of climate is more conducive to the use of low-VOC coatings because it helps promote expeditious curing of the coatings under ambient conditions. In cooler and more humid areas, the coatings require the use of a solvent carrier and/or thermal curing. The Aerospace NESHAP and CTG, on the other hand, must establish HAP and VOC limits that are applicable across the United States. It is not practical to establish MACT limits for coatings based on regional climate differences for this source category.

Based on the issues noted above, the EPA concludes that the noted differences between the state and regional rules and the Aerospace CTG limits do not constitute more stringent limits compared to those in the Aerospace CTG. The EPA does not have sufficient data to determine whether these differences in VOC limits, compared to the limits in the Aerospace CTG, actually constitute MACT. Therefore, the EPA is specifically soliciting comment and additional data on the differences noted between state and regional rules and the aerospace CTG.

Based on its analysis, the EPA is proposing the MACT floor for specialty coatings to be organic HAP content limits equal to the VOC limits specified in the Aerospace CTG for specialty coatings. Additionally, the low-volume exemption provisions in the current Aerospace NESHAP for primers, topcoats and chemical milling maskants may be used for specialty coatings. The EPA has not identified any options more stringent than the MACT floor as documented in the review of specialty coatings discussed earlier in this section, so the proposed organic HAP content limits are equal to the MACT floor VOC content limits. The EPA is proposing this MACT floor based on the fact that these VOC limits are currently being achieved by at least 12 percent of the operating facilities in a total population of 109 operating aerospace and rework facilities that reported using specialty coatings in the 2011 ICR. For more information on the MACT floor analysis, please refer to the memorandum, Maximum Achievable Control Technology for Specialty Coating Operations in the Aerospace Source Category, January 2015, available in the docket for this action.

In reviewing the state and district VOC rules, the EPA determined that the aerospace surface coating rules in many of the California district rules, in addition to the requirement to meet VOC limits, require that all spray-applied coating operations use high-efficiency application equipment (*i.e.*, HVLP, electrostatic spray or an equivalent). This requirement is more stringent than the model rule found in the Aerospace CTG, which exempts specialty coatings from the requirement to use high-efficiency application equipment. The California rules examined by the EPA require the use of high-efficiency application equipment for all spray applied coatings, unless an add-on control system was used, or certain other exemptions apply. Other state rules that follow the CTG require high-efficiency application methods

only for primer and topcoat application operations. The facilities located in California that are required to use high-efficiency application equipment for specialty coatings constitute the MACT floor for the application of these coatings. This determination is based on the fact that at least 11 facilities in California's air pollution control districts are currently subject to district rules that require high-efficiency application equipment for all coating operations, including specialty coatings. Therefore, the EPA is proposing that specialty coatings be subject to the same application requirements in 40 CFR 63.745(f) as primers and topcoats. Compared to conventional spray application methods, high-efficiency application methods, such as HVLP spray guns or electrostatic deposition, can achieve HAP and VOC emission reductions because of reduced coating consumption that results from reduced coating overspray. The EPA has not identified any control options more stringent than the use of high-efficiency application methods for spray-applied coating operations.

In our review of the RBLC, we did not identify any control options for aerospace specialty surface coating operations that were not already reflected in the VOC content limits in the Aerospace CTG. However, we identified one facility in the state of Washington for which a BACT analysis was completed in September 2014, for constructing new buildings needed for producing new models of large commercial airplanes, including the building and surface coating of composite aircraft wings. The BACT analysis described the facility as currently using HVLP spraying and electrostatic airless and modified high-efficiency air-assisted airless spray equipment in all spray applied surface coating operations. The BACT analysis concluded that there were no demonstrations of add-on controls at facilities performing surface coating comparable to large commercial aircraft wing components.

In our review of Washington State's record of permits, we determined that the current PSD permit for this facility identified BACT for VOC from coating operations to be the equivalent of complying with "all applicable VOC emission standards of the Aerospace NESHAP." The PSD permit for the facility did not consider add-on control technologies to be BACT after taking into account energy, environmental and economic impacts. Based on this information from the RBLC and the Washington State BACT analysis, we determined that add-on control

techniques would not be MACT for specialty coating application operations for the aerospace industry.

Instead, MACT is being proposed as the use of low-HAP coatings (with HAP content limits equal to the VOC content limits in the Aerospace CTG) and high-efficiency application methods for spray-applied coating operations. As the EPA did with primers and top coats in the current NESHAP, the EPA is proposing to use VOC limits that are currently in effect as the basis for proposed organic HAP limits.

The EPA is also proposing to establish MACT to limit emissions of inorganic HAP from spray-applied specialty coatings that contain inorganic HAP. The predominant method used to control inorganic HAP emissions from all spray-applied coating operations (including specialty coatings) is the use of a spray booth with a particulate filter, which generally achieves a high (*i.e.*, greater than 99 percent) control efficiency. The Aerospace NESHAP currently requires the use of spray booths with filters meeting minimum efficiency requirements for the spray application of primers and topcoats that contain inorganic HAP. Based on the results of the 2011 ICR, the EPA has determined that the vast majority of spray-applied specialty coatings are currently applied in spray booths. It is likely that these specialty coatings are applied in the same spray booths as primers and topcoats, or at least in spray booths that are very similar to those used for primer and topcoat operations. Therefore, the same inorganic HAP emission limitations that are applied to primer and topcoat operations should also be applicable to specialty coating operations, and the EPA is proposing to extend these limitations to specialty coating operations. The EPA has not identified any control options more stringent than the use of spray booths with high-efficiency filters to control inorganic HAP emissions from spray-applied coating operations.

In summary, the EPA is proposing to add a requirement to the Aerospace NESHAP that Aerospace Manufacturing and Rework Facilities comply with organic HAP or VOC content limits for specialty coatings that are equal to the VOC content limits specified in the Aerospace CTG. The EPA is also proposing that specialty coating application operations be subject to the same application equipment requirements in 40 CFR 63.745(f), and the standards for inorganic HAP emissions in 40 CFR 63.745(g) that apply to primer and topcoat application operations. We request comment on our analysis and supporting info on any

other practices that may be used to limit emissions from specialty coatings.

The EPA believes that the proposed HAP and VOC content limits for specialty coatings are achievable because they are based on the VOC content limits in the Aerospace CTG, which have been adopted in many state and local VOC rules. In the development of these proposed amendments, the EPA made repeated efforts to reach out to and solicit input from aerospace manufacturers on the coating performance and reformulation challenges, if any, presented by complying with specialty coating limits based on the current CTG. However, the information presented so far has been only anecdotal, and not for the full range of specialty coating categories in the CTG.

Therefore, the EPA is specifically soliciting comment and additional data on any changes needed to the definitions of specialty coating categories and the proposed organic HAP and VOC limits. The EPA will consider comments on changes to the definitions of specialty coating categories that may be needed to clarify the scope of each of the individual specialized coating categories, based on industry experience, including complying with those categories in rules derived from the Aerospace CTG. The EPA will consider data and information on specific cases (not just general examples) of specialty coatings that could not meet the current definitions of the specialty coating categories or the proposed organic HAP or VOC content limits for those categories. Please provide with your comments information on the following: The annual volume of the coating used, the container size, the container type, the military specification or FAA AD that applies, the specialty category that applies, documentation of the organic HAP or VOC content of the coating and suggested changes to category definitions (if applicable and feasible) that would include the coating in a more appropriate category with a higher HAP or VOC limit. The EPA will consider any submitted data that supports a comment that a specific coating cannot meet the proposed organic HAP or VOC content limit for a particular specialty coating category.

The estimated costs, emission reductions, other (non-air) environmental impacts and energy impacts associated with the proposed regulation of specialty coatings are presented in section V of this preamble.

2. Electronic Reporting Requirements

In this proposal, the EPA is describing a process to increase the ease and efficiency of performance test data submittal while improving data accessibility. Specifically, the EPA is proposing that owners and operators of Aerospace Manufacturing and Rework Facilities submit electronic copies of required performance test and performance evaluation reports by direct computer-to-computer electronic transfer using EPA-provided software. The direct computer-to-computer electronic transfer is accomplished through the EPA's Central Data Exchange (CDX) using the Compliance and Emissions Data Reporting Interface (CEDRI). The CDX is the EPA's portal for submittal of electronic data. The EPA-provided software is called the Electronic Reporting Tool (ERT), which is used to generate electronic reports of performance tests and evaluations. The ERT generates an electronic report package which will be submitted using the CEDRI. The submitted report package will be stored in the CDX archive (the official copy of record) and the EPA's public database called WebFIRE. The WebFIRE database was constructed to store performance test data for use in developing emissions factors. All stakeholders would have access to all reports and data in WebFIRE and accessing these reports and data will be very straightforward and easy (see the WebFIRE Report Search and Retrieval link at <http://cfpub.epa.gov/webfire/index.cfm?action=fire.searchERTSubmission>). A description of the WebFIRE database is available at <http://cfpub.epa.gov/oarweb/index.cfm?action=fire.main>. A description of the ERT and instructions for using ERT can be found at http://www.epa.gov/ttn/chief/ert/ert_tool.html. CEDRI can be accessed through the CDX Web site (www.epa.gov/cdx).

The proposal to submit performance test data electronically to the EPA would apply only to those performance tests conducted using test methods that will be supported by the ERT. The ERT contains a specific electronic data entry form for most of the commonly used EPA reference methods. A listing of the pollutants and test methods supported by the ERT is available at <http://www.epa.gov/ttn/chief/ert/index.html>. We believe that industry would benefit from this proposed approach to electronic data submittal. Specifically, by using this approach, industry would save time in the performance test submittal process. Additionally, the standardized format that the ERT uses allows sources to create a more

complete test report resulting in less potential failure to include all data elements required to be submitted. Also through this proposal, industry may only need to submit a report once to meet the requirements of the applicable subpart because stakeholders can readily access these reports from the WebFIRE database. This also would benefit industry by cutting back on recordkeeping costs as the performance test reports that are submitted to the EPA using CEDRI are no longer required to be retained in hard copy, thereby reducing staff time needed to coordinate these records. Another benefit to industry is that, because the EPA would already have performance test data in hand, industry would be subject to fewer or less substantial data collection requests from EPA in conjunction with required future residual risk assessments or technology reviews. This would result in a decrease in industry staff time needed to respond to data collection requests.

State, local and tribal air pollution control agencies (S/L/Ts) may also benefit from having electronic versions of the reports they are now receiving. For example, S/L/Ts may be able to conduct a more streamlined and accurate review of electronic data submitted to them. The ERT would allow for an electronic review process, rather than a manual data assessment, which will make review and evaluation of the source provided data and calculations easier and more efficient. In addition, the public will benefit from electronic reporting of emissions data because the electronic data will be easier for the public to access. How the air emissions data are collected, accessed and reviewed will be more transparent for all stakeholders.

Further, the EPA must have performance test data to conduct effective reviews of CAA sections 112 and 129 standards, as well as for many other purposes including compliance determinations, emissions factor development and annual emissions rate determinations. In conducting these required reviews, the EPA has found it ineffective and time consuming, not only for the EPA, but also for regulatory agencies and source owners and operators, to locate, collect and submit performance test data because of varied locations for data storage and varied data storage methods. In recent years, though, stack testing firms have typically collected performance test data in electronic format, making it possible to move to an electronic data submittal system that would increase the ease and efficiency of data submittal and improve data accessibility.

One major advantage of the proposed submittal of performance test data through the ERT is a standardized method to compile and store much of the documentation required to be reported by this rule. Another advantage is that the ERT clearly states what testing information would be required. Another important proposed benefit of submitting these data to the EPA at the time the source test is conducted is that it should substantially reduce the effort involved in data collection activities in the future. When the EPA has performance test data in hand, the EPA will be able to conduct fewer or less substantial data collection requests in conjunction with future required residual risk assessments or technology reviews. This would result in a reduced burden on both affected facilities (in terms of reduced staff time to respond to data collection requests) and the EPA (in terms of preparing and distributing data collection requests and assessing the results).

Finally, another benefit of the proposed data submittal to WebFIRE electronically is that these data would greatly improve the overall quality of existing and new emissions factors by supplementing the pool of emissions test data for establishing emissions factors and by ensuring that the factors are more representative of current industry operational procedures. A common complaint heard from industry and regulators is that emissions factors are outdated or not representative of a particular source category. With timely receipt and incorporation of data from most performance tests, the EPA would be able to ensure that emissions factors, when updated, represent the most current range of operational practices.

In summary, in addition to supporting regulation development, control strategy development and other air pollution control activities, having an electronic database populated with performance test data would save industry, state, local, tribal agencies and the EPA significant time, money and effort while also improving the quality of emissions inventories and, as a result, air quality regulations.

3. Startup, Shutdown and Malfunction Requirements

In its 2008 decision in *Sierra Club v. EPA*, 551 F.3d 1019 (D.C. Cir. 2008), *cert. denied*, 130 S. Ct. 1735 (U.S. 2010), the United States Court of Appeals for the District of Columbia Circuit vacated portions of two provisions in the EPA's CAA section 112 regulations governing the emissions of HAP during periods of SSM. Specifically, the court vacated the SSM exemption contained in 40 CFR

63.6(f)(1) and (h)(1), holding that under section 302(k) of the CAA, emissions standards or limitations must be continuous in nature and that the SSM exemption violates the CAA's requirement that some section 112 standards apply continuously.

We are proposing the elimination of the SSM exemption in this rule. Consistent with *Sierra Club v. EPA*, we are proposing changes so that standards in this rule would apply at all times. We are also proposing several revisions to Table 1 to subpart GG of Part 63 (the General Provisions Applicability Table, hereafter referred to as the "General Provisions table") as explained in more detail below. For example, we are proposing to eliminate the incorporation of the General Provisions' requirement that the source develop an SSM plan. We also are proposing to eliminate and revise certain recordkeeping and reporting requirements related to the SSM exemption as further described below.

The EPA has attempted to ensure that the provisions we are proposing to eliminate are inappropriate, unnecessary or redundant in the absence of the SSM exemption. We are specifically seeking comment on whether we have successfully done so.

In proposing the standards in this rule, the EPA has taken into account startup and shutdown periods and, for the reasons explained below, has not proposed alternate standards for those periods.

Periods of startup, normal operations and shutdown are all predictable and routine aspects of a source's operations. Malfunctions, in contrast, are neither predictable nor routine. Instead they are, by definition sudden, infrequent and not reasonably preventable failures of emissions control, process or monitoring equipment. The EPA interprets CAA section 112 as not requiring emissions that occur during periods of malfunction to be factored into development of CAA section 112 standards. Under section 112, emissions standards for new sources must be no less stringent than the level "achieved" by the best controlled similar source and, for existing sources, generally must be no less stringent than the average emission limitation "achieved" by the best performing 12 percent of sources in the category. There is nothing in section 112 that directs the agency to consider malfunctions in determining the level "achieved" by the best performing sources when setting emission standards. As the D.C. Circuit has recognized, the phrase "average emissions limitation achieved by the best performing 12 percent of" sources

"says nothing about how the performance of the best units is to be calculated." *Nat'l Ass'n of Clean Water Agencies v. EPA*, 734 F.3d 1115, 1141 (D.C. Cir. 2013). While the EPA accounts for variability in setting emissions standards, nothing in CAA section 112 requires the agency to consider malfunctions as part of that analysis. A malfunction should not be treated in the same manner as the type of variation in performance that occurs during routine operations of a source. A malfunction is a failure of the source to perform in a "normal or usual manner" and no statutory language compels the EPA to consider such events in setting CAA section 112 standards.

Further, accounting for malfunctions in setting emission standards would be difficult, if not impossible, given the myriad different types of malfunctions that can occur across all sources in the category and given the difficulties associated with predicting or accounting for the frequency, degree and duration of various malfunctions that might occur. As a result, the performance of units that are malfunctioning is not "reasonably" foreseeable. *See, e.g. Sierra Club v. EPA*, 167 F.3d 658, 662 (D.C. Cir. 1999) ("The EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem. We generally defer to an agency's decision to proceed on the basis of imperfect scientific information, rather than to 'invest the resources to conduct the perfect study.'") *See also, Weyerhaeuser v. Costle*, 590 F.2d 1011, 1058 (D.C. Cir. 1978) ("In the nature of things, no general limit, individual permit, or even any upset provision can anticipate all upset situations. After a certain point, the transgression of regulatory limits caused by 'uncontrollable acts of third parties,' such as strikes, sabotage, operator intoxication or insanity and a variety of other eventualities, must be a matter for the administrative exercise of case-by-case enforcement discretion, not for specification in advance by regulation."). In addition, emissions during a malfunction event can be significantly higher than emissions at any other time of source operation. For example, if an air pollution control device with 99-percent removal goes offline as a result of a malfunction (as might happen if, for example, the bags in a baghouse catch fire) and the emission unit is a steady-state type unit that would take days to shut down, the source would go from 99-percent control to zero control until the control device was repaired. The source's emissions during the malfunction

would be 100 times higher than during normal operations and the emissions over a 4-day malfunction period would exceed the annual emissions of the source during normal operations. As this example illustrates, accounting for malfunctions could lead to standards that are not reflective of (and significantly less stringent than) levels that are achieved by a well-performing non-malfunctioning source. It is reasonable to interpret CAA section 112 to avoid such a result. The EPA's approach to malfunctions is consistent with CAA section 112 and is a reasonable interpretation of the statute.

In the event that a source fails to comply with the applicable CAA section 112 standards as a result of a malfunction event, the EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions. The EPA would also consider whether the source's failure to comply with the CAA section 112 standard was, in fact, sudden, infrequent, not reasonably preventable and was not instead caused in part by poor maintenance or careless operation.

If the EPA determines that an enforcement action against a source for violation of an emission standard is warranted, the source can raise any and all defenses in that enforcement action and the federal district court will determine what, if any, relief is appropriate. The same is true for citizen enforcement actions. Similarly, the presiding officer in an administrative proceeding can consider any defense raised and determine whether administrative penalties are appropriate.

In summary, the EPA interpretation of the CAA and, in particular, CAA section 112 is reasonable and encourages practices that will avoid malfunctions. Administrative and judicial procedures for addressing exceedances of the standards fully recognize that violations may occur despite good faith efforts to comply and can accommodate those situations.

In several prior CAA section 112 rules, the EPA had included an affirmative defense to civil penalties for violations caused by malfunctions in an effort to create a system that incorporates some flexibility, recognizing that there is a tension, inherent in many types of air regulation, to ensure adequate compliance while simultaneously recognizing that despite the most diligent of efforts, emission standards may be violated under

circumstances entirely beyond the control of the source. Although the EPA recognized that its case-by-case enforcement discretion provides sufficient flexibility in these circumstances, it included the affirmative defense to provide a more formalized approach and more regulatory clarity. See *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1057–58 (D.C. Cir. 1978) (holding that an informal case-by-case enforcement discretion approach is adequate); but see *Marathon Oil Co. v. EPA*, 564 F.2d 1253, 1272–73 (9th Cir. 1977) (requiring a more formalized approach to consideration of “upsets beyond the control of the permit holder”). Under the EPA's regulatory affirmative defense provisions, if a source could demonstrate in a judicial or administrative proceeding that it had met the requirements of the affirmative defense in the regulation, civil penalties would not be assessed. Recently, the United States Court of Appeals for the District of Columbia Circuit vacated an affirmative defense in one of the EPA's CAA section 112 regulations. *NRDC v. EPA*, 749 F.3d 1055 (D.C. Cir., 2014) (vacating affirmative defense provisions in CAA section 112 rule establishing emission standards for Portland cement kilns). The court found that the EPA lacked authority to establish an affirmative defense for private civil suits and held that under the CAA, the authority to determine civil penalty amounts in such cases lies exclusively with the courts, not the EPA. Specifically, the court found: “As the language of the statute makes clear, the courts determine, on a case-by-case basis, whether civil penalties are ‘appropriate.’” See *NRDC*, 2014 U.S. App. LEXIS 7281 at *21 (“[U]nder this statute, deciding whether penalties are ‘appropriate’ in a given private civil suit is a job for the courts, not EPA.”).³⁶ In light of *NRDC*, the EPA is not including a regulatory affirmative defense provision in the proposed rule. As explained above, if a source is unable to comply with emissions standards as a result of a malfunction, the EPA may use its case-by-case enforcement discretion to provide flexibility, as appropriate. Further, as the United States Court of Appeals for the District of Columbia Circuit recognized, in an EPA or citizen enforcement action, the court has the discretion to consider any defense raised and determine whether penalties are appropriate. Cf. *NRDC*,

³⁶ The court's reasoning in *NRDC v. EPA* focuses on civil judicial actions. The Court noted that “EPA's ability to determine whether penalties should be assessed for Clean Air Act violations extends only to administrative penalties, not to civil penalties imposed by a court.” *Id.*

2014 U.S. App. LEXIS 7281 at *24 (arguments that violation were caused by unavoidable technology failure can be made to the courts in future civil cases when the issue arises). The same is true for the presiding officer in EPA administrative enforcement actions.³⁷

a. 40 CFR 63.743(e) General Duty

We are proposing to revise the entry in the General Provisions table for 40 CFR 63.6(e)(1)(i) by changing the “yes” in column 2 to a “no.” Section 63.6(e)(1)(i) describes the general duty to minimize emissions. Some of the language in that section is no longer necessary or appropriate in light of the elimination of the SSM exemption. We are proposing instead to add general duty regulatory text at 40 CFR 63.743(e) that reflects the general duty to minimize emissions while eliminating the reference to periods covered by an SSM exemption. The current language in 40 CFR 63.6(e)(1)(i) characterizes what the general duty entails during periods of SSM. With the elimination of the SSM exemption, there is no need to differentiate between normal operations, startup and shutdown and malfunction events in describing the general duty. Therefore the language the EPA is proposing for 40 CFR 63.743(e) does not include that language from 40 CFR 63.6(e)(1).

We are also proposing to revise the General Provisions table entry for 40 CFR 63.6(e)(1)(ii) by changing the “yes” in column 2 to a “no.” Section 63.6(e)(1)(ii) imposes requirements that are not necessary with the elimination of the SSM exemption or are redundant with the general duty requirement being added at 40 CFR 63.743(e).

b. SSM Plan

We are proposing to revise the General Provisions table entry for 40 CFR 63.6(e)(3) by changing the “yes” in column 2 to a “no.” Generally, these paragraphs require development of an SSM plan and specify SSM recordkeeping and reporting requirements related to the SSM plan. As noted, the EPA is proposing to remove the SSM exemptions. Therefore, affected units will be subject to an

³⁷ Although the *NRDC v. EPA* case does not address the EPA's authority to establish an affirmative defense to penalties that is available in administrative enforcement actions, the EPA is not including such an affirmative defense in the proposed rule. As explained above, such an affirmative defense is not necessary. Moreover, assessment of penalties for violations caused by malfunctions in administrative proceedings and judicial proceedings should be consistent. Cf. CAA section 113(e) (requiring both the Administrator and the court to take specified criteria into account when assessing penalties).

emission standard during such events. The applicability of a standard during such events will ensure that sources have ample incentive to plan for and achieve compliance and, thus, the SSM plan requirements are no longer necessary.

c. Compliance With Standards

We are proposing to revise the General Provisions table entry for 40 CFR 63.6(f)(1) by changing the “yes” in column 2 to a “no.” The current language of 40 CFR 63.6(f)(1) exempts sources from non-opacity standards during periods of SSM. As discussed above, the court in *Sierra Club v. EPA* vacated the exemptions contained in this provision and held that the CAA requires that some CAA section 112 standards apply continuously. Consistent with *Sierra Club*, the EPA is proposing to revise some standards in this rule to apply at all times.

d. 40 CFR 63.749(j) Performance Testing

We are proposing to revise the General Provisions table entry for 40 CFR 63.7(e)(1) by changing the “yes” in column 2 to a “no.” Section 63.7(e)(1) describes performance testing requirements. The EPA is instead proposing to add a performance testing requirement at 40 CFR 63.749(j). The performance testing requirements we are proposing to add differ from the General Provisions performance testing provisions in several respects. The regulatory text does not include the language in 40 CFR 63.7(e)(1) that restated the SSM exemption and language that precluded startup and shutdown periods from being considered “representative” for purposes of performance testing. The proposed performance testing provisions will specify that performance testing of controls must be conducted during representative operating conditions of the applicable source, and may not take place during startup, shutdown or malfunction of the applicable controlled surface coating operations, controlled chemical milling maskant application operations or controlled chemical depainting operations. As in 40 CFR 63.7(e)(1), performance tests conducted under this subpart should not be conducted during malfunctions because conditions during malfunctions are often not representative of normal operating conditions. The EPA is proposing to add language that requires the owner or operator to record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such

conditions represent normal operation. Section 63.7(e) requires that the owner or operator make available to the Administrator such records “as may be necessary to determine the condition of the performance test” available to the Administrator upon request, but does not specifically require the information to be recorded. The regulatory text the EPA is proposing to add to this provision builds on that requirement and makes explicit the requirement to record the information.

e. Monitoring

We are proposing to revise the General Provisions table entry for 40 CFR 63.8(c)(1)(i) and (iii) by changing the “yes” in column 2 to a “no.” The cross-references to the general duty and SSM plan requirements in those subparagraphs are not necessary in light of other requirements of 40 CFR 63.8 that require good air pollution control practices (40 CFR 63.8(c)(1)) and that set out the requirements of a quality control program for monitoring equipment (40 CFR 63.8(d)).

f. 40 CFR 63.752(a) Recordkeeping

We are proposing to revise the General Provisions table entry for 40 CFR 63.10(b)(2)(i) by changing the “yes” in column 2 to a “no.” Section 63.10(b)(2)(i) describes the recordkeeping requirements during startup and shutdown. These recording provisions are no longer necessary because the EPA is proposing that recordkeeping and reporting applicable to normal operations will apply to startup and shutdown. In the absence of special provisions applicable to startup and shutdown, such as a startup and shutdown plan, there is no reason to retain additional recordkeeping for startup and shutdown periods.

We are proposing to revise the General Provisions table entry for 40 CFR 63.10(b)(2)(ii) by changing the “yes” in column 2 to a “no.” Section 63.10(b)(2)(ii) describes the recordkeeping requirements during a malfunction. The EPA is proposing to add such requirements to 40 CFR 63.752(a). The regulatory text we are proposing to add differs from the General Provisions in that the General Provisions requires the creation and retention of a record of the occurrence and duration of each malfunction of process, air pollution control and monitoring equipment. The EPA is proposing that this requirement apply to any failure to meet an applicable standard and is requiring that the source record the date, time and duration of the failure rather than the “occurrence.” The EPA is also

proposing to add to 40 CFR 63.752(a) a requirement that sources keep records that include a list of the affected source or equipment and actions taken to minimize emissions, an estimate of the quantity of each regulated pollutant emitted over the standard for which the source failed to meet the standard and a description of the method used to estimate the emissions. Examples of such methods would include mass balance calculations, measurements when available or engineering judgment based on known process parameters (e.g., coating HAP content and application rate or control device efficiencies). The EPA is proposing to require that sources keep records of this information to ensure that there is adequate information to allow the EPA to determine the severity of any failure to meet a standard and to provide data that may document how the source met the general duty to minimize emissions when the source has failed to meet an applicable standard.

We are proposing to revise the General Provisions table entry for 40 CFR 63.10(b)(2)(iv) by changing the “yes” in column 2 to a “no.” When applicable, the provision requires sources to record actions taken during SSM events when actions were inconsistent with their SSM plan. The requirement is no longer appropriate because SSM plans will no longer be required. The requirement previously applicable under 40 CFR 63.10(b)(2)(iv)(B) to record actions to minimize emissions and record corrective actions is now applicable by reference to 40 CFR 63.752(a).

We are proposing to revise the General Provisions table entry for 40 CFR 63.10(b)(2)(v) by changing the “yes” in column 2 to a “no.” When applicable, the provision requires sources to record actions taken during SSM events to show that actions taken were consistent with their SSM plan. The requirement is no longer appropriate because SSM plans will no longer be required.

g. 40 CFR 63.753 Reporting

We are proposing to revise the General Provisions table entry for 40 CFR 63.10(d)(5) by changing the “yes” in column 2 to a “no.” Section 63.10(d)(5) describes the reporting requirements for startups, shutdowns and malfunctions. To replace the General Provisions reporting requirement, the EPA is proposing to add reporting requirements to 40 CFR 63.753(a). The replacement language added to 40 CFR 63.753(a) differs from the General Provisions requirement in that it eliminates periodic SSM reports

as a stand-alone report. We are proposing language that requires sources that fail to meet an applicable standard at any time to report the information concerning such events in the semi-annual reporting period already required under this rule. We are proposing that the report must contain the number, date, time, duration and the cause of such events (including unknown cause, if applicable), a list of the affected source or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

Examples of such methods would include mass balance calculations, measurements when available or engineering judgment based on known process parameters (e.g., coating HAP content and application rates and control device efficiencies). The EPA is proposing this requirement to ensure that there is adequate information to determine compliance, to allow the EPA to determine the severity of the failure to meet an applicable standard and to provide data that may document how the source met the general duty to minimize emissions during a failure to meet an applicable standard.

We would no longer require owners or operators to determine whether actions taken to correct a malfunction are consistent with an SSM plan, because plans would no longer be required. The proposed amendments would, therefore, eliminate the cross reference to 40 CFR 63.10(d)(5)(i) that contains the description of the previously required SSM report format and submittal schedule from this section. These specifications would be no longer necessary because the events would be reported in otherwise required reports with similar format and submittal requirements.

As discussed above, we are proposing to revise the General Provisions table entry for 40 CFR 63.10(d)(5), by changing the "yes" in column 2 to a "no." Section 63.10(d)(5)(ii) describes an immediate report for startups, shutdown and malfunctions when a source failed to meet an applicable standard, but did not follow the SSM plan. We will no longer require owners and operators to report when actions taken during a startup, shutdown or malfunction were not consistent with an SSM plan, because plans would no longer be required to allow the EPA to determine the severity of the failure to meet an applicable standard and to provide data that may document how the source met the general duty to minimize emissions during a failure to meet an applicable standard.

4. Technical Amendments to the Aerospace NESHAP

The EPA is also proposing the following technical corrections:

- Revising 40 CFR 63.743(a)(2) to match the section title in 40 CFR 63.5.
- Revising 40 CFR 63.743(a)(8) to correct the reference to paragraph 63.6(i)(12)(iii)(B) by changing the "(1)" to an "(i)."
- Revising 40 CFR 63.744(a) to correct and clarify the format of the reference to 40 CFR 63.744(a)(1) through (4).
- Correct the ordering of 40 CFR 63.744(a)(3) and (4); currently paragraph (a)(4) is printed before (a)(3).
- Correcting the paragraph numbering for 40 CFR 63.746(b)(4)(ii)(C) by changing paragraph (C) from a lower case to upper case "C."
- Correcting the numbering of the tables in 40 CFR 63.745 to account for the proposed addition of Table 1 to that section to include specialty coating limits.
- Revising 40 CFR 63.749(d)(4) to correct the references to 40 CFR 63.749(d)(4)(i) through (d)(4)(iv) and (e).
- Revising 40 CFR 63.750(g)(6)(i) to remove the letters "VR/FD" that were inadvertently included.

5. Amendments To Simplify Recordkeeping and Reporting for Compliant Coatings

The EPA is proposing to revise 40 CFR 63.750 to include alternative compliance demonstration provisions for all coatings subject to the Aerospace NESHAP (primers, topcoats, specialty coatings and chemical milling maskants). If the manufacturer's supplied formulation data or calculation of HAP and VOC content indicate that the coating meets the organic HAP and VOC content emission limits for its coating type, as specified in 40 CFR 63.745(c) and 63.747(c), then the owner or operator would not be required to demonstrate compliance for these coatings using the test method and calculations specified in 40 CFR 63.750(c), (e), (k) and (m) or to keep the associated records and submit the associated reports associated with these methods and calculations. Instead, the owner or operator would be able to rely on the manufacturers' formulation data and calculation of the HAP or VOC content to demonstrate compliance. However, the owner or operator would still be required to maintain purchase records and manufacturer's supplied data sheets for these compliant coatings. Owners or operators of facilities using these coatings would also still be required to handle and transfer these coatings in a manner that minimizes

spills, apply these coatings using one or more of the specified application techniques and comply with inorganic HAP emission requirements.

This change is being proposed to reduce unnecessary recordkeeping and avoid the need for owners or operators to perform tests to measure VOC and HAP content and to perform certain calculations that can be done by the coating manufacturer based on coating formulation data. When the Aerospace NESHAP was originally promulgated, the original compliance demonstration and recordkeeping requirements were needed because the product data sheets provided by coating manufacturers did not routinely provide VOC content in grams per liter (less water and exempt solvents) or HAP content in grams per liter (less water). As a result, it was necessary for the facilities to calculate the VOC or HAP content in this format to demonstrate compliance.

Since promulgation of the Aerospace NESHAP, coating manufacturers now commonly provide VOC content of the coatings, in grams per liter (less water and exempt solvents) on the product data sheets, based on coating formulation. Therefore, the coating manufacturer's documentation can be used to demonstrate compliance, when available, in place of the compliance demonstrations based on VOC measurements and compliance calculations.

We are proposing that this alternative apply to all coatings subject to the Aerospace NESHAP, including specialty coatings, topcoats, primers and chemical milling maskants. Due to the existence of the Aerospace NESHAP for nearly 20 years and the prevalence of state and regional VOC regulations for many types of coatings, coating manufacturers have come to recognize the value of providing documentation of HAP and VOC content to their customers to facilitate compliance demonstrations with state and federal regulations. For all coatings subject to the Aerospace NESHAP, the EPA has determined that onsite purchase records and the manufacturer's supplied data sheets for the coatings will provide sufficient information to establish compliance with the content limit standards in the Aerospace NESHAP.

If a facility elects to comply with the averaging provisions in 40 CFR 63.743(d), the facility is also required to comply with all related averaging provisions in the Aerospace NESHAP for all coatings included in averaging (e.g., compliance determination provisions in 40 CFR 63.749(d) and (h); procedures and methods in 40 CFR 63.750(d), (f), (l) and (n); recordkeeping

provisions in 40 CFR 63.752(c) and (f); and reporting provisions in 63.753(c) and (e)). Note that, in complying with the current averaging provisions, facilities may already use manufacturers' data for coatings to determine the organic HAP and VOC weight fraction of coatings to perform the calculations in 40 CFR 63.750(d), (f), (l) and (n).

F. What compliance dates are we proposing?

The EPA is proposing that all of the amendments being proposed in this action would be effective on the date 60 days after these proposed amendments are final, with one exception. The one exception is that existing specialty coating affected sources (*i.e.*, existing on the date these changes are final) would have 1 year after the date this rule is final to comply with the standards for specialty coatings proposed in 40 CFR 63.745(c)(5) and (6) (HAP and VOC limits for specified coatings) and the provisions in 40 CFR 63.745(f) (coating application equipment) and 40 CFR 63.745(g) (control of inorganic HAP emissions). The EPA is proposing this compliance schedule so that existing sources would have time to develop the recordkeeping and reporting systems needed to comply with the requirements for specialty coatings. Facilities may also need this time to identify alternative coatings for those that are not currently compliant with the HAP or VOC content limits and to take any steps needed to upgrade specialty coating operations to comply with the application equipment requirements in 40 CFR 63.745(f) and the inorganic HAP emissions requirements in 40 CFR 63.745(g).

The tasks necessary for existing facilities to comply with the other proposed amendments require no time or resources. Therefore, EPA believes that existing facilities will be able to comply with the other proposed amendments, including those related to SSM periods, as soon as the final rule is effective, which will be the date 60 days after publication of the final rule. Therefore, the EPA is specifically soliciting comment and additional data on the burden of complying with the other proposed amendments.

V. Summary of Cost, Environmental and Economic Impacts

A. What are the affected sources?

The EPA estimates, based on the responses to the 2011 ICR, that there are 144 major source facilities that are engaged in aerospace manufacturing and rework surface coating operations.

The EPA estimates that 109 facilities likely would be affected by the proposed limits for specialty coatings and the requirements to use high-efficiency application equipment for specialty coatings, also based on the responses to the 2011 ICR.

B. What are the air quality impacts?

The EPA estimates that annual HAP emissions from specialty coatings are about 360 tpy; inorganic HAP emissions are about 5 tpy and the remainder are organic HAP. The estimated emission reductions are 58 tons of HAP, which would be achieved from the proposed regulation of specialty coatings. The EPA estimated that these emission reductions would result from the proposed requirements to use high-efficiency application equipment and also from the application of the HAP content limits to specialty coatings.

C. What are the cost impacts?

The EPA estimates that the annual cost impacts would be about \$590,000 per year. The cost impacts would be attributed to monitoring and recordkeeping costs for complying with the specialty coating HAP content limits. The cost per facility was estimated based on the number of specialty coatings used at each facility, as reported in the 2011 ICR. The costs are based on an assumption of 1 hour of technical labor for annual recordkeeping and reporting for each specialty coating used by a facility, plus additional management and clerical hours representing a fraction of the technical labor hours.

The EPA does not have sufficient data from the 2011 ICR to estimate the total cost impacts for specialty coatings having to comply with the proposed high-efficiency application equipment requirement. Because high-efficiency application equipment generates less coating overspray than conventional equipment, the costs of upgrading to new equipment can be offset by cost savings from reduced coating consumption and reduced spray booth filter maintenance. For these reasons, many facilities are likely to have already switched to high-efficiency application methods for specialty coating operations, as they are already required to for primer and topcoat application operations. For example, the average volume of specialty coatings used per facility is 3,000 gallons per year, based on the 2011 ICR data. The estimated purchase cost for a professional quality HVLP spray gun is \$700 for the gun and hoses. If the average facility had to purchase three new spray guns, and the facility was spending an average of \$30

per gallon of spray applied coating, the facility would need to see a decrease in coating consumption of only 70 gallons per year (about a 3-percent reduction) to recover the initial cost of those three spray guns in 1 year.

The EPA expects some additional potential cost savings from the proposal to include an alternative compliance demonstration provision in 40 CFR 63.750(c), (e), (k) and (m). However, we do not have sufficient data to estimate the cost savings associated with the proposed alternative compliance demonstration. However, the estimated cost to perform an analysis of VOC content according to EPA Method 24, based on published vendor data, is about \$575 per sample. Because the proposed alternative compliance demonstration would allow facilities to use coating manufacturers' documentation of VOC content based on coating composition, the cost of these coating analyses using EPA Method 24 would be avoided.

The EPA's cost analyses are documented in the memorandum, *Methodology for Estimating Control Costs for Specialty Coating Operations in the Aerospace Source Category*, January 2014, in the docket for this rulemaking.

EPA is specifically soliciting comment and additional data on the cost impacts associated with using coatings that are compliant with the proposed limits for specialty coatings.

D. What are the economic impacts?

Economic impact analyses focus on changes in market prices and output levels. If changes in market prices and output levels in the primary markets are significant enough, impacts on other markets are also examined. Both the magnitude of costs needed to comply with the rule and the distribution of these costs among affected facilities can have a role in determining how the market will change in response to a rule.

This rule applies to the surface coating and related operations at facilities that are major sources and are engaged, either in part or in whole, in the manufacture or rework of commercial, civil or military aerospace vehicles or components. The proposed rule would add recordkeeping and reporting provisions for specialty coating operations, but would not change the compliance costs for operations already being regulated by the existing emission standards. Therefore, the annual costs were calculated for only the 109 Aerospace Manufacturing and Rework Facilities that reported having specialty coating operations.

The estimated annual costs for this proposed rule are less than \$1 million in the first year and in succeeding years (less than \$850,000 in the first year and less than \$600,000 in succeeding years). These costs are estimated for the 109 facilities that, based on information reported by facilities, appear to have specialty coating operations. Thus, the average cost per facility is less than \$10,000 per year. These costs are small compared to sales for the companies in aerospace manufacturing and reworking. For example, in 2012 the average annual value of shipments (a rough estimate of sales) for firms in the category of "other aircraft parts and auxiliary equipment manufacturing" was almost \$50 million (Source: U.S. Census Bureau, 2012 Economic Census for NAICS 336413 for 2012). In this case the cost-to-sales estimate would be approximately 0.02 percent of sales for each firm. Costs this small would not have significant market impacts, whether they were absorbed by the firm or passed on as price increases.

The EPA does not know of any firms that are small entities and using specialty coatings that are potentially subject to this proposed rule. Because no small firms face control costs, there is no significant impact on small entities. Therefore, we do not expect these proposed amendments to have a significant impact on a substantial number of small entities.

E. What are the benefits?

We anticipate this rulemaking to reduce organic and inorganic HAP emissions by approximately 58 tons each year. These avoided emissions will result in improvements in air quality and reduced negative health effects associated with exposure to air pollution of these emissions. However, we have not quantified or monetized the benefits of reducing these emissions for this rulemaking because the estimated costs for this action are less than \$100 million.

VI. Request for Comments

We solicit comments on all aspects of this proposed action. In addition to general comments on this proposed action, we are also interested in additional data that may improve the risk assessments and other analyses. We are specifically interested in receiving any improvements to the data used in the site-specific emissions profiles used for risk modeling. Such data should include supporting documentation in sufficient detail to allow characterization of the quality and representativeness of the data or information. Section VII of this

preamble provides more information on submitting data.

VII. Submitting Data Corrections

The site-specific emissions profiles used in the source category risk and demographic analyses and instructions are available for download on the RTR Web site at: <http://www.epa.gov/ttn/atw/rrisk/rtrpg.html>. The data files include detailed information for each HAP emissions release point for the facilities in the source category.

If you believe that the data are not representative or are inaccurate, please identify the data in question, provide your reason for concern and provide any "improved" data that you have, if available. When you submit data, we request that you provide documentation of the basis for the revised values to support your suggested changes. To submit comments on the data downloaded from the RTR page, complete the following steps:

1. Within this downloaded file, enter suggested revisions to the data fields appropriate for that information.
2. Fill in the commenter information fields for each suggested revision (*i.e.*, commenter name, commenter organization, commenter email address, commenter phone number and revision comments).
3. Gather documentation for any suggested emissions revisions (*e.g.*, performance test reports, material balance calculations, etc.).
4. Send the entire downloaded file with suggested revisions in Microsoft® Access format and all accompanying documentation to Docket ID No. EPA-HQ-OAR-2014-0830 (through one of the methods described in the **ADDRESSES** section of this preamble).

5. If you are providing comments on a single facility or multiple facilities, you need only submit one file for all facilities. The file should contain all suggested changes for all sources at that facility. We request that all data revision comments be submitted in the form of updated Microsoft® Excel files that are generated by the Microsoft® Access file. These files are provided on the RTR Web site at: <http://www.epa.gov/ttn/atw/rrisk/rtrpg.html>.

VIII. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at <http://www2.epa.gov/laws-regulations/laws-and-executive-orders>.

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action is not a significant regulatory action and was therefore not submitted to the OMB for review.

B. Paperwork Reduction Act (PRA)

The information collection activities in this proposed rule have been submitted for approval to the OMB under the PRA. The ICR document that the EPA prepared has been assigned EPA ICR number 1687.10. You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here.

Respondents are owners or operators of aerospace manufacturing and rework operations. The proposed rule would add recordkeeping and reporting provisions for specialty coating operations, but would not change the recordkeeping and reporting provisions for any other types of operations. Therefore, of the 144 Aerospace Manufacturing and Rework Facilities subject to the Aerospace NESHAP, the annual costs for increased recordkeeping and reporting would apply to only the 109 Aerospace Manufacturing and Rework Facilities that reported having specialty coating operations. Respondents must keep records of the specialty coatings used at the facility, including the name and VOC content of the coating, the HAP and VOC emitted per gallon of coating and the monthly volume of each coating used. Respondents must also submit semiannual reports of noncompliance. Recordkeeping and reporting of monitored parameters related to air pollution control technologies is required if controls are used to demonstrate compliance with the standards. The reports and records will be used to determine compliance with the standards.

Respondents/affected entities: Aerospace manufacturing and rework facilities using specialty coatings.

Respondent's obligation to respond: Mandatory (40 CFR part 63, subpart GG).

Estimated number of respondents: 109 facilities using specialty coatings.

Frequency of response: Initially, occasionally and semiannually.

Total estimated burden: 6,914 hours (per year) for the responding facilities and 148 hours (per year) for the agency. These are estimates for the average annual burden for the first 3 years after the rule is final. Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: \$695,570 (per year), which includes no annualized

capital or operation and maintenance costs, for the responding facilities and \$8,740 (per year) for the agency. These are estimates for the average annual cost for the first 3 years after the rule is final.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9. To comment on the agency's need for this information, the accuracy of the provided burden estimates and any suggested methods for minimizing respondent burden, the EPA has established a public docket for this rule, which includes this ICR, under Docket ID No. EPA-HQ-OAR-2014-0830.

Submit your comments on the Agency's need for this information, the accuracy of the provided burden estimates and any suggested methods for minimizing respondent burden to the EPA using the docket identified at the beginning of this rule. You may also send your ICR-related comments to OMB's Office of Information and Regulatory Affairs via email to oria_submissions@omb.eop.gov, Attention: Desk Officer for the EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after receipt, OMB must receive comments no later than March 19, 2015. The EPA will respond to any ICR-related comments in the final rule.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. No facilities meeting the Small Business Administration's definition of a small business would face significant control costs, based on the economic impact analysis completed for this action. The results of this analysis are summarized in section V.D of this preamble and can be found in the memorandum, *Economic Impact Analysis for Proposed National Emission Standards for Aerospace Manufacturing and Rework Facilities*, December 3, 2014. A copy of this memorandum is in the docket for this rulemaking.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of \$100 million or more as described in the UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action imposes no

enforceable duty on any state, local or tribal governments or the private sector.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states or on the distribution of power and responsibilities among the various levels of government.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have tribal implications as specified in Executive Order 13175. No tribal facilities are known to be engaged in the aerospace manufacturing or rework surface coating operations that would be affected by this action. Thus, Executive Order 13175 does not apply to this action.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because the EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action's health and risk assessments are contained in sections III.A and B and sections IV.B and C of this preamble.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use

This action is not subject to Executive Order 13211 because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act (NTTAA)

This rulemaking does not involve technical standards.

J. Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

The EPA believes the human health or environmental risk addressed by this action will not have potential disproportionately high and adverse human health or environmental effects on minority, low-income or indigenous populations.

These proposed standards will improve public health and welfare, now and in the future, by reducing HAP emissions contributing to environmental

and human health impacts. These reductions in HAP associated with the rule are expected to benefit all populations.

To examine the potential for any environmental justice issues that might be associated with the Aerospace Manufacturing and Rework source category, we evaluated the distributions of HAP related cancer and non-cancer risks across different social, demographic and economic groups within the populations living near the facilities where this source category is located. The methods used to conduct demographic analyses for this proposed rule are described in the document, *Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living Near Aerospace Facilities*, which may be found in the docket for this rulemaking (Docket ID No. EPA-HQ-OAR-2014-0830).

In the demographics analysis, we focused on populations within 50 km of the facilities in this source category with emissions sources subject to the MACT standard. More specifically, for these populations, we evaluated exposures to HAP that could result in cancer risks of 1-in-1 million or greater. We compared the percentages of particular demographic groups within the focused populations to the total percentages of those demographic groups nationwide. The results of this analysis are documented in the document, *Risk and Technology Review—Analysis of Socio-Economic Factors for Populations Living Near Aerospace Facilities*.

List of Subjects in 40 CFR Part 63

Environmental protection, Air pollution control, Hazardous substances, Reporting and recordkeeping requirements.

Dated: January 22, 2015.

Gina McCarthy,
Administrator.

For the reasons stated in the preamble, part 63 of title 40, chapter I, of the Code of Federal Regulations is proposed to be amended as follows:

PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES

- 1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401, *et seq.*

Subpart GG—National Emission Standards for Aerospace Manufacturing and Rework Facilities

- 2. Section 63.741 is amended by:

- a. Revising paragraph (c) introductory text;
- b. Redesignating paragraphs (c)(4) through (c)(7) as paragraphs (c)(5) through (c)(8);
- c. Adding new paragraph (c)(4);
- d. Revising newly redesignated paragraph (c)(8); and
- e. Revising paragraphs (f) and (g).

The revisions and addition read as follows:

§ 63.741 Applicability and designation of affected sources.

* * * * *

(c) *Affected sources.* The affected sources to which the provisions of this subpart apply are specified in paragraphs (c)(1) through (8) of this section. The activities subject to this subpart are limited to the manufacture or rework of aerospace vehicles or components as defined in this subpart. Where a dispute arises relating to the applicability of this subpart to a specific activity, the owner or operator shall demonstrate whether or not the activity is regulated under this subpart.

* * * * *

(4) For organic HAP or VOC emissions, each specialty coating application operation, which is the total of all specialty coating applications at the facility.

* * * * *

(8) For inorganic HAP emissions, each spray booth or hangar that contains a primer, topcoat or specialty coating application operation subject to § 63.745(g), or a depainting operation subject to § 63.746(b)(4).

* * * * *

(f) This subpart does not regulate research and development, quality control and laboratory testing activities, chemical milling, metal finishing, electrodeposition (except for electrodeposition of paints), composites 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), electronic parts and assemblies (except for cleaning and topcoating of completed assemblies), manufacture of aircraft transparencies and wastewater operations at aerospace facilities. These requirements do not apply to the rework of aircraft or aircraft components if the holder of the Federal Aviation Administration (FAA) design approval, or the holder's licensee, is not actively manufacturing the aircraft or aircraft components. These requirements also do not apply to parts and assemblies not

critical to the vehicle's structural integrity or flight performance. The requirements of this subpart also do not apply to primers, topcoats, specialty coatings, chemical milling maskants, strippers and cleaning solvents containing HAP and VOC at concentrations less than 0.1 percent by mass for carcinogens or 1.0 percent by mass for noncarcinogens, as determined from manufacturer's representations, such as in a material safety data sheet or product data sheet or testing. Additional specific exemptions from regulatory coverage are set forth in paragraphs (e), (g), (h), (i) and (j) of this section and §§ 63.742, 63.744(a)(1), (b), (e), 63.745(a), (f)(3), (g)(4), 63.746(a), (b)(5), 63.747(c)(3) and 63.749(d).

(g) The requirements for primers, topcoats, specialty coatings and chemical milling maskants in §§ 63.745 and 63.747 do not apply to the use of low-volume coatings in these categories for which the annual total of each separate formulation used at a facility does not exceed 189 liters (50 gal), and the combined annual total of all such primers, topcoats, specialty coatings and chemical milling maskants used at a facility does not exceed 757 liters (200 gal). Primers, topcoats and specialty coatings exempted under paragraph (f) of this section and under § 63.745(f)(3) and (g)(4) are not included in the 50 and 200 gal limits. Chemical milling maskants exempted under § 63.747(c)(3) are also not included in these limits.

* * * * *

- 3. Section 63.742 is amended by revising the definitions for "Chemical milling maskant"; "Softener"; and "Stripper" to read as follows:

§ 63.742 Definitions.

* * * * *

Chemical milling maskant means a coating that is applied directly to aluminum components to protect surface areas when chemical milling the component with a Type I or Type II etchant. Type I chemical milling maskants are used with a Type I etchant and Type II chemical milling maskants are used with a Type II etchant. This definition does not include bonding maskants, critical use and line sealer maskants and seal coat maskants. Additionally, maskants that must be used with a combination of Type I or II etchants and any of the above types of maskants (*i.e.*, bonding, critical use and line sealer and seal coat) are also not included in this definition. (See also Type I and Type II etchant definitions.)

* * * * *

Softener means a liquid that is applied to an aerospace vehicle or

component to degrade coatings such as primers, topcoats and specialty coatings 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.

* * * * *

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

* * * * *

- 4. Section 63.743 is amended by:
 - a. Revising paragraphs (a)(2), (8), and (10);
 - b. Removing and reserving paragraph (b);
 - c. Revising paragraphs (d)(1), (2), and (3);
 - d. Removing and reserving paragraphs (d)(4) and (5);
 - e. Adding paragraph (e).

The revisions and addition read as follows:

§ 63.743 Standards: General.

(a) * * *

(2) § 63.5, Preconstruction review and notification requirements; and

* * * * *

(8) For the purposes of this subpart, each owner or operator is to be provided 30 calendar days to present additional information to the Administrator after he/she is notified of the intended denial of a compliance extension request submitted under either § 63.6(i)(4) or (5), rather than 15 calendar days as provided for in § 63.6(i)(12)(iii)(B) and § 63.6(i)(13)(iii)(B).

* * * * *

(10) For the purposes of compliance with the requirements of § 63.5(b)(4) of the General Provisions and this subpart, owners or operators of existing primer, topcoat or specialty coating application operations and depainting operations who construct or reconstruct a spray booth or hangar that does not have the potential to emit 10 tons/yr or more of an individual inorganic HAP or 25 tons/yr or more of all inorganic HAP combined shall only be required to notify the Administrator of such construction or reconstruction on an annual basis. Notification shall be submitted on or before March 1 of each year and shall include the information required in § 63.5(b)(4) for each such spray booth or hangar constructed or reconstructed during the prior calendar year, except that such information shall be limited to inorganic HAP's. No advance notification or written approval from the Administrator pursuant to § 63.5(b)(3) shall be required for the

construction or reconstruction of such a spray booth or hangar unless the booth or hangar has the potential to emit 10 tons/yr or more of an individual inorganic HAP or 25 tons/yr or more of all inorganic HAP combined.

* * * * *

(d) * * *

(1) Each owner or operator of a new or existing source shall use any combination of primers, topcoats (including self-priming topcoats), specialty coatings, Type I chemical milling maskants or Type II chemical milling maskants such that the monthly volume-weighted average organic HAP and VOC contents of the combination of primers, topcoats, specialty coatings, Type I chemical milling maskants or Type II chemical milling maskants, as determined in accordance with the applicable procedures set forth in § 63.750, complies with the specified content limits in §§ 63.745(c) and 63.747(c), unless the permitting agency specifies a shorter averaging period as part of an ambient ozone control program.

(2) Averaging is allowed only for uncontrolled primers, topcoats (including self-priming topcoats), specialty coatings, Type I chemical milling maskants or Type II chemical milling maskants.

(3) Averaging is not allowed between specialty coating types defined in Appendix A to this subpart, or between the different types of coatings specified in paragraphs (d)(3)(i) through (vii) of this section.

(i) Primers and topcoats (including self-priming topcoats).

(ii) Type I and Type II chemical milling maskants.

(iii) Primers and chemical milling maskants.

(iv) Topcoats and chemical milling maskants.

(v) Primers and specialty coatings.

(vi) Topcoats and specialty coatings.

(vii) Chemical milling maskants and specialty coatings.

* * * * *

(e) At all times, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved.

Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records and inspection of the source.

■ 5. Section 63.744 is amended by:

■ a. Revising paragraph (a) introductory text; and

■ b. Correcting the numerical order of paragraphs (a)(3) and (4).

The revision reads as follows:

§ 63.744 Standards: Cleaning operations.

(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 (4) of this section unless the cleaning solvent used is identified in Table 1 of this section or contains HAP and VOC below the de minimis levels specified in § 63.741(f).

* * * * *

■ 6. Section 63.745 is amended by:

■ a. Revising the section heading;

■ b. Revising paragraphs (a), (b), and (c) introductory text;

■ c. Adding paragraphs (c)(5), (c)(6) and Table 1;

■ d. Revising paragraphs (e) introductory text and (e)(1);

■ e. Revising paragraphs (f) introductory text, (f)(1) introductory text and (f)(2);

■ f. Revising paragraphs (g) introductory text, (g)(2)(i), (g)(2)(ii), and (g)(2)(iii)(B).

The revisions and additions read as follows:

§ 63.745 Standards: Primer, topcoat and specialty coating application operations.

(a) Each owner or operator of a new or existing primer, topcoat or specialty coating application operation subject to this subpart shall comply with the requirements specified in paragraph (c) 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 (d) of this section for those coatings that are controlled (organic HAP emissions from the operation are reduced by the use of a control device). 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.

(b) Each owner or operator shall conduct the handling and transfer of primers, topcoats and specialty coatings to or from containers, tanks, vats, vessels and piping systems in such a manner that minimizes spills.

(c) *Uncontrolled coatings—organic HAP and VOC content levels.* Each owner or operator shall comply with the organic HAP and VOC content limits specified in paragraphs (c)(1) through (6) of this section for those coatings that are uncontrolled.

* * * * *

(5) Organic HAP emissions from specialty coatings shall be limited to an organic HAP content level of no more than the HAP content limit specified in Table 1 of this section for each applicable specialty coating type.

(6) VOC emissions from specialty coatings shall be limited to a VOC content level of no more than the VOC content limit specified in Table 1 of this section for each applicable specialty coating type.

TABLE 1—SPECIALTY COATINGS—HAP AND VOC CONTENT LIMITS

Coating type	HAP limit g/L (lb/gallon) ¹	VOC Limit g/L (lb/gallon) ¹
Ablative Coating	600 (5.0)	600 (5.0)
Adhesion Promoter	890 (7.4)	890 (7.4)
Adhesive Bonding Primers: Cured at 250 °F or below	850 (7.1)	850 (7.1)
Adhesive Bonding Primers: Cured above 250 °F	1,030 (8.6)	1,030 (8.6)
Commercial Interior Adhesive	760 (6.3)	760 (6.3)
Cyanoacrylate Adhesive	1,020 (8.5)	1,020 (8.5)
Fuel Tank Adhesive	620 (5.2)	620 (5.2)
Nonstructural Adhesive	360 (3.0)	360 (3.0)
Rocket Motor Bonding Adhesive	890 (7.4)	890 (7.4)
Rubber-based Adhesive	850 (7.1)	850 (7.1)
Structural Autoclavable Adhesive	60 (0.5)	60 (0.5)
Structural Nonautoclavable Adhesive	850 (7.1)	850 (7.1)

TABLE 1—SPECIALTY COATINGS—HAP AND VOC CONTENT LIMITS—Continued

Coating type	HAP limit g/L (lb/gallon) ¹	VOC Limit g/L (lb/gallon) ¹
Antichafe Coating	660 (5.5)	660 (5.5)
Bearing Coating	620 (5.2)	620 (5.2)
Caulking and Smoothing Compounds	850 (7.1)	850 (7.1)
Chemical Agent-Resistant Coating	550 (4.6)	550 (4.6)
Clear Coating	720 (6.0)	720 (6.0)
Commercial Exterior Aerodynamic Structure Primer	650 (5.4)	650 (5.4)
Compatible Substrate Primer	780 (6.5)	780 (6.5)
Corrosion Prevention Compound	710 (5.9)	710 (5.9)
Cryogenic Flexible Primer	645 (5.4)	645 (5.4)
Cryoprotective Coating	600 (5.0)	600 (5.0)
Dry Lubricative Material	880 (7.3)	880 (7.3)
Electric or Radiation-Effect Coating	800 (6.7)	800 (6.7)
Electrostatic Discharge and Electromagnetic Interference (EMI) Coating	800 (6.7)	800 (6.7)
Elevated-Temperature Skydrol-Resistant Commercial Primer	740 (6.2)	740 (6.2)
Epoxy Polyamide Topcoat	660 (5.5)	660 (5.5)
Fire-Resistant (interior) Coating	800 (6.7)	800 (6.7)
Flexible Primer	640 (5.3)	640 (5.3)
Flight-Test Coatings: Missile or Single Use Aircraft	420 (3.5)	420 (3.5)
Flight-Test Coatings: All Other	840 (7.0)	840 (7.0)
Fuel-Tank Coating	720 (6.0)	720 (6.0)
High-Temperature Coating	850 (7.1)	850 (7.1)
Insulation Covering	740 (6.2)	740 (6.2)
Intermediate Release Coating	750 (6.3)	750 (6.3)
Lacquer	830 (6.9)	830 (6.9)
Bonding Maskant	1,230 (10.3)	1,230 (10.3)
Critical Use and Line Sealer Maskant	1,020 (8.5)	1,020 (8.5)
Seal Coat Maskant	1,230 (10.3)	1,230 (10.3)
Metalized Epoxy Coating	740 (6.2)	740 (6.2)
Mold Release	780 (6.5)	780 (6.5)
Optical Anti-Reflective Coating	750 (6.3)	750 (6.3)
Part Marking Coating	850 (7.1)	850 (7.1)
Pretreatment Coating	780 (6.5)	780 (6.5)
Rain Erosion-Resistant Coating	850 (7.1)	850 (7.1)
Rocket Motor Nozzle Coating	660 (5.5)	660 (5.5)
Scale Inhibitor	880 (7.3)	880 (7.3)
Screen Print Ink	840 (7.0)	840 (7.0)
Extrudable/Rollable/Brushable Sealant	280 (2.3)	280 (2.3)
Sprayable Sealant	600 (5.0)	600 (5.0)
Silicone Insulation Material	850 (7.1)	850 (7.1)
Solid Film Lubricant	880 (7.3)	880 (7.3)
Specialized Function Coating	890 (7.4)	890 (7.4)
Temporary Protective Coating	320 (2.7)	320 (2.7)
Thermal Control Coating	800 (6.7)	800 (6.7)
Wet Fastener Installation Coating	675 (5.6)	675 (5.6)
Wing Coating	850 (7.1)	850 (7.1)

¹ Coating limits for HAP are expressed in terms of mass (grams or pounds) of HAP per volume (liters or gallons) of coating less water. Coating limits for VOC are expressed in terms of mass (grams or pounds) of VOC per volume (liters or gallons) of coating less water and less exempt solvent.

* * * * *

(e) *Compliance methods.* Compliance with the organic HAP and VOC content limits specified in paragraphs (c)(1) through (6) of this section shall be accomplished by using the methods specified in paragraphs (e)(1) and (2) of this section either by themselves or in conjunction with one another.

(1) Use primers, topcoats (including self-priming topcoats) and specialty coatings with HAP and VOC content levels equal to or less than the limits specified in paragraphs (c)(1) through (6) of this section; or

* * * * *

(f) *Application equipment.* Except as provided in paragraph (f)(3) of this

section, each owner or operator of a new or existing primer, topcoat (including self-priming topcoat) or specialty coating application operation subject to this subpart in which any of the coatings contain organic HAP or VOC shall comply with the requirements specified in paragraphs (f)(1) and (2) of this section.

(1) All primers, topcoats (including self-priming topcoats) and specialty coatings shall be applied using one or more of the application techniques specified in paragraphs (f)(1)(i) through (ix) of this section.

* * * * *

(2) All application devices used to apply primers, topcoats (including self-

priming topcoats) or specialty coatings 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.

* * * * *

(g) *Inorganic HAP emissions.* Except as provided in paragraph (g)(4) of this section, each owner or operator of a new or existing primer, topcoat or specialty coating application operation subject to this subpart in which any of the coatings that are spray applied contain

inorganic HAP, shall comply with the applicable requirements in paragraphs (g)(1) through (3) of this section.

* * * * *

(2) * * *

(i) For existing sources, the owner or operator must choose one of the following:

(A) Before exhausting it to the atmosphere, pass the air stream through a dry particulate filter system certified using the methods described in § 63.750(o) to meet or exceed the efficiency data points in Tables 2 and 3 of this section; or

(C) Before exhausting it to the atmosphere, pass the air stream through an air pollution control system that meets or exceeds the efficiency data points in Tables 2 and 3 of this section and is approved by the permitting authority.

TABLE 2—TWO-STAGE ARRESTOR; LIQUID PHASE CHALLENGE FOR EXISTING SOURCES

Filtration efficiency requirement, %	Aerodynamic particle size range, µm
>90	>5.7
>50	>4.1
>10	>2.2

TABLE 3—TWO-STAGE ARRESTOR; SOLID PHASE CHALLENGE FOR EXISTING SOURCES

Filtration efficiency requirement, %	Aerodynamic particle size range, µm
>90	>8.1
>50	>5.0
>10	>2.6

(ii) For new sources, either:

(A) Before exhausting it to the atmosphere, pass the air stream through a dry particulate filter system certified using the methods described in § 63.750(o) to meet or exceed the efficiency data points in Tables 4 and 5 of this section; or (B) Before exhausting it to the atmosphere, pass the air stream through an air pollution control system that meets or exceeds the efficiency data points in Tables 4 and 5 of this section and is approved by the permitting authority.

TABLE 4—THREE-STAGE ARRESTOR; LIQUID PHASE CHALLENGE FOR NEW SOURCES

Filtration efficiency requirement, %	Aerodynamic particle size range, µm
>95	>2.0
>80	>1.0
>65	>0.42

TABLE 5—THREE-STAGE ARRESTOR; SOLID PHASE CHALLENGE FOR NEW SOURCES

Filtration efficiency requirement, %	Aerodynamic particle size range, µm
>95	>2.5
>85	>1.1
>75	>0.70

(iii) * * *

(B) If the primer, topcoat or specialty coating contains chromium or cadmium, control shall consist of a HEPA filter system, three-stage filter system or other control system equivalent to the three stage filter system as approved by the permitting agency.

* * * * *

■ 7. Section 63.746 is amended by revising (b)(4)(ii)(A) and (B) to read as follows:

§ 63.746 Standards: Depainting operations.

* * * * *

(b) * * *

(4) * * *

(ii)(A) For existing sources, pass any air stream removed from the enclosed area or closed-cycle depainting system through a dry particulate filter system, certified using the method described in § 63.750(o) to meet or exceed the efficiency data points in Tables 2 and 3 of § 63.745, through a baghouse or through a waterwash system before exhausting it to the atmosphere.

(B) For new sources, pass any air stream removed from the enclosed area or closed-cycle depainting system through a dry particulate filter system certified using the method described in § 63.750(o) to meet or exceed the efficiency data points in Tables 4 and 5 of § 63.745 or through a baghouse before exhausting it to the atmosphere.

* * * * *

■ 8. Section 63.749 is amended by:

- a. Revising paragraphs (a)(1) and (2);
- b. Adding paragraph (a)(3);
- c. Revising paragraph (b);
- d. Revising the heading of paragraph (d), paragraph (d)(4) introductory text and paragraph (d)(4)(i);

■ e. Revising paragraph (e) introductory text;

■ f. Adding paragraph (j).

The revisions and additions read as follows:

§ 63.749 Compliance dates and determinations.

(a) * * * (1) Each owner or operator of an existing affected source subject to this subpart shall comply with the requirements of this subpart by September 1, 1998, except as specified in paragraphs (a)(2) and (3) of this section. Owners or operators of new affected sources subject to this subpart shall comply on the effective date or upon startup, whichever is later. In addition, each owner or operator shall comply with the compliance dates specified in § 63.6(b) and (c) as indicated in Table 1 to subpart GG of part 63.

(2) Owners or operators of existing primer, topcoat or specialty coating application operations and repainting operations who construct or reconstruct a spray booth or hangar must comply with the new source requirements for inorganic HAP specified in §§ 63.745(g)(2)(ii) and 63.746(b)(4) for that new spray booth or hangar upon startup. Such sources must still comply with all other existing source requirements by September 1, 1998.

(3) Each owner or operator of a specialty coating application operation that begins construction or reconstruction after [date of publication of final rule in the **Federal Register**] shall be in compliance with the requirements of this subpart on [date of publication of final rule in the **Federal Register**] or upon startup, whichever is later. Each owner or operator of a specialty coating application operation that is existing on [date of publication of final rule in the **Federal Register**] shall be in compliance with the requirements of this subpart on or before [date 1 year after date of publication of final rule in the **Federal Register**].

(b) *General.* Each facility subject to this subpart shall be considered in noncompliance if the owner or operator fails to use a control device other than one specified in this subpart that has not been approved by the Administrator, as required by § 63.743(c).

* * * * *

(d) *Organic HAP and VOC content levels—primer, topcoat and specialty coating application operations —*

* * * * *

(4) The topcoat or specialty coating application operation is considered in compliance when the conditions

specified in paragraphs (d)(4)(i) through (iv) of this section, as applicable, and in paragraph (e) of this section are met. Failure to meet any of the conditions identified in these paragraphs shall constitute noncompliance.

(i) The topcoat application operation is considered in compliance when the conditions specified in paragraphs (d)(4)(i)(A) are met. The specialty coating application operation is considered in compliance when the conditions specified in paragraphs (d)(4)(i)(B) are met.

(A) For all uncontrolled topcoats, all values of H_i and H_a (as determined using the procedures specified in § 63.750(c) and (d)) are less than or equal to 420 grams organic HAP per liter (3.5 lb/gal) of topcoat (less water) as applied, and all values of G_i and G_a (as determined using the procedures specified in § 63.750(e) and (f)) are less than or equal to 420 grams organic VOC per liter (3.5 lb/gal) of topcoat (less water and exempt solvents) as applied.

(B) For all uncontrolled specialty coatings, all values of H_i and H_a (as determined using the procedures specified in § 63.750(c) and (d)) are less than or equal to the HAP content limits specified in Table 1 to § 63.745 for the applicable specialty coating types (less water) as applied, and all values of G_i and G_a (as determined using the procedures specified in § 63.750(e) and (f)) are less than or equal to the VOC content limits specified in Table 1 to § 63.745 for the applicable specialty coating types (less water and exempt solvents) as applied.

(e) *Inorganic HAP emissions—primer, topcoat and specialty coating application operations.* For each primer, topcoat or specialty coating application operation that emits inorganic HAP, the operation is in compliance when:

(j) Performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Representative conditions exclude periods of startup and shutdown unless specified by the Administrator or an applicable subpart. The owner or operator may not conduct performance tests during periods of malfunction. The owner or operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, the owner or operator shall make available

to the Administrator such records as may be necessary to determine the conditions of performance tests.

- 9. Section 63.750 is amended by:
- a. Revising paragraphs (c) introductory text, (d) introductory text and (e) introductory text;
- b. Revising paragraphs (f) introductory text and (f)(1)(iii);
- c. Revising paragraph (h)(3)(i)(1); and
- d. Revising paragraphs (k) introductory text, (m) introductory text and (o).

The revisions are as follows:

§ 63.750 Test methods and procedures.

(c) *Organic HAP content level determination—compliant primers, topcoats and specialty coatings.* For those uncontrolled primers, topcoats and specialty coatings complying with the primer, topcoat or specialty coating organic HAP content limits specified in § 63.745(c) without being averaged, the procedures in paragraphs (c)(1) through (3) of this section shall be used to determine the mass of organic HAP emitted per volume of coating (less water) as applied. As an alternative to the procedures in paragraphs (c)(1) through (3) of this section, an owner or operator may use the coating manufacturer's supplied data to demonstrate that organic HAP emitted per volume of coating (less water), as applied, is less than or equal to the applicable organic HAP limit specified in § 63.745(c).

(d) *Organic HAP content level determination—averaged primers, topcoats and specialty coatings.* For those uncontrolled primers, topcoats and specialty coatings that are averaged together in order to comply with the primer, topcoat and specialty coating organic HAP content limits specified in § 63.745(c), the following procedure shall be used to determine the monthly volume-weighted average mass of organic HAP emitted per volume of coating (less water) as applied, unless the permitting agency specifies a shorter averaging period as part of an ambient ozone control program.

(e) *VOC content level determination—compliant primers, topcoats and specialty coatings.* For those uncontrolled primers, topcoats and specialty coatings complying with the primer, topcoat and specialty coating VOC content levels specified in § 63.745(c) without being averaged, the procedures in paragraphs (e)(1) through (3) of this section shall be used to determine the mass of VOC emitted per

volume of coating (less water and exempt solvents) as applied. As an alternative to the procedures in paragraphs (e)(1) through (3) of this section, an owner or operator may use coating manufacturer's supplied data to demonstrate that VOC emitted per volume of coating (less water and exempt solvents), as applied, is less than or equal to the applicable VOC limit specified in § 63.745(c).

(f) *VOC content level determination—averaged primers, topcoats and specialty coatings.* For those uncontrolled primers, topcoats and specialty coatings that are averaged within their respective coating category in order to comply with the primer, topcoat and specialty coating VOC content limits specified in § 63.745(c)(2), (4), and (6), the following procedure shall be used to determine the monthly volume-weighted average mass of VOC emitted per volume of coating (less water and exempt solvents) as applied, unless the permitting agency specifies a shorter averaging period as part of an ambient ozone control program.

(i)(iii) Determine the VOC content of each primer, topcoat and specialty coating formulation (less water and exempt solvents) as applied using EPA Method 24 or from manufacturer's data.

(i)(1) *Alternative application method—primers, topcoats and specialty coatings.* Each owner or operator seeking to use an alternative application method (as allowed in § 63.745(f)(1)(ix)) in complying with the standards for primers, topcoats and specialty coatings shall use the procedures specified in paragraphs (i)(2)(i) and (ii) or (iii) 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.

(k) *Organic HAP content level determination—compliant chemical milling maskants.* For those uncontrolled chemical milling maskants complying with the chemical milling maskant organic HAP content limit specified in § 63.747(c)(1) without being averaged, the procedure in paragraph (k)(1) of this section shall be used to determine the mass of organic HAP emitted per unit volume of coating (chemical milling maskant) i as applied (less water), H_i (lb/gal). As an alternative

to the procedures in paragraph (k)(1) of this section, an owner or operator may use coating manufacturer's supplied data to demonstrate that organic HAP emitted per volume of coating (less water), as applied, is less than or equal to the applicable organic HAP limit specified in § 63.747(c).

* * * * *

(m) *VOC content level determination—compliant chemical milling maskants.* For those uncontrolled chemical milling maskants complying with the chemical milling maskant VOC content limit specified in § 63.747(c)(2) without being averaged, the procedure specified in paragraphs (m)(1) and (2) of this section shall be used to determine the mass of VOC emitted per volume of chemical milling maskant (less water and exempt solvents) as applied. As an alternative to the procedures in paragraphs (m)(1) and (2) of this section, an owner or operator may use coating manufacturer's supplied data to demonstrate that VOC emitted per volume of coating (less water and exempt solvents), as applied, is less than or equal to the applicable VOC limit specified in § 63.747(c).

* * * * *

(o) *Inorganic HAP emissions—dry particulate filter certification requirements.* Dry particulate filters used to comply with § 63.745(g)(2) or § 63.746(b)(4) must be certified by the filter manufacturer or distributor, paint/depainting booth supplier and/or the facility owner or operator using method 319 in appendix A of this part, to meet or exceed the efficiency data points found in Tables 2 and 3 or 4 and 5 of § 63.745 for existing or new sources respectively.

■ 10. Section 63.751 is amended by revising paragraph (c) to read as follows:

§ 63.751 Monitoring requirements.

* * * * *

(c) *Dry particulate filter, HEPA filter and waterwash systems—primer, topcoat and specialty coating application operations.* (1) Each owner or operator using a dry particulate filter system to meet the requirements of § 63.745(g)(2) shall, while primer, topcoat and specialty coating application operations are occurring, continuously monitor the pressure drop across the system and read and record the pressure drop once per shift following the recordkeeping requirements of § 63.752(d).

(2) Each owner or operator using a conventional waterwash system to meet the requirements of § 63.745(g)(2) shall, while primer or topcoat application operations are occurring, continuously

monitor the water flow rate through the system and read and record the water flow rate once per shift following the recordkeeping requirements of § 63.752(d). Each owner or operator using a pumpless waterwash system to meet the requirements of § 63.745(g)(2) shall, while primer, topcoat and specialty coating application operations are occurring, measure and record the parameter(s) recommended by the booth manufacturer that indicate booth performance once per shift, following the recordkeeping requirements of § 63.752(d).

* * * * *

■ 11. Section 63.752 is amended by:

- a. Revising paragraph (a);
- b. Revising paragraphs (c) introductory text, (c)(1), (c)(2) introductory text, (c)(4) introductory text, (c)(5) introductory text and (c)(6) introductory text;
- c. Revising paragraphs (d) paragraph heading and (d)(1); and
- d. Revising paragraph (f) introductory text.

The revisions read as follows:

§ 63.752 Recordkeeping requirements.

(a) *General.* Each owner or operator of a source subject to this subpart shall fulfill all recordkeeping requirements specified in § 63.10 (a), (b), (d) and (f), except § 63.10(b)(2)(i), (iv), and (v). Each owner or operator must also record and maintain according to § 63.10(b)(1) the information specified in paragraph (a)(1) through (3) of this section.

(1) In the event that an affected unit fails to meet an applicable standard, record the number of failures. For each failure record the date, time and duration of each failure.

(2) For each failure to meet an applicable standard, record and retain a list of the affected sources or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(3) Record actions taken to minimize emissions in accordance with § 63.743(e), and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

* * * * *

(c) *Primer, topcoat and specialty coating application operations—organic HAP and VOC.* Each owner or operator required to comply with the organic HAP and VOC content limits specified in § 63.745(c) shall record the information specified in paragraphs (c)(1) through (6) of this section, as appropriate. Each owner and operator using coating manufacturer's supplied data to demonstrate compliance with

the applicable organic HAP or VOC limit specified in § 63.745(c) may retain the manufacturer's documentation and annual purchase records in place of the records specified in paragraphs (c)(2) and (3) of this section.

(1) The name and VOC content as received and as applied of each primer, topcoat and specialty coating used at the facility.

(2) For uncontrolled primers, topcoats and specialty coatings that meet the organic HAP and VOC content limits in § 63.745(c)(1) through (6) without averaging:

* * * * *

(4) For primers, topcoats and specialty coatings complying with the organic HAP or VOC content level by averaging:

* * * * *

(5) For primers, topcoats and specialty coatings that are controlled by a control device other than a carbon adsorber:

* * * * *

(6) For primers, topcoats and specialty coatings that are controlled by a carbon adsorber:

* * * * *

(d) *Primer, topcoat and specialty coating application operations— inorganic HAP emissions.* (1) Each owner or operator complying with § 63.745(g) for the control of inorganic HAP emissions from primer, topcoat and specialty coating application operations through the use of a dry particulate filter system or a HEPA filter system shall record the pressure drop across the operating system once each shift during which coating operations occur.

(f) *Chemical milling maskant application operations.* Each owner or operator seeking to comply with the organic HAP and VOC content limits for the chemical milling maskant application operation, as specified in § 63.747(c), or the control system requirements specified in § 63.747(d), shall record the information specified in paragraphs (f)(1) through (4) of this section, as appropriate. Each owner and operator using coating manufacturer's supplied data to demonstrate compliance with the applicable organic HAP or VOC limit specified in § 63.747(c) may retain the manufacturer's documentation and annual purchase records in place of the records specified in paragraph (f)(1) of this section.

* * * * *

■ 12. Section 63.753 is amended by:

- a. Revising paragraph (a)(1) introductory text and (a)(2);
- b. Adding paragraphs (a)(4) and (5);
- c. Revising paragraphs (c) introductory text, (c)(1)(i) and (ii).

■ d. Revising paragraph (e)(1).
The revisions and additions read as follows:

§ 63.753 Reporting requirements.

(a)(1) Except as provided in paragraphs (a)(2) through (5) of this section, each owner or operator subject to this subpart shall fulfill the requirements contained in § 63.9(a) through (e) and (h) through (j), Notification requirements and § 63.10(a), (b), (d) and (f), Recordkeeping and reporting requirements, of the General Provisions, 40 CFR part 63, subpart A and that the initial notification for existing sources required in § 63.9(b)(2) shall be submitted not later than September 1, 1997, or as specified in § 63.9(b)(2). In addition to the requirements of § 63.9(h), the notification of compliance status shall include:

(2) The initial notification for existing sources, required in § 63.9(b)(2) shall be submitted no later than September 1, 1997, or as specified in § 63.9(b)(2). For the purposes of this subpart, a title V or part 70 permit application may be used in lieu of the initial notification required under § 63.9(b)(2), provided the same information is contained in the permit application as required by § 63.9(b)(2), and the State to which the

permit application has been submitted has an approved operating permit program under part 70 of this chapter and has received delegation of authority from the EPA. Permit applications shall be submitted by the same due dates as those specified for the initial notifications.

(4) Each owner or operator subject to this subpart is not required to comply with § 63.10(b)(2)(i), (b)(2)(iv), (b)(2)(v), and (d)(5).

(5) If a source fails to meet an applicable standard specified in §§ 63.744 through 63.748, report such events in the semiannual report:

(i) The number of failures to meet an applicable standard.

(ii) For each instance, report the date, time and duration of each failure.

(iii) For each failure the report must include a list of the affected sources or equipment, an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(c) *Primer, topcoat and specialty coating application operations.* Each owner or operator of a primer or topcoat application operation subject to this subpart shall submit the following information:

(1) * * *

(i) For primers, topcoats and specialty coatings where compliance is not being achieved through the use of averaging or a control device, the HAP or VOC content in manufacturer's supplied data as recorded under § 63.752(c), or each value of H_i and G_i as recorded under § 63.752(c)(2)(i), that exceeds the applicable organic HAP or VOC content limit specified in § 63.745(c);

(ii) For primers, topcoats and specialty coatings where compliance is being achieved through the use of averaging, each value of H_a and G_a, as recorded under § 63.752(c)(4)(i), that exceeds the applicable organic HAP or VOC content limit specified in § 63.745(c);

* * * * *

(e) * * *

(1) For chemical milling maskants where compliance is not being achieved through the use of averaging or a control device, the HAP or VOC content in manufacturer's supplied data as recorded under § 63.752(f), or each value of H_i and G_i as recorded under § 63.752(f)(1)(i), that exceeds the applicable organic HAP or VOC content limit specified in § 63.747(c);

* * * * *

■ 13. Revise Table 1 to Subpart GG of Part 63 to read as follows:

TABLE 1 TO SUBPART GG OF PART 63—GENERAL PROVISIONS APPLICABILITY TO SUBPART GG

Reference	Applies to affected sources in subpart GG	Comment
63.1(a)(1)	Yes.	
63.1(a)(2)	Yes.	
63.1(a)(3)	Yes.	
63.1(a)(4)	Yes.	
63.1(a)(5)	No	Reserved.
63.1(a)(6)	Yes.	
63.1(a)(7)	Yes.	
63.1(a)(8)	Yes.	
63.1(a)(9)	No	Reserved.
63.1(a)(10)	Yes.	
63.1(a)(11)	Yes.	
63.1(a)(12)	Yes.	
63.1(a)(13)	Yes.	
63.1(a)(14)	Yes.	
63.1(b)(1)	Yes.	
63.1(b)(2)	Yes.	
63.1(b)(3)	Yes.	
63.1(c)(1)	Yes.	
63.1(c)(2)	Yes	Subpart GG does not apply to area sources.
63.1(c)(3)	No	Reserved.
63.1(c)(4)	Yes.	
63.1(c)(5)	Yes.	
63.1(d)	No	Reserved.
63.1(e)	Yes.	
63.2	Yes.	
63.3	Yes.	
63.4(a)(1)	Yes.	
63.4(a)(2)	Yes.	
63.4(a)(3)	Yes.	
63.4(a)(4)	No	Reserved.
63.4(a)(5)	Yes.	

TABLE 1 TO SUBPART GG OF PART 63—GENERAL PROVISIONS APPLICABILITY TO SUBPART GG—Continued

Reference	Applies to affected sources in subpart GG	Comment
63.4(b)	Yes.	
63.4(c)	Yes.	
63.5(a)	Yes.	
63.5(b)(1)	Yes.	
63.5(b)(2)	No	Reserved.
63.5(b)(3)	Yes.	
63.5(b)(4)	Yes.	
63.5(b)(5)	Yes.	
63.5(b)(6)	Yes.	
63.5(c)	No	Reserved.
63.5(d)(1)(i)	Yes.	
63.5(d)(1)(ii)(A) through (H)	Yes.	
63.5(d)(1)(ii)(I)	No	Reserved.
63.5(d)(1)(ii)(J)	Yes.	
63.5(d)(1)(iii)	Yes.	
63.5(d)(2) through (4)	Yes.	
63.5(e)	Yes.	
63.5(f)	Yes.	
63.6(a)	Yes.	
63.6(b)(1) through (5)	Yes	§ 63.749(a) specifies compliance dates for new sources.
63.6(b)(6)	No	Reserved.
63.6(b)(7)	Yes.	
63.6(c)(1)	Yes.	
63.6(c)(2)	No	The standards in subpart GG are promulgated under section 112(d) of the CAA.
63.6(c)(3) and (4)	No	Reserved.
63.6(c)(5)	Yes.	
63.6(d)	No	Reserved.
63.6(e)(1)(i)	No	See § 63.743(e) for general duty requirement.
63.6(e)(1)(ii)	No.	
63.6(e)(2)	No	Section reserved.
63.6(e)(3)	No.	
63.6(f)(1)	No.	
63.6(f)(2) and (3)	Yes.	
63.6(g)	Yes.	
63.6(h)	No	The standards in subpart GG do not include opacity standards.
63.6(i)(1) and (3)	Yes.	
63.6(i)(4)(i)(A)	Yes.	
63.6(i)(4)(i)(B)	No	§ 63.743(a)(4) specifies that requests for extension of compliance must be submitted no later than 120 days before an affected source's compliance date.
63.6(i)(4)(ii)	No	The standards in subpart GG are promulgated under section 112(d) of the CAA.
63.6(i)(5) through (12)	Yes.	
63.6(i)(13)	Yes.	
63.6(i)(14)	Yes.	
63.6(i)(15)	No	Reserved.
63.6(i)(16)	Yes.	
63.6(j)	Yes.	
63.7(a)(1)	Yes.	
63.7(a)(2)(i) through (vi)	Yes.	
63.7(a)(2)(vii) and (viii)	No	Reserved.
63.7(a)(2)(ix)	Yes.	
63.7(a)(3)	Yes.	
63.7(b)	Yes.	
63.7(c)	Yes.	
63.7(d)	Yes.	
63.7(e)(1)	No	See § 63.749(j).
63.7(e)(2) through (4)	Yes.	
63.7(f)	Yes.	
63.7(g)(1)	Yes.	
63.7(g)(2)	No	Reserved.
63.7(g)(3)	Yes.	
63.7(h)	Yes.	
63.8(a)(1) and (2)	Yes.	
63.8(a)(3)	No	Reserved.
63.8(a)(4)	Yes.	
63.8(b)	Yes.	
63.8(c)(1)(i)	No.	

TABLE 1 TO SUBPART GG OF PART 63—GENERAL PROVISIONS APPLICABILITY TO SUBPART GG—Continued

Reference	Applies to affected sources in subpart GG	Comment
63.8(c)(1)(ii)	Yes.	
63.8(c)(1)(iii)	No.	
63.8(c)(2) through (d)(2)	Yes.	
63.8(d)(3)	No.	
63.8(e)(1) through (4)	Yes.	
63.8(e)(5)(i)	Yes.	
63.8(e)(5)(ii)	No	The standards in subpart GG do not include opacity standards.
63.8(f)(1)	Yes.	
63.8(f)(2)(i) through (vii)	Yes.	
63.8(f)(2)(viii)	No	The standards in subpart GG do not include opacity standards.
63.8(f)(2)(ix)	Yes.	
63.8(f)(3) through (6)	Yes.	
63.8(g)	Yes.	
63.9(a)	Yes.	
63.9(b)(1)	Yes.	
63.9(b)(2)	Yes	§ 63.753(a)(1) requires submittal of the initial notification at least 1 year prior to the compliance date; § 63.753(a)(2) allows a title V or part 70 permit application to be substituted for the initial notification in certain circumstances.
63.9(b)(3)	Yes.	
63.9(b)(4)	Yes.	
63.9(b)(5)	Yes.	
63.9(c)	Yes.	
63.9(d)	Yes.	
63.9(e)	Yes.	
63.9(f)	No	The standards in subpart GG do not include opacity standards.
63.9(g)(1)	No.	
63.9(g)(2)	No	The standards in subpart GG do not include opacity standards.
63.9(g)(3)	No.	
63.9(h)(1) through (3)	Yes	§ 63.753(a)(1) also specifies additional information to be included in the notification of compliance status. Reserved.
63.9(h)(4)	No	
63.9(h)(5) and (6)	Yes.	
63.9(i)	Yes.	
63.9(j)	Yes.	
63.10(a)	Yes.	
63.10(b)(1)	Yes.	
63.10(b)(2)(i)	No.	
63.10(b)(2)(ii)	No	See § 63.752(a) for recordkeeping of: (1) Date, time and duration; (2) Listing of affected source or equipment and an estimate of the quantity of each regulated pollutant emitted over the standard; and (3) Actions to minimize emissions and correct the failure.
63.10(b)(2)(iii)	Yes.	
63.10(b)(2)(iv) and (v)	No.	
63.10(b)(2)(vi)	Yes.	
63.10(b)(2)(vi)(A) through (C)	No	§ 63.10(b)(vii)(A), (B) and (C) do not apply because subpart GG does not require the use of CEMS.
63.10(b)(2)(vii) through (xiv)	Yes.	
63.10(b)(3)	No.	
63.10(c)(1)	No.	
63.10(c)(2) through (4)	No	Reserved.
63.10(c)(5) and (6)	No.	
63.10(c)(7) and (8)	Yes.	
63.10(c)(9)	No	Reserved.
63.10(c)(10) through (13)	No.	
63.10(c)(14)	No	§ 63.8(d) does not apply to this subpart.
63.10(c)(15)	No.	
63.10(d)(1) and (2)	Yes.	
63.10(d)(3)	No	The standards in subpart GG do not include opacity standards.
63.10(d)(4)	Yes.	
63.10(d)(5)	No. See § 63.753 (a)(5) for malfunction reporting requirements..	
63.10(e)(1)	No.	

TABLE 1 TO SUBPART GG OF PART 63—GENERAL PROVISIONS APPLICABILITY TO SUBPART GG—Continued

Reference	Applies to affected sources in subpart GG	Comment
63.10(e)(2)(i)	No.	
63.10(e)(2)(ii)	No	The standards in subpart GG do not include opacity standards.
63.10(e)(3)	No.	
63.10(e)(4)	No	The standards in subpart GG do not include opacity standards.
63.10(f)	Yes.	
63.11	Yes.	
63.12	Yes.	
63.13	Yes.	
63.14	Yes.	
63.15	Yes.	
63.16	Yes.	

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